Regarding **claim 24**, the prior art discloses a method as claimed in claim 22, but does not explicitly disclose the method of claim 22 in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers , the inventory allotments associated with respective re-sellers having at least one common characteristic. However, the prior art reference Chatter et al does indeed disclose the aforementioned limitations (see for example paragraph [0225], to Chatter et al).

Regarding **claim 25**, the prior art discloses a method as claimed in claim 24, but does not explicitly disclose the method of claim 24 in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers. However, the prior art reference Chatter et al does indeed disclose the aforementioned limitations (see for example paragraph [0225], to Chatter et al).

Regarding claims 29-32 and 34-35 and claims 36-39 and 41-42, the language of the aforementioned claims is similar to that recited in independent claim 22, and dependent claims 23-25 and 27-28, respectively. Therefore, the system and computer program product recited in independent claims 29 and 36, respectively,

and the claims that depend therefrom, are rejected for the same reasoning as was applied to claims 22-25 and 27-28.

Allowable Subject Matter

Claims 26, 33, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Talia F. Crawley whose telephone number is (571)270-5397. The examiner can normally be reached on M-T, 6:30-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW GART can be reached on (571)272-3955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. C./
Examiner, Art Unit 3687
07/14/2012

/Scott A Zare/
Primary Examiner, Art Unit 3687

Notice of References Cited	Application/Control No. 12/227,451	Applicant(s)/Patent Under Reexamination LOCH ET AL.	
	Examiner TALIA CRAWLEY	Art Unit 3687	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0116281 A1	08-2002	Costello et al.	705/26
*	B	US-2003/0033205 A1	02-2003	Nowers et al.	705/26
*	C	US-2003/0105684 A1	06-2003	Dunn et al.	705/28
*	D	US-2004/0230503 A1	11-2004	Lucas, Michael T.	705/028
*	E	US-2005/0004818 A1	01-2005	Liman, Hartono	705/005
*	F	US-2007/0143155 A1	06-2007	Whitsett et al.	705/005
*	G	US-2007/0208630 A1	09-2007	Chatter et al.	705/026
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	Art Unit
	TALIA CRAWLEY	3687

SEARCHED

Class	Subclass	Date	Examiner
705	28	11/2/2011	TFC
	005	11/2/2011	TFC

SEARCH NOTES

Search Notes	Date	Examiner
EAST	11/1/2011	TFC
NON PATENT LITERATURE SEARCH	11/1/2011	TFC
INVENTOR AND CONTINUITY SEARCH	11/1/2011	TFC
UPDATED EAST SEARCH	7/13/2012	TFC

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

/T.C./ Examiner.Art Unit 3687	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2	("20030088616" | "20040153359").PN.	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:21
S2	0	"2004230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S3	0	"2006038010"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S4	0	"2006116936"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S5	40	"6996538"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S6	0	"2005197959"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S7	0	"2005197929"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S8	0	"20041230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S9	1	"20040230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S10	2	"20060038010"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S11	1	"20060116936"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S12	1	"20050197959"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S13	1	"20050197929"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S14	0	"200401230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S15	0	"2004230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:26
S16	0	"2002116281"	US-PGPUB;	OR	OFF	2011/11/01 15:26

			USPAT			
S17	1	"20020116281"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:27
S18	4404	705/28	USPAT	OR	OFF	2011/11/01 15:27
S19	5522	705/28	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:29
S20	11	inventory same allocat$3 same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:29
S21	1	inventory same allocat$3 same re-seller	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:30
S22	10	("20020198818" | "20030023514" | "20030040975" | "20030046130" | "20050273709" | "20070078758" | "20070208630" | "7447649" | "7610219" | "7668755").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/11/01 15:33
S23	7	inventory same allocat$3 same reseller same price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:34
S24	12424	price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:35
S25	2	S22 and S24	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:35
S26	4	(US-20030105684-$ or US-20070208630-$ or US-20040230503-$ or US-20020116281-$).did.	US-PGPUB	OR	OFF	2011/11/01 16:59
S27	12424	price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:59
S28	1	S26 and S27	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00
S29	304992	price	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00
S30	4	S26 and S29	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00
S31	0	accomodation same allotment same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:00
S32	1	accommodation same allotment same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:01
S33	3	accommodations same inventory same adjust$4 same price	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:02
S34	0	accommodations same inventory same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:05
S35	0	accommodations same seller same	US-	OR	OFF	2011/11/01

		adjust$4 same price same performance	PGPUB; USPAT			18:05
S36	0	hotel same inventory same seller same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S37	0	hotel same room same seller same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S38	0	hotel same room same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S39	1	accommodation same inventory same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S40	0	hotel same room same inventory same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:47
S41	2	hotel same room same inventory same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:47
S42	0	hotel same room same reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:52
S43	0	room same reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:52
S44	23	reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:53
S45	0	percentage same change same average same performance same indicators same sale same data	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:48
S46	13	percentage same change same average same performance same indicators	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:48
S47	57	percentage same change same performance same indicators	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:57
S48	2	percentage same change same performance same indicators.clm.	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:59
S49	3	performance same indicator same sale same inventory	US-PGPUB; USPAT	OR	OFF	2012/07/14 14:15

EAST Search History (Interference)

<This search history is empty>

7/14/2012 3:12:37 PM
C:\Users\tcrawley\Documents\EAST\Workspaces\12227451\12227451.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	Art Unit
	TALIA CRAWLEY	3687

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/01/2011	07/13/2012							
	1	-	-							
	2	-	-							
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	18	-	-							
	19	-	-							
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	21	-	-							
	22	✓	✓							
	23	✓	✓							
	24	✓	✓							
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	27	✓	✓							
	28	✓	✓							
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	32	✓	✓							
	33	✓	✓							
	34	✓	✓							
	35	✓	✓							
	36	✓	✓							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	**Art Unit**
	TALIA CRAWLEY	3687

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/01/2011	07/13/2012							
	37	✓	✓							
	38	✓	✓							
	39	✓	✓							
	40	✓	✓							
	41	✓	✓							
	42	✓	✓							

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Andrew LOCH et al.	Examiner: Talia Crawley
Serial No.: 12/227,451	Group Art Unit: 3687
Filed: December 18, 2009	Docket No.: 3158.001US1 (as amended)
Customer No.: 21186	Confirmation No.: 3275

Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS

AMENDMENT & RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Office Action dated November 10, 2011, please amend the application as follows:

This response is accompanied by a Petition, as well as the appropriate fee, to obtain a one-month extension of the period for responding to the Office Action, thereby moving the deadline for response from February 10, 2012 to March 10, 2012.

IN THE CLAIMS

Please amend the claims as follows:

1.-21. (Cancelled)

22. (Previously Presented) A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

23. (Previously Presented) A method as claimed in claim 22, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

24. (Previously Presented) A method as claimed in claim 22, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

25. (Previously Presented) A method as claimed in claim 24, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

26. (Previously Presented) A method as claimed in claim 25, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where *n* is the number of re-sellers having said at least one common characteristic, *j = 1 to n*, and Z is an adjustment rate to a price of the inventory allotment.

27. (Previously Presented) A method as claimed in claim 26, which includes the step of adjusting a price of the inventory allotments allocated to said particular re-seller by a factor of Z.

28. (Previously Presented) A method as claimed in claim 22, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

29. (Previously Presented) A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of such allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

30. (Previously Presented) A system as claimed in claim 29, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

31. (Previously Presented) A system as claimed in claim 29, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

32. (Previously Presented) A system as claimed in claim 29, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

33. (Previously Presented) A system as claimed in claim 32, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

34. (Previously Presented) A system as claimed in claim 33, in which the data processing apparatus is configured to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

35. (Previously Presented) A system as claimed in claim 29, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

36. (Currently Amended) A non-transitory computer-readable medium ~~software product~~ for managing inventory allocations, the computer-readable medium ~~software product being~~ including computer-readable instructions, which when executed by a processor, configure a computer to carry out a method comprising: ~~executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:~~

~~receives, in a data processing apparatus,~~ receiving in the computer data relating to the sale of inventory allotments allocated to respective re-sellers;

~~processes, in the data processing apparatus,~~ processing in the computer said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

~~carries~~ carrying out at least the following [[steps]] in the ~~data processing apparatus~~computer:

~~adjusts~~ adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

~~re-allocates~~ reallocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

37. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 36, in which said at least one function includes a ratio of a number of

allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

38. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 36, which includes computer-readable instructions, which, when executed by ~~a data processing apparatus,~~ the processor causes the ~~data processing apparatus~~ computer to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

39. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 36, which includes computer-readable instructions, which, when executed by ~~a data processing apparatus,~~ the processor causes the ~~data processing apparatus~~ computer to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

40. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 39, which includes computer-readable instructions, which, when executed by ~~a data processing apparatus,~~ the processor causes the ~~data processing apparatus~~ computer to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where *n* is the number of re-sellers having said at least one common characteristic, *j = 1 to n*, and Z is an adjustment rate to a price of the inventory allotment.

41. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 40, which includes computer-readable instructions, which, when executed by ~~a data processing apparatus,~~ the processor causes the ~~data processing apparatus~~ computer to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

42. (Currently Amended) ~~A software product~~ The non-transitory computer-readable medium as claimed in claim 36, which includes computer-readable instructions, which, when executed by ~~a data processing apparatus,~~ the processor causes the ~~data processing apparatus~~ computer to carry out a statistical analysis of said data relating to sales performance.

REMARKS

This responds to the Office Action dates November 10, 2011 in the above-identified application.

With this response, claims 36-42 are amended, no additional claims are canceled, and new claims are added. As a result, claims 22-42 are now pending in this application.

No new matter has been added by the amendments to claims 36-42. Claims 36-42 are amended merely to better comport the preambles of these claims with standard U.S. patent claiming conventions.

Change of Attorney Docket Number for the Application

Please amend the Attorney Docket number for the above-identified application from 2900.004us1 (the old Attorney Docket Number) to **3158.001US1** as the new Attorney Docket Number for this application.

The Rejection of Claims Under § 101

Claims 36-42 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

The 35 U.S.C. § 101 rejection of claims 36-42 is respectfully traversed.

As now amended, the preamble of independent claim 36 now includes, "A non-transitory computer-readable medium . . ."

Claims 37-42 depend from independent claim 36, and have each been amended to comport the preambles of these claims to the amendments made to independent claim 36.

It is respectfully submitted that at least as now amended, each of claims 36-42 includes statutory subject matter, and complies with the requirements of 35 U.S.C. § 101.

Therefore, reconsideration and withdrawal of the 35 U.S.C. § 101 rejection is respectfully requested.

The Rejection of Claims Under § 102

Claims 22, 23, 27 and 28 were rejected under 35 U.S.C. § 102(b) as being anticipated by Liman (US 2005/0004818).

The 35 U.S.C. § 102 rejection of claims 22-23 and 27-28 is respectfully traversed.

Claims 22-23 and 27-28 are not anticipated by Liman because Liman fails to disclose all of the subject matter included in any given one of claims 22-23 and 27-28. By way of illustration, independent claim 22 includes:

> processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

The Office Action cites Liman, with specific reference to paragraphs [0041], [0044], [0045], [0049], and [0050] in Liman, in rejecting this portion of independent claim 22. However, it is respectfully submitted that these paragraphs of Liman, and for that matter Liman in general, fail to disclose the subject matter of independent claim 22 of the present application.

In contrast to the subject matter of independent claim 22, Paragraph [0041] of Liman describes a list of a number of engines that broadly form part of an exemplary distribution system (206) for a particular travel provider, and is per se not relevant to assessing novelty of independent claim 22.

Paragraph [0044] of Liman describes an analysis engine (306) to maintain records, to analyse current and future markets, and to prepare reports for the travel provider. For example, a generated report may provide a list of reservations made with prepayment terms. The report will list unpaid reservations and their payment due dates. Thus, this report may be utilized by the travel provider accounting department to follow up on the payment matters. Further reports may highlight average room rates per category of travellers (e.g., reservations made via travel agent, other segments, or directly by guest), average room vacancies, average length of stay, etc.

However, this paragraph from Liman does not disclose "*processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for*

sale by the re-seller..." (emphasis added) as claimed in independent claim 22 of the present application.

Further, paragraphs [0045] to [0050] of Liman concern a rate management engine (312) which performs rate set up and allows changes to the rates by the travel provider. Thus, rates for each inventory category for each tier are entered and managed through the rate management engine 312. Also described in this portion of Liman is an exemplary set of agent tiers (410) within the agent grouping database (404). The agent tiers (410) each represent at least one registered travel agent. These registered travel agents are assigned to their respective agent tier 410 by the travel provider upon registration. However, the travel provider may at any time change the agent tier 410 assigned to a particular travel agent. For example, a travel agent can be initially categorized in agent tier A 410a. After six months, if this particular agent is a good support agent who makes a large volume of bookings, the travel provider can then change the agent to agent tier B 410b for better rates and allotments. Further, the number of agent tiers 410 created within the agent grouping database 404 is at the discretion of the travel provider.

Further as described in Liman, are agent tiers (410) that may be determined based on size, location, frequency of booking, or any other criteria the travel provider chooses. For example, agent tier A (410a) may represent a grouping of small European agents, agent tier B (410b) may represent a grouping of medium European agents, and agent tier C (410c) may represent a grouping of large Asian agents, and so on. Alternative, agent tier A 410a may represent a grouping of travel agents who booked over $20,000 in hotel rooms in the previous year while agent tier B (410b) may represent a grouping of travel agents who booked between $10,000 to $20,000 in hotel rooms in the previous year, and so forth. In further embodiments, the agent tier (410) may represent a single travel agent as in the case where a room allotment contract exists between this travel agent and the travel provider. The agent tier (410) assignments are at the discretion of the travel provider and may be of any desired criteria.

It follows that neither of the above paragraphs of Liman disclose for example "…in a data processing apparatus, ad*justing a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers..."* (emphasis added) based on the data relating to the sales

performance of the respective re-sellers which is based on the performance indicator as claimed in independent claim 22 of the present application.

Actually, referring to paragraph [0050] of Liman, there is explicitly indicated that adjustments of rates and allocations of allotments are at the discretion of the user, in other words done manually and based on perceptions and mental faculties of the users, which is completely contrary to the subject matter of independent claim 22.

For at least the reasons stated above, Liman fails to disclose all of the subject matter included in independent claim 22, and so independent claim 22, and claims 23 and 27-28 that depend from independent claim 22, are not anticipated by Liman, and are patentable over Liman.

The Office Action appears to be rejecting independent claims 29 and 36, and one or more of the dependent claims depending from independent claims 29 and 36, based on the "same reasoning" as was applied to claims 22-25 and 27-28.[1]

While this rejection appears to be a mixture of rejections based on both 35 U.S.C. §102 and 35 U.S.C. §103, (since for example claims 24-25 are not specifically rejected under 35 U.S.C. § 102), any such rejections are respectfully traversed, and it is respectfully submitted that for reasons analogous to those stated above with respect to independent claim 22, independent claims 29 and 36, and all claims depending from any one of independent claims 22, 29, and 36, are not anticipated by Liman, and are patentable over Liman.

Reconsideration and withdrawal of the 35 U.S.C. § 102 rejection, and allowance of all claims now pending in the application is respectfully requested.

The Rejection of Claims Under § 103

Claims 24 and 25 were rejected under 35 U.S.C. § 103(a) as being obvious over Liman (US 2005/0004818) in view of Chatter et al. (US 2007/0208630).

The 35 U.S.C. § 103(a) rejection of claims 24 and 25 is respectfully traversed.

Claims 24 and 25 are not obvious in view of the proposed combination of Liman and Chatter[2] because the proposed combination of Liman and Chatter fails to disclose or suggest all of the subject matter included in either one of claims 24 or 25.

[1] *See* the Office Action on page 7 in the last paragraph on the page.
[2] It is not admitted or agreed that any combination of Liman and Chatter is possible.

Claims 24 and 25 depend from independent claim 22, and therefore include all of the subject matter included in independent claim 22. For at least the reasons stated above, Liman fails to disclose or suggest, and in fact teaches away from, the subject matter of independent claim 22, and therefore fails to disclose or suggest all of the subject matter included in each of claims 24 and 25, and in fact teaches away from the subject matter of claims 24 and 25.

The addition of Chatter fails to remedy these deficiencies in Liman. Therefore, any proposed combination of Liman and Chatter also fails to disclose or suggest, and in fact teaches away from, the subject matter included in claims 24 and 25. Thus, claims 24 and 25 are not obvious in view of the proposed combination of Liman and Chatter, and are patentable over the proposed combination of Liman and Chatter.

Further, as noted above the Office Action appears to be rejecting independent claims 29 and 36, and one or more of the dependent claims depending from independent claims 29 and 36, based on the "same reasoning" as was applied to claims 22-25 and 27-28.[3]

Again, while this rejection appears to be a mixture of rejections based on both 35 U.S.C. §102 and 35 U.S.C. §103, any such rejections are respectfully traversed, and it is respectfully submitted that for reasons analogous to those stated above with respect to independent claim 22, independent claims 29 and 36, and all claims depending from any one of independent claims 22, 29, and 36, are not obvious in view of the proposed combination of Liman and Chatter, and are patentable over any proposed combination of Liman and Chatter.

Reconsideration and withdrawal of the 35 U.S.C. § 103 rejection, and allowance of all claims now pending in the application is respectfully requested.

Allowable Subject Matter

Claims 26, 33, and 40 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The indication of allowance of claims 26, 33, and 40 is respectfully acknowledged. Claims 26, 33, and 40 depend from independent claims 22, 29, and 36 respectively. For at least the reasons stated above with respect to independent claims 22, 29, and 36, it is respectfully

[3] See the Office Action on

submitted that claims 26, 33, and 40 are patentable over the documents cited in the Office Action as these claims are currently pending in the application.

Therefore, claims 26, 33, and 40 are not rewritten in independent form, and notification of the allowance of claims 26, 33, and 40 as they are currently pending in the application is respectfully requested.

Reservation of Rights

In the interest of clarity and brevity, every assertion made in the Office Action may not have been addressed. Silence regarding any such assertion does not constitute any admission or acquiescence. All rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference, are reserved. It is not admitted that any of the cited references or any other references of record are relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based upon the Examiner's personal knowledge, rather than any objective evidence of record as manifested by a cited prior art reference, timely objection to such reliance on Official Notice is made, and all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by MPEP § 2144.03, are reserved. All rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by MPEP § 821.04, are likewise reserved.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone the undersigned at (612) 371-2132 to facilitate prosecution of this application.

If necessary, please charge any additional fees or deficiencies, or credit any overpayments to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402--0938
(612) 371-2132

Date March 9, 2012

By /Robert B. Madden/
Robert B. Madden
Reg. No. 57,521

Electronic Patent Application Fee Transmittal

Application Number:	12227451
Filing Date:	18-Dec-2009
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Filer:	Warren D. Woessner/Nellie Nuhring
Attorney Docket Number:	2900.004US1

Filed as Large Entity

U.S. National Stage under 35 USC 371 Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	150	150

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**150**

Electronic Acknowledgement Receipt

EFS ID:	12268758
Application Number:	12227451
International Application Number:	
Confirmation Number:	3275
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Customer Number:	21186
Filer:	Warren D. Woessner/Nellie Nuhring
Filer Authorized By:	Warren D. Woessner
Attorney Docket Number:	2900.004US1
Receipt Date:	09-MAR-2012
Filing Date:	18-DEC-2009
Time Stamp:	15:05:08
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$150
RAM confirmation Number	1630
Deposit Account	190743
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		3158001US1_Response.pdf	101560 354c49267253041b7f2405185d21a19543460f9b	yes	16

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Extension of Time	2	2
Amendment/Req. Reconsideration-After Non-Final Reject	3	3
Claims	4	9
Applicant Arguments/Remarks Made in an Amendment	10	16

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	29916 288d7c7e4e7437b948644665322d531ec1c24fe0	no	2

Warnings:

Information:

Total Files Size (in bytes):	131476

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Andrew LOCH et al.

Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS

Docket No.:	3158.001US1	Serial No.:	12/227,451
Filed:	December 18, 2009	Due Date:	March 10, 2012
Examiner:	Talia Crawley	Group Art Unit:	3687
Customer No.:	21186	Confirmation No.:	3275

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

X Amendment and Response under 37 C.F.R. § 1.111 (14 pgs.)
X Petition for Extension of Time (1 pg.)
X Authorization to charge Deposit Account 19-0743 in the amount of $150.00 to cover the Extension of Time Fee.

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Robert B. Madden/
Robert B. Madden
Reg. No. 57,521

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Andrew LOCH et al.	Examiner:	Talia Crawley
Serial No.:	12/227,451	Group Art Unit:	3687
Filed:	December 18, 2009	Docket:	3158.001US1
Customer No.:	21186	Confirmation No.:	3275
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

PETITION FOR A ONE-MONTH EXTENSION OF TIME

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with the provision of 37 C.F.R § 1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the Non-Final Office Action mailed November 10, 2011, said period of response being extended from February 10, 2012 to March 10, 2012.

Please charge Deposit Account No. 19-0743 in the amount of $150.00 to cover the required extension fee. Please charge any additional fees or credit overpayment to deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2132

Date March 9, 2012 By /Robert B. Madden/

Robert B. Madden
Reg. No. 57,521

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/227,451	12/18/2009	Andrew Loch	2900.004US1	3275

21186 7590 11/10/2011

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

EXAMINER	
CRAWLEY, TALIA F	

ART UNIT	PAPER NUMBER
3687	

NOTIFICATION DATE	DELIVERY MODE
11/10/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@slwip.com
request@slwip.com

Office Action Summary	Application No.	Applicant(s)	
	12/227,451	LOCH ET AL.	
	Examiner	Art Unit	
	TALIA CRAWLEY	3687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-42* is/are pending in the application.

5a) Of the above claim(s) *1-21* is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *22-42* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *18 November 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20081118*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 36-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 36 recites “a software product for managing inventory allocations.” Claim 36 recites no physical structure, and therefore is simply a computer program per se.

Further, since applicant has left the term "software product” open for interpretation, the Examiner must interpret the computer readable media under the broadest reasonable interpretation in light of other disclosures regarding computer readable media found in the art. Such interpretations include physical media such as ROM or RAM and other program memory. On the other hand, many other disclosures related to computer readable media include transitory mediums such as electromagnetic waves or signals. As such, the claims are interpreted to recite the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Merely claiming nonfunctional descriptive material (i.e. abstract ideas) as a software product

does not make a claim statutory. See Diehr, 450 U.S. at 185-86 USPQ at 8. Moreover, a claimed signal does not itself have physical structure nor does a claimed signal perform any useful, concrete, or tangible result. Thereby, a signal, which is a form of energy and an abstract idea, does not fall within one of the four statutory classes of subject matter.

Applicant is further encouraged to amend claim 36 to include tangible structure. Applicant is encouraged to amend claim 36 to limit the claim language to only tangible embodiments of computer readable media, and may look to the Memo entitled 'Subject Matter Eligibility of Computer Readable Media' written by Director Kappos on 26 January 2010 (<http://www.uspto.gov/patents/law/notices/101_crm_20100127.pdf>). Such as '5. A non-transitory computer-readable medium …'.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 22, 23, 27, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Liman (US 2005/0004818).

Regarding **claim 22**, the prior art discloses a method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers (see for example paragraph [0004], to Liman);

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller (see for example paragraphs [0041], [0044], [0045], [0049], and [0050]. to Liman); and

carrying out at least the following steps in the data processing apparatus: adjusting a price for which inventory allotments allocated to at least that said respective re-seller is

to be sold by that respective re-seller (see for example paragraphs [0044], [0045], and [0049], to Liman); and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers (see for example paragraphs [0041], [0044], [0045], [0049], and [0050]. to Liman).

Regarding **claim 23**, the prior art discloses a method as claimed in claim 22, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller (see for example paragraph [0051], to Liman).

Regarding **claim 27**, the prior art discloses a method as claimed in claim 26, which includes the step of adjusting a price of the inventory allotments allocated to said particular re-seller by a factor of Z (see for example paragraphs [0044] and [0045], to Liman).

Regarding **claim 28**, the prior art discloses a method as claimed in claim 22, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance (see for example paragraphs [0041] and [0044],

to Liman).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liman (US 2005/0004818) in view of Chatter et al (US 2007/0208630).

Regarding **claim 24**, the prior art discloses a method as claimed in claim 22, but does not explicitly disclose the method of claim 22 in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers , the inventory allotments associated with respective re-sellers having at least one common characteristic. However, the prior art reference Chatter et al does indeed disclose the aforementioned limitations (see for example paragraph [0225], to Chatter et al).

Regarding **claim 25**, the prior art discloses a method as claimed in claim 24, but does not explicitly disclose the method of claim 24 in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers. However, the prior art reference Chatter et al does indeed disclose the aforementioned limitations (see for example paragraph [0225], to Chatter et al).

Regarding claims 29-32 and 34-35 and claims 36-39 and 41-42, the language of the aforementioned claims is similar to that recited in independent claim 22, and dependent claims 23-25 and 27-28, respectively. Therefore, the system and computer program product recited in independent claims 29 and 36, respectively, and the claims that depend therefrom, are rejected for the same reasoning as was applied to claims 22-25 and 27-28.

Allowable Subject Matter

Claims 26, 33, and 40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- The Examiner has considered all references listed on the Notice of References Cited, form 892.
- The Examiner has considered all references cited on the Information Disclosure Statement submitted by Applicant, form 1449.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Talia F. Crawley whose telephone number is (571)270-5397. The examiner can normally be reached on M-T, 6:30-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TALIA CRAWLEY can be reached on (571)270-5397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/T. C./
Examiner, Art Unit 3687
11/01/2011

/Matthew S Gart/

Supervisory Patent Examiner, Art Unit 3687

Notice of References Cited	Application/Control No. 12/227,451	Applicant(s)/Patent Under Reexamination LOCH ET AL.	
	Examiner TALIA CRAWLEY	Art Unit 3687	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0116281 A1	08-2002	Costello et al.	705/26
*	B	US-2003/0033205 A1	02-2003	Nowers et al.	705/26
*	C	US-2003/0105684 A1	06-2003	Dunn et al.	705/28
*	D	US-2004/0230503 A1	11-2004	Lucas, Michael T.	705/028
*	E	US-2005/0004818 A1	01-2005	Liman, Hartono	705/005
*	F	US-2007/0143155 A1	06-2007	Whitsett et al.	705/005
*	G	US-2007/0208630 A1	09-2007	Chatter et al.	705/026
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	**Art Unit**
	TALIA CRAWLEY	3687

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/01/2011								
	1	-								
	2	-								
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	4	-								
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	30	✓								
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	32	✓								
	33	✓								
	34	✓								
	35	✓								
	36	✓								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	**Art Unit**
	TALIA CRAWLEY	3687

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/01/2011								
	37	✓								
	38	✓								
	39	✓								
	40	✓								
	41	✓								
	42	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	percentage same change same average same performance same indicators same sale same data	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:48
L2	13	percentage same change same average same performance same indicators	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:48
L3	57	percentage same change same performance same indicators	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:57
L4	2	percentage same change same performance same indicators.clm.	US-PGPUB; USPAT	OR	OFF	2011/11/02 11:59
S1	2	("20030088616" | "20040153359").PN.	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:21
S2	0	"2004230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S3	0	"2006038010"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S4	0	"2006116936"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:23
S5	40	"6996538"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S6	0	"2005197959"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S7	0	"2005197929"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:24
S8	0	"20041230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S9	1	"20040230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S10	2	"20060038010"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S11	1	"20060116936"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S12	1	"20050197959"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25

S13	1	"20050197929"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S14	0	"200401230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:25
S15	0	"2004230503"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:26
S16	0	"2002116281"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:26
S17	1	"20020116281"	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:27
S18	4404	705/28	USPAT	OR	OFF	2011/11/01 15:27
S19	5522	705/28	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:29
S20	11	inventory same allocat$3 same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:29
S21	1	inventory same allocat$3 same re-seller	US-PGPUB; USPAT	OR	OFF	2011/11/01 15:30
S22	10	("20020198818" | "20030023514" | "20030040975" | "20030046130" | "20050273709" | "20070078758" | "20070208630" | "7447649" | "7610219" | "7668755").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2011/11/01 15:33
S23	7	inventory same allocat$3 same reseller same price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:34
S24	12424	price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:35
S25	2	S22 and S24	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:35
S26	4	(US-20030105684-$ or US-20070208630-$ or US-20040230503-$ or US-20020116281-$).did.	US-PGPUB	OR	OFF	2011/11/01 16:59
S27	12424	price same adjust$4	US-PGPUB; USPAT	OR	OFF	2011/11/01 16:59
S28	1	S26 and S27	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00
S29	304992	price	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00
S30	4	S26 and S29	US-PGPUB; USPAT	OR	OFF	2011/11/01 17:00

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Uber Technologies, Inc. v. SurgeTech, LLC

S31	0	accomodation same allotment same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:00
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S33	3	accommodations same inventory same adjust$4 same price	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:02
S34	0	accommodations same inventory same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:05
S35	0	accommodations same seller same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:05
S36	0	hotel same inventory same seller same adjust $4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S37	0	hotel same room same seller same adjust$4 same price same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S38	0	hotel same room same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S39	1	accommodation same inventory same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 18:06
S40	0	hotel same room same inventory same reseller same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:47
S41	2	hotel same room same inventory same reseller	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:47
S42	0	hotel same room same reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:52
S43	0	room same reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:52
S44	23	reseller same sales same performance	US-PGPUB; USPAT	OR	OFF	2011/11/01 20:53

EAST Search History (Interference)

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Uber Technologies, Inc. v. SurgeTech, LLC

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BIB DATA SHEET

CONFIRMATION NO. 3275

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/227,451	12/18/2009	705	3687	2900.004US1

APPLICANTS

Andrew Loch, Queensland, AUSTRALIA;
Helen Johnson, Queensland, AUSTRALIA;
Geoffrey Toogood, Queensland, AUSTRALIA;
Daniel Paul Ruul, Queensland, AUSTRALIA;

**** CONTINUING DATA ***************************

This application is a 371 of PCT/AU2007/000684 05/18/2007

**** FOREIGN APPLICATIONS ***************************

AUSTRALIA 2006902685 05/18/2006

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****

05/07/2009

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /TALIA F CRAWLEY/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		AUSTRALIA	5	21	3

ADDRESS

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402
UNITED STATES

TITLE

Management of inventory allocations

FILING FEE RECEIVED		
1162	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12227451	LOCH ET AL.
	Examiner	Art Unit
	TALIA CRAWLEY	3687

SEARCHED

Class	Subclass	Date	Examiner
705	28	11/2/2011	TFC
	005	11/2/2011	TFC

SEARCH NOTES

Search Notes	Date	Examiner
EAST	11/1/2011	TFC
NON PATENT LITERATURE SEARCH	11/1/2011	TFC
INVENTOR AND CONTINUITY SEARCH	11/1/2011	TFC

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

/T.C./ Examiner.Art Unit 3687	

Receipt date: 11/18/2008

PTO/SB/08A(10-01)
Approved for use through 10/31/2002. OMB 651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	Unknown 12/227451
Filing Date	Even Date Herewith
First Named Inventor	LOCH, Andrew
Group Art Unit	Unknown
Examiner Name	Unknown

Sheet 1 of 1

Attorney Docket No: 2900.004US1

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Filing Date If Appropriate
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Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	T[2]
	GB-2302427	01/15/1997	Kennedy, B. M.	
	WO-01/67356A1	09/13/2001	Lucas, M.	
	WO-01/82135A1	11/01/2001	Newell, G. S., et al.	
	WO-01/84278A2	11/08/2001	Kohn, R. D., et al.	
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	WO-2005/010675A2	02/03/2005	Ramakrishnan, V. S.	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"International Application Serial No. PCT/AU2007/000684, International Preliminary Report on Patentability mailed 04-28-2008", 9 pgs.	
		"International Application Serial No. PCT/AU2007/000684, International Search Report mailed 08-03-2007", 3 pgs.	

EXAMINER /Talia Crawley/ DATE CONSIDERED 11/01/2011

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.C./

PLUS Search Results for S/N 12227451, Searched Thu Jan 06 07:26:03 EST 2011

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/227,451	12/18/2009	Andrew Loch	2900.004US1

CONFIRMATION NO. 3275

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

PUBLICATION NOTICE

OC000000044680909

Title: Management of inventory allocations

Publication No.US-2010-0299181-A1
Publication Date:11/25/2010

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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Uber Technologies, Inc. v. SurgeTech, LLC

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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
12/227,451	Andrew Loch	2900.004US1

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

INTERNATIONAL APPLICATION NO.	
PCT/AU2007/000684	
I.A. FILING DATE	PRIORITY DATE
05/18/2007	05/18/2006

CONFIRMATION NO. 3275
371 ACCEPTANCE LETTER

OC000000043016569

Date Mailed: 08/16/2010

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

12/18/2009	12/18/2009
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS	DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** *The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363).* Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 11/18/2008
- Copy of the International Search Report filed on 11/18/2008
- Copy of IPE Report filed on 11/18/2008
- Preliminary Amendments filed on 11/18/2008
- Information Disclosure Statements filed on 11/18/2008
- Oath or Declaration filed on 12/18/2009
- Request for Immediate Examination filed on 11/18/2008
- U.S. Basic National Fees filed on 11/18/2008
- Priority Documents filed on 11/18/2008

FORM PCT/DO/EO/903 (371 Acceptance Notice)

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

CHARITTA A SHELTON

Telephone: (703) 756-1471

Uber Exhibit 1002 - p. 797
Uber Technologies, Inc. v. SurgeTech, LLC

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/227,451	12/18/2009	3623	1162	2900.004US1	21	3

CONFIRMATION NO. 3275

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

FILING RECEIPT

OC000000043016568

Date Mailed: 08/16/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Andrew Loch, Queensland, AUSTRALIA;
Helen Johnson, Queensland, AUSTRALIA;
Geoffrey Toogood, Queensland, AUSTRALIA;
Daniel Paul Ruul, Queensland, AUSTRALIA;

Assignment For Published Patent Application

Allotz.com Limited, Bundall, QLD, AUSTRALIA

Power of Attorney: The patent practitioners associated with Customer Number 21186

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/AU2007/000684 05/18/2007

Foreign Applications

AUSTRALIA 2006902685 05/18/2006

If Required, Foreign Filing License Granted: 05/07/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/227,451**

Projected Publication Date: 11/25/2010

Non-Publication Request: No

Early Publication Request: No

Uber Exhibit 1002 - p. 798
Uber Technologies, Inc. v. SurgeTech, LLC

Title

Management of inventory allocations

Preliminary Class

705

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set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

Uber Exhibit 1002 - p. 800
Uber Technologies, Inc. v. SurgeTech, LLC

UNITED STATES PATENT and TRADEMARK OFFICE

22 JUL 2010

COMMISSIONER FOR PATENTS
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ALEXANDRIA, VA 22313-1450
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SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS MN 55402

In re Application of	:	DECISION ON
LOCH et al	:	
Application No: 12/227,451	:	
PCT No.: PCT/AU2007/00684	:	
Int. Filing Date: 18 May 2007	:	PETITION UNDER
Priority Date: 18 May 2006	:	
Attorney's Docket No.: 2900.004US1	:	
For: THE MANAGEMENT OF INVENTORY ALLOCATIONS	:	37 CFR 1.47(a)

This is in response to the "RENEWED PETITION UNDER 37 CFR 1.47(a)" filed on 18 December 2009 that seeks the acceptance of the application without the signature of the inventor Daniel Paul Ruul.

BACKGROUND

In a decision from this Office on 21 October 2009, the petition filed on 20 August 2009 was dismissed. The decision stated that item (2) of 37 CFR 1.47 was not met.

On 18 December 2009, petitioner filed the present renewed petition accompanied with declarations from Barry Eager and Tom Taggart.

DISCUSSION

A petition under 37 CFR 1.47(a) must be accompanied by (1) the fee under 37 CFR 1.17(h), (2) factual proof that the missing joint inventor refuses to execute the application or cannot be reached after diligent effort, (3) a statement of the last known address of the missing inventor, and (4) an oath or declaration by each 37 CFR 1.47(a) applicant on his or her own behalf and on behalf of the non-signing joint inventor.

The renewed petition of 18 December 2009 has satisfied the items under 37 CFR 1.47(a).

Item (2) has been satisfied. The renewed petition is accompanied by a declaration of Barry Eager, who states that a google and a telephone directory search were conducted to locate any additional information regarding Daniel Paul Ruul. The additional searches did not result in any new contact information. In addition, the declaration of Tom Taggart, a co-worker of Ruul, contact him by email and Ruul indicated that to "... just leave me alone..."

Accordingly, the steps enumerated are sufficient to establish that Mr. Ruul could not be found or reached after diligent effort.

Petitioner has now satisfied items (1), (2), (3), and (4) under 37 CFR 1.47(a), thus completing the requirements under 37 CFR 1.47(a).

CONCLUSION

The petition under 37 CFR 1.47(a) is **GRANTED**.

This application is being returned to the United States Designated/Elected Office (DO/EO/US) for continued processing under 35 U.S.C. 371.

As provided in 37 CFR 1.47(a), a notice of the filing of this application will be forwarded to the non-signing inventor at his last known address of record.

A notice of the filing of the application under 37 CFR 1.47(a) will be published in the Official Gazette.

Rafael Bacares
PCT Legal Examiner
PCT Legal Office
Telephone: (571) 272-3276
Facsimile: (571) 273-0459

UNITED STATES PATENT and TRADEMARK OFFICE

22 JUL 2010

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

Mr. Daniel Paul Ruul
Unit 6, 35 McMillan Street, Labrador
QLD Australia 4215

In re Application of
LOCH et al
Application No: 12/227,451
PCT No.: PCT/AU2007/00684
Int. Filing Date: 18 May 2007
Priority Date: 18 May 2006
Attorney's Docket No.: 2900.004US1
For: THE MANAGEMENT OF INVENTORY ALLOCATIONS

Dear: Mr. Ruul

You are named as an inventor in the above identified United States patent application, filed under the provisions of 37 CFR 1.47(a) and 35 U.S.C. 116. Should a patent be granted, you will be designated as an inventor.

As a named inventor, you are entitled to inspect any paper in the file wrapper of the application, order copies of all or any part thereof (at a prepaid cost per 37 CFR 1.19) or to make your position of record in the application. Alternatively, you may arrange to do any of the preceding through a registered patent agent or attorney presenting written authorization from you. If you care to join in the application, counsel of record (see below) would presumably assist you. Joining in the application would entail the filing of an appropriate oath or declaration by you pursuant to 37 CFR 1.63.

Rafael Bacares
PCT Legal Examiner
PCT Legal Office
Telephone: (571) 272-3276
Facsimile: (571) 273-0459

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS MN 55402

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Rafael Bacares
Serial No.:	12/227,451	Group Art Unit: 3625
Filed:	November 18, 2008	Docket No.: 3158.001us1 (Originally 2900.004US1)
Customer No.: 21186		Confirmation No.: 3275
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS	

RENEWED PETITION UNDER 37 CFR 1.47(a)

Mail Stop PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Attention: Office of PCT Legal Administration

Pursuant to 37 C.F.R. § 1.47(a) and 35 U.S.C. § 118, Assignee's undersigned representative (hereinafter "Petitioner") submits this Renewed Petition seeking permission to file a Combined Declaration and Power of Attorney signed by other than all of the inventors in the above-identified patent application (hereinafter the "Application"), without the signature of Daniel Paul Ruul, a joint inventor of the Application, who is either refusing to sign the Combined Declaration and Power of Attorney, or who cannot be contacted and is refusing to sign after diligent effort. The last known address for Daniel Paul Ruul is Unit 6, 35 McMillan Street, Labrador, QLD Australia 4215.

A Petition (hereinafter "Original Petition") was originally submitted in the present Application under 37 CFR 1.47(b) on August 20, 2009. Petitioner agrees that this should have been submitted under 37 CFR 1.47(a). The Original Petition was DISMISSED without prejudice. Petitioner now submits this Renewed Petition under 37 CFR 1.47(a) to incorporate all of the materials included in the Original Petition, and to add additional evidence to show that the Petition should be granted in favor of the Petitioner.

This Renewed Petition under 37 CFR 1.47(a) is accompanied by:

(1) the fee under 37 CFR 1.17(g);

(2) factual proof that the inventor either refuses to execute the Declaration for the present Application, or cannot be reached after diligent effort, including:

"DECLARATION OF PATRICK O'NEILL IN SUPPORT OF RULE 1.47(b) PETITION;"

"DECLARATION OF TOM TAGGART IN SUPPORT OF RULE 1.47(a) PETITION;" and

"DECLARATION OF BARRY EAGAR IN SUPPORT OF RULE 1.47(a) PETITION."

(3) a statement of the last known address of the inventor;

(4) an oath or declaration by the 37 CFR 1.47(a) applicant on behalf of and as agent for the non-signing inventor;

(5) proof that the 37 CFR 1.47(a) assignee has sufficient proprietary interest in the present Application; and

(6) a showing that such action is necessary to preserve the rights of the assignee, or to prevent irreparable damage.

(7) Appendixes A, B, C, and D.

(8) Annexure B, C, D, E, and F.

1) The Fee Under 37 CFR 1.17(g)

Petitioner grants Authorization to charge Deposit Account 19-0743 in the amount an amount of $200.00, if such is required, under 37 C.F.R. §1.17(g). If additional fees or credits should exist, please debit or credit Deposit Account No. 19-0743 in the appropriate amount.

2) Factual Proof that the Inventor Is Uncooperative

The present Application (U.S. patent application serial number 12/227,451) is a U.S. National Stage filing under 35 U.S.C. §371 from International Application No. PCT/AU2007/000684 filed May 18, 2007 and published as WO 2007/1343709 A1 on November

29, 2007, which claims priority from Australian Application No. 2006902685, filed May 18, 2006.

Previously submitted evidence from the Original Petition.

The Original Petition included a document titled "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition," filed even date with the Original Petition, and included a listing of facts related to the diligent effort made to reach inventor Daniel Paul Ruul in order to obtain his signature on the above-identified Combined Declaration and Power of Attorney.

The Original Petition provided documents showing evidence of attempts to contact Daniel Paul Ruul using a combination of emails, telephone calls, and certified mail, all directed to the last known applicable contact information for each of these type communications. Petitioner maintains and incorporates all of this evidence in the Renewed Petition as filed herein, including the above mentioned "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition," and the documents submitted in the Original Petition as Appendix A, B, C, and D.

In dismissing the Original Petition, one of the grounds used for the dismissal was that, in the opinion of the response dismissing the Original Petition - it was unclear who performed one or more of the actions listed in the "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition," However, Petitioner respectfully notes that in the "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition" it is stated:

> "On 30 July 2009, at approximately 11h02, I telephoned Daniel Paul Ruul on his last know landline number but the dialed number was not operative."

The Declaration further states:

> "On 30 July 2009, at approximately 11h06, I telephoned Daniel Paul Ruul on his last know cell phone number only to receive a message 'The services which you have called is not connected'."

Thus, this provides first-hand evidence of attempts by Patrick O'Neill to reach Daniel Paul Ruul at his last known phone numbers, Therefore, at least with respect to these facts, is <u>not</u> unclear who performed these tasks.

Also provided in the Original Petition is a copy of the certified letter sent to Mr. Daniel Paul Ruul at his last known address (see Appendix "C"). As provided in the Original Petition, a copy of the returned registered letter, marked "NOT AT THIS ADDRESS. PLEASE RETURN TO SENDER." and included as Appendix "D", provides first-hand evidence that Patrick O'Neill, believed that a registered letter addressed to the last know address of Daniel Paul Ruul was sent to, and returned from, the last known address of Daniel Paul Ruul.

Additional Evidence provided in the Renewed Petition.

Additional evidence is provided in the Renewed Petition regarding communications with Daniel Paul Ruul, and efforts to further contact Daniel Paul Ruul. As described in the "Declaration of Tom Taggart in Support of Rule 1.47(a) Petition", included with this Renewed Petition, Mr. (Tom) Taggart was initially successful in contacting Daniel Paul Ruul by both email and telephone. For example, as provided in Annexure B, Mr. Taggart sent Daniel Paul Ruul an email on June 12, 2009, to which Daniel Paul Ruul responded on June 13, 2009 (see Annexure C). Mr. Taggart responded to this reply from Daniel Paul Ruul using another email on June 15, 2009, wherein this email included attachments including a copy of the Declaration to be signed by Daniel Paul Ruul (see Annexure D). The email from Mr. Taggart was followed by another email from Mr. Taggart to Daniel Paul Ruul on June 16, 2009 (see Annexure E).

As also presented in the "Declaration of Tom Taggart in Support of Rule 1.47(a) Petition," Mr. Taggart received a phone call from Daniel Paul Ruul on Friday June 12, 2009. During the phone call, Daniel Paul Ruul admitted that he had received Mr. Taggart's email, and was willing to meet with Mr. Taggart on June 15, 2009. As shown by the email in Annexure C, Daniel Paul Ruul appears to have cancelled the meeting, via an email message sent to Mr. Taggart. After the June 12, 2009 phone call, and following the email response on June 13, 2009, no further responses were received from Daniel Paul Ruul.

As a follow-up, in July of 2009, as further indicated in the "Declaration of Tom Taggart Support of Rule 1.47(a) Petition," Mr. Taggart personally went to the last known address of Daniel Paul Ruul, found the residence to be dark, and after knocking on the door, did not have anyone answer. Mr. Taggart then left the residence.

As shown in the "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition," follow-up attempts to contact Daniel Paul Ruul by phone and by email toward the end of July 2009 were unsuccessful.

At that time, the Original Petition in this Application was filed on August 20, 2009. Following the dismissal of the Original Petition, additional efforts were made to locate and contact Daniel Paul Ruul.

As shown in the "Declaration of Barry Eagar in Support of Rule 1.47(a) Petition," a Google search was conducted to locate any additional information regarding Daniel Paul Ruul. In addition, a search of the area telephone directory was conducted. These additional searches did not result in any new contact information related to Daniel Paul Ruul.

In addition, as described in the "Declaration of Tom Taggart in Support of Rule 1.47(a) Petition," co-workers of Daniel Paul Ruul were contacted regarding any knowledge regarding the whereabouts of Daniel Paul Ruul. On December 11, 2009 Mr. Taggart asked if Geoff Toogood, a co-worker of Daniel Paul Ruul, had any communications with Daniel Paul Ruul. Mr. Toogood indicated that he did, and agree to contact Daniel Paul Ruul via email. Again, as indicated in the "Declaration of Tom Taggart Support of Rule 1.47(a) Petition," Mr. Toogood reported back to Mr. Taggart via a messaging service on 16 December 2009, indicating that he had contacted Daniel Paul Ruul, and according to Mr. Toogood, Daniel Paul Ruul indicated that he wanted to be left alone and wanted to put his past behind him.

According to Mr. Toogood, Daniel Paul Ruul stated: "please if you have any respect left for me geoff, just leave me alone . . . "

Based on these facts, Petitioner submits that Daniel Paul Ruul can not be located, and chooses not to respond to Petitioner's requests for cooperation in signing the Declaration in the present Application.

On these facts, Petitioner respectfully submits that a proper showing has been provided to prove that the Daniel Paul Ruul is either uncooperative, or cannot be reached after diligent effort.

Petitioner respectfully submits that the foregoing facts, as supported by the attached documents, establish *bona fide* attempts to comply with the provisions of Rule 1.47, and accordingly, request that this Petition be granted.

3) Statement of Last Known Addresses

The last known address for Daniel Paul Ruul is Unit 6, 35 McMillan Street, Labrador, QLD Australia 4215.

4) An Oath or Declaration

In accordance with M.P.E.P. § 409.03(a), a Combined Declaration and Power of Attorney document is enclosed, signed by all the available joint inventors.

5) Proof of Assignment

Included herewith is Appendix A, a copy of the Product Development Deed, signed by Daniel Paul Ruul, and which indicates that inventor Daniel Paul Ruul has agreed in writing to assign any invention(s), including patents, related to any and all of the subject matter included in the Application to the Assignee Allotz.com Limited.

6) A Showing that such Action is Necessary

To support a showing that such action is necessary, Petitioner has provided, as included in the above-identified Declarations by Patrick O'Neill, by Tom Taggart, and by Barry Eagar statements that the above-identified Assignee will be irreparably damaged if the Petition is not granted.

CONCLUSION

The Renewed Petitioner respectfully submits that based on the above, the Assignee has been unable to obtain the omitted inventor Daniel Paul Ruul's signature on a Combined Declaration and Power of Attorney pursuant to 37 C.F.R. § 1.65 for the Application. In addition, Petitioner respectfully reiterates the Assignee's statements and conclusions that the present Petition is necessary to preserve its rights of the Assignee, to avoid further extension fees, and to prevent irreparable harm by the loss of valuable patent rights.

Petitioner submits that the foregoing facts establish a *bona fide* attempt to comply with the provisions of Rule 1.47, and, accordingly, request that this Petition be granted.

The Examiner is invited to telephone Applicant's undersigned attorney at (612) 371-2132 to facilitate prosecution of the Application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2132

Date December 18, 2009 By /Robert B. Madden/
Robert B. Madden
Reg. No. 57,521

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to:, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 18th day of December, 2009.

/Jonathan Ferguson/

Jonathan Ferguson

SCHWEGMAN ■ LUNDBERG ■ WOESSNER

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: **THE MANAGEMENT OF INVENTORY ALLOCATIONS,**

the specification of which was filed on November 18, 2008 as application serial no. 12/227,451 and was amended on November 18, 2008.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability of this application in accordance with 37 C.F.R. § 1.56 (attached hereto). I also acknowledge my duty to disclose all information known to be material to patentability which became available between a filing date of a prior application and the national or PCT international filing date in the event this is a Continuation-In-Part application in accordance with 37 C.F.R. § 1.63(e).

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

Foreign application(s), if any, claiming priority under 35 U.S.C. § 119:

Application Number	Country	Day/Month/Year Filed
2006902685	Australia	18/05/2006

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

No such claim for priority is being made at this time.

I hereby claim the benefit under 35 U.S.C. § 120 or 365(c) of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. § 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Number	Filing Date	Status
PCTAU2007000684	May 18, 2007	Published

I hereby appoint the attorneys associated with the customer number listed below to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Customer Number: 21186

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization/who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Schwegman, Lundberg & Woessner, P.A. to the contrary.

Please direct all correspondence in this case to **Schwegman, Lundberg & Woessner, P.A.** at the address indicated below:
Customer Number. 21186

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of joint inventor number 1 : **Andrew Loch**
Citizenship: **Australia** Residence: **Worongary, QLD Australia**
Post Office Address: 37 Quambone Street
Worongary, QLD 4213
Australia

Signature: _____ Date: 17/12/2009
Andrew Loch

Full Name of joint inventor number 2 : **Helen Johnson**
Citizenship: **Australia** Residence: **Red Hill, QLD Australia**
Post Office Address: 26 Thorn Street
Red Hill, QLD 4059
Australia

Signature: _____ Date: 18/12/09
Helen Johnson

Full Name of joint inventor number 3 : **Geoffrey Toogood**
Citizenship: **Australia** Residence: **Greenslopes, QLD Australia**
Post Office Address: 83 Renman Street
Greenslopes, QLD 4120
Australia

Signature: _____ Date: 17/12/2009
Geoffrey Toogood

X Additional inventors are being named on separately numbered sheets, attached hereto.

Full Name of joint inventor number 4 : **Daniel Paul Ruul**
Citizenship: **Australia** Residence: **Labrador, QLD Australia**
Post Office Address: Unit 6, 35 McMillan Street
Labrador, QLD 4215
Australia

Signature: _____ Date: _____
Daniel Paul Ruul

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application:

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Unknown	
Serial No.:	12/227,451	Group Art Unit: 3625	
Filed:	November 18, 2008	Docket No.: 2900.004US1	
Customer No.:	21186	Confirmation No.: 3275	
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

DECLARATION OF PATRICK O'NEILL IN SUPPORT OF RULE 1.47(b) PETITION

Commissioner for Patents
P.O. Box 1450
Alexandria , VA 22313-1450

I, Patrick Willem O'Neill, of 13 Murphy Street, Calamvale, Queensland, Australia-, declare as follows:

1. I am a permanent resident of Australia and employed as a technical assistant by Cullens, Patent and Trade Mark Attorneys of level 32, 239 George Street, Brisbane, Australia, 4000.

2. Cullens are the Australian patent attorneys for Allotz.com Limited ['Allotz'] the assignee of the invention of the above-identified application, and are authorized to act on behalf of Allotz.

3. Allotz believes that it is the beneficial owner of the proprietary interest in U.S. Patent Application Serial No. 12/227,451 ['the Application'].

4. At the request of Allotz, Cullens instructed its US associate attorney to file the Application.

5. Allotz has advised Cullens that it believes that the inventors of the invention of the Application are Andrew Loch, Helen Johnson, Geoffrey Toogood and Daniel Paul Ruul.

6. Andrew Loch, Helen Johnson and Geoffrey Toogood have signed a Declaration and Power of Attorney for the Application, as well as a Deed of Assignment for the invention thereof.

7. The inventor Daniel Paul Ruul is uncooperative and is unable to execute any Declaration and Power of Attorney papers associated with any U.S. Patent Application.

8. By a Product Development Deed dated 9 May 2006 between Daniel Paul Ruul and Allotz, a copy of which is attached hereto as Annex A, Daniel Paul Ruul

8.1 assigned to Allotz all present and future Intellectual Property created by him, and

8.2. undertook to sign all documents requested by Allotz or its attorneys to secure Allotz's ownership or rights in the Intellectual Property.

The term 'Intellectual Property' was defined to include inventions (including patents).

9. On 30 July 2009, at the request of Allotz, Cullens sent a letter by prepaid registered mail addressed to Daniel Paul Ruul using his last address known to Allotz, a copy of which is attached hereto as Annex B, in which Cullens explained the history of the Application, and enclosed:

9.1. a copy of the Product Development Deed;

9.2. a combined declaration in support of the Application (with a copy of the specification of the Application being attached to the declaration) and power of attorney in favour of our US associate attorney; and

9.3. a confirmatory assignment of his rights in the invention of the Application.

10. In that letter, Daniel Paul Ruul was asked to review the Declaration/Power of Attorney, the specification (which included the drawings and claim set) and the assignment.

11. In that letter, Daniel Paul Ruul was also asked to sign and return the Declaration/Power of Attorney and the assignment.

12. On 30 July 2009, at approximately 11h02, I telephoned Daniel Paul Ruul on his last known landline number but the dialed number was not operative.

13. On 30 July 2009, at approximately 11h06, I telephoned Daniel Paul Ruul on his last known cell phone number only to receive a message "The service which you have called is not connected".

14. On 31 July 2009, at approximately 10h09, a copy of the letter and enclosures referred to in item 9 hereinabove was sent to the last known e-mail address of Daniel Paul Ruul. A copy of the emails attaching the letter and enclosures are attached hereto as Annex C.

15. On 7 August 2009, the registered letter was returned to Cullens marked 'NOT AT THIS ADDRESS. PLEASE RETURN TO SENDER.' The date stamp is evident on the letter attached hereto as Annex B and a copy of the envelope marked with the message is attached hereto as Annex D.

16. No response has been received to date from Daniel Paul Ruul in respect of the email which was sent to him.

17. The rights of Allotz will be irreparably damaged if this Petition under 37 C.F.R. 1.47(b) is not granted because Allotz will loose any rights which it may have in the Application as well as any protection which may be provided to Allotz as a result of the existence of the Application. Allotz will also loose the opportunity to attempt to prosecute the Application to registration.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any United States patent issued thereon.

Date: 19 August 2009

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Unknown
Serial No.:	12/227,451	Group Art Unit: 3625
Filed:	November 18, 2008	Docket No.: 3158.001us1 (Originally 2900.001us1)
Customer No.: 21186		Confirmation No.: 3275
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS	

DECLARATION OF TOM TAGGART IN SUPPORT OF RULE 1.47(a) PETITION

Commissioner for Patents
P.O. Box 1450
Alexandria , VA 22313-1450

I, Tom Taggart of Unit 39/24 Hamilton Avenue, Surfers Paradise, 4217, Australia declare as follows:

1. I am the Chief Executive Officer of Allotz Limited (Allotz), the assignee of intellectual property (Intellectual Property) developed by Daniel Paul Ruul, (Daniel) as defined in the Product Development Deed (Deed) annexed hereto as Annexure A.
2. Daniel is, to the best of my knowledge, an inventor of the invention described in United States patent application number 12/227 4514 The Management of Inventory Allocations (Application).
3. The agreement was executed on May 9, 2006 by Daniel and on behalf of Allotz.
4. The purpose of the agreement was to establish a business relationship between Allotz and Daniel so that certain software products could be developed by Daniel on behalf of Allotz, while maintaining ownership of intellectual property developed by Daniel for Allotz.
5. My understanding of paragraph 7 is that the Intellectual Property developed by Daniel during development of the software is owned by Allotz. In particular, paragraph 7.3 places an obligation on Daniel, as far as I'm aware, to

execute any documents necessary to permit Allotz to secure its rights in the Intellectual Property anywhere in the world.

6. In about January 2007, it appeared that Daniel was no longer able to perform his duties and obligations in terms of the Agreement. As a result, Daniel was released from his contract on 15 March 2007.

7. In about April 2009, I was advised by my Australian patent attorneys at that time that a declaration in support of the Application was outstanding and was required to be signed by all the inventors.

8. Subsequently, I carried out some investigations as to Daniel's location, without success.

9. I was aware of Daniel's residential address and his mobile and residential telephone numbers and his e-mail at the time that he left Allotz.

10. On Friday, June 12, 2009, I telephoned the mobile number and received a disconnected line signal. I telephoned the number again on the same day and again received a disconnected line signal.

11. On Friday, June 12, 2009, I telephoned the residential number at 10:30 AM and did not receive a reply. I telephoned that number again at 11:30 AM and at 12:55 PM, both times without receiving a reply.

12. On Friday, June 12, 2009, I sent an e-mail to the e-mail address that I had, a copy of the e-mail is attached as Annexure B.

13. On Friday, June 12, 2009 at around 4 PM, I received a telephone call from Daniel. I discussed the need to sign the documents. I asked Daniel if I could meet with him to have the documents signed. He told me that he had received my e-mail. We then had a general discussion about what he was doing with himself. He indicated that he was dealing with some personal issues. He would not tell me where exactly he was staying.

14. During our phone conversation, I explained that the document we needed to have him review and sign were documents that were signed by an number of people including himself so that the patent process could be completed in the USA and India. I then asked Daniel Paul Ruul if I could meet with him for the purpose of moving forward with getting his signature on the documents.

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15. At that time, Daniel Paul Ruul seemed to be very receptive to meeting with me and we agreed that we would meet on Monday the 15th June 2009 in a town named Yamba. I let Daniel Paul Ruul choose the location and the time for the meeting, and he told me to attend the car park at BI-LO in Yamba at 11.00 am. He also said that he would sign the documentation.

16. On Monday 15 June 2009, I attended at the offices of Allotz.com Limited, before I travelled interstate to Yamba, so that I could get the documentation that I needed to take with me for the meeting with Daniel. While in my office I checked my e-mails and I saw the following e-mail listed below.

17. My understanding is that Daniel agreed that we could meet on Monday, June 15, 2009 in a town called Yamba. He advised that we could meet in a car park at a supermarket at 11 AM on the day.

18. On June 15, 2009 I received an e-mail attached hereto as Annexure C. I replied to the e-mail with the e-mail attached hereto as Annexure D. I did not hear further from Daniel on that day.

19. On June 16, 2009, I sent an e-mail attached hereto as Annexure E.

20. On July 10, 2009, I visited the residential address that I had on file. I noticed that the residence was in darkness. I knocked on the door a number of times but there was no answer.

21. In October 2009, I engaged Barry Eagar (Barry), a registered Australian Patent Attorney to assist me with the Application.

22. On 27 November 2009, I received an email from Barry advising me that a petition to have the Application proceed without Daniel's signature had been refused by the United States Patent and Trade Mark Office.

23. Barry advised me that I should again attempt to locate Daniel to see whether or not he would be prepared to sign the declaration/power of attorney.

24. I decided to request the assistance of Daniel's co-workers at the time that Daniel was still with Allotz.

25. On 11 December 2009, I made contact with Geoff Toogood (Geoff), one of the inventors via MSN messaging service. A record of the conversation can be provided if necessary.

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26. In the conversation, Geoff advised me that he is still in contact with Daniel via MSN messaging. He also advised me that Daniel was "a bit jaded on the whole Allotz thing".
27. I provided Geoff with some background relating to the issues I was having with Daniel. I asked him to please contact Daniel and ask him to at least e-mail me. Geoff replied that he would do so.
28. On the same day, I also made contact with Ingo Rahn (Ingo) using MSN messenger with a request that he ask that Daniel email me.
29. On 14 December 2009 I sent a further e-mail to Daniel in an attempt to obtain some sort of indication as to his attitude. A copy of that e-mail is attached as Annexure F.
30. On 16 December 2009, I had a three-way MSN messenger conversation with Geoff and Ingo. A transcript can be provided if necessary.
31. In this three-way conversation, Geoff reported that Daniel is not prepared to consider any further dealings with Allotz and wanted to put his past behind him.
32. In particular, Geoff provided me with excerpts from an MSN messenger conversation in which Daniel requests that Geoff not contact him any further. In order to protect Daniel's privacy I limit that excerpt to: "...please if you have any respect left for me geoff, just leave me alone...."

AND I MAKE this solemn declaration by virtue of the *Statutory Declarations Act 1959*, as amended and subject to the penalties provided by the Act for the making of false statements in statutory declarations, conscientiously believing the statements contained in this declaration to be true in every particular.

Declared at: Southport, Qld)
this 18th day of December, 2009)

Tom Taggart

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Before me:

this 18TH day of December, 2009

Name:
Capacity: ANN-MAREE RADFORD
COMMISSIONER FOR
DECLARATIONS
REGISTRATION NUMBER 66858

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Unknown
Serial No.:	12/227,451	Group Art Unit: 3625
Filed:	November 18, 2008	Docket No.: 3158.001US1 (Originally 2900.001US1)
Customer No.: 21186		Confirmation No.: 3275
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS	

DECLARATION OF BARRY EAGAR IN SUPPORT OF RULE 1.47(a) PETITION

Commissioner for Patents
P.O. Box 1450
Alexandria , VA 22313-1450

I, Barry Eagar of 6 Roche Court, Oxenford, Qld 4210, Australia, declare as follows:

1. I am the Australian Patent Attorney representing Allotz.com Limited, the assignee having a proprietary interest in U.S. Patent Application Serial No. 12/227,451 (The Application).

2. I am authorized to act on behalf of Allotz.com Limited.

3. Inventor Daniel Paul Ruul is uncooperative and is unable to execute any Declaration and Power of Attorney papers associated with any U.S. Patent Application, as evidenced by the Declaration made by Tom Taggart, Chief Executive Officer of Allotz.com Limited and as evidenced by the paragraphs below.

4. On 28 November 2009, I advised Tom Taggart that a petition to have the Application proceed without the signature of Daniel Paul Ruul (Daniel) had been refused.

5. In subsequent communications with my associates in the United States, I was advised that further attempts should be made to contact Daniel.

6. On 14 December 2009, I carried out a Google Search using the keywords "Daniel Ruul". I attach the result of that search as Annexure G. While some results were obtained, further investigation did not reveal any new contact information.

7. On 14 December 2009, I carried out a search on the local electronic White Pages, Australia's electronic version of the local telephone directory. I attach the result of that search as Annexure H. I advised Tom Taggart of the results.

8. On 16 December 2009, I received an email from Tom Taggart in connection with an MSN messaging conversation that he had had with Daniel's co-workers. I was provided with the transcript of the conversation and came to the conclusion that any further attempts to contact Daniel would be fruitless and could even result in a charge of harassment by the local authorities.

9. Allotz.com Limited is a real party in interest because the subject matter of the above patent application was developed during and in the course of Daniel Paul Ruul's employment with Allotz.com Limited. Additionally, Mr. Ruul assigned all right, title and interest in the invention to Allotz.com Limited.

10. The rights of Allotz.com Limited will be irreparably damaged if this Petition under 37 C.F.R. 1.47(b) is not granted because Assignee has already invested a significant amount of effort and capital in the development of the product described in U.S. Patent Application Serial No. 12/227,451 and the United States is an important jurisdiction for Allotz.com Limited both for the purpose of commercial expansion and protection of it's intellectual property.

11. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any United States patent issued thereon.

Date: 18 December 2009



Barry Eagar – Registered Australian Patent Attorney

APPENDIX A "A"
PAGES 1-17

PRODUCT DEVELOPMENT DEED

THIS DEED made the 9th day of MAY. 2006.

BETWEEN: **THE COMPANY REFERRED TO IN ITEM 2 OF SCHEDULE 1** ("Company")

AND: **THE DEVELOPER REFERRED TO IN ITEM 3 OF SCHEDULE 1** ("Developer")

RECITALS:

A. The Company intends to develop certain software products.

B. The Company will provide the Developer with Specifications for the Products.

C. The Developer has represented that he has the skill and capacity to develop the Products for the Company.

D. The Company wishes to engage the Developer to develop the Products in accordance with the Specifications and the Developer has agreed to accept such engagement on the terms and conditions of this Deed.

E. It is the intention of the parties that the Products, all Software and Intellectual Property relating to the Products are to be owned by the Company.

OPERATIVE PARTS

1. DEFINITIONS AND INTERPRETATION

1.1 In this Deed, unless a contrary intention appears:

'Acceptance Tests' means the acceptance tests for each of the Development Phases of the Products as set out in the Development Plan;

'Commencement Date' means the date stated in Item 1 of Schedule 1;

'Confidential Information' includes, but is not limited to matters not generally known or in the public domain, such as developments relating to existing and future products and services marketed or used or to be marketed or used, or rejected, by a party and persons or companies dealing with a party and also information relating to the general business operations with a party including:

(a) profit and loss statements;

(b) balance sheets;

(c) customer, licensee and distributor lists (actual and proposed);

(d) cost and selling price information;

(e) trade secrets, know-how and specifications in respect of the party's products, work-in-progress, services and intellectual property;

(f) business and marketing plans;

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(g) third party information disclosed to a party in confidence;

'Developer's Fee' means the consideration set out in Item 4 of Schedule 1;

'Development Phase' means the stage in the Development Plan at which specified parts of the development of the Products will have been completed, specified results achieved or specified conclusions reached as required by the Development Plan;

'Development Plan' means the plans and timetables for the development of the Products as set out in Schedule 4;

'Document' or **'Documentation'** includes handwritten, typed, printed and electronically created or stored records and copies thereof;

'Force Majeure Event' means:

(a) any act of God;

(b) any outbreak or escalation of hostilities (whether or not war has been declared);

(c) any other lawful act against public order or authority;

(d) any industrial dispute;

(e) any governmental restraint; or

(f) any other event which is not within the reasonable control of the parties;

'Intellectual Property' means rights to any and all intellectual, commercial and industrial property throughout the World, whether registered or not, connected with the Products and the Software including but not limited to:

(a) copyright (including future copyright and rights in the nature of or analogous to copyright);

(b) improvements to existing Intellectual Property;

(c) inventions (including patents);

(d) trade marks and service marks;

(e) designs and circuit layouts;

(f) any Confidential Information;

(g) the right to apply for protection of or take action relating to any intellectual property;

'Products' means the products described in Schedule 2 and includes all Related Software and Intellectual Property;

'Premises' means a place of business or other place under the control of a party;

'Related Software' means all Software underlying, forming part of, controlling or directing the operation of or related to the Products;

'Services' means all of the obligations of the Developer to develop the Products for the Company in accordance with this Deed;

'Software' means written programs, code, procedures, instructions or rules and associated documentation (print or electronic) pertaining to the operation or control of a computer or electronic device and unless otherwise expressly stated includes every individual item of software;

'Specifications' means the specifications set out in Schedule 3;

'Term' means the period from the date of this Deed to the date it is terminated.

1.2 In the interpretation of this Deed:

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(a) references to:

(i) a party is to a party to this Deed and includes the party's executors, administrators, successors and assigns;

(ii) anything includes part of that thing;

(iii) persons includes individuals, companies, associations, partnerships, bodies corporate, and governments and governmental, semi-governmental and local government and agencies or other entity;

(iv) documents include the document as changed or replaced from time to time;

(v) A$, dollar or $ is to Australian currency;

(vi) a party, where the party is more than one person, means all of them together and each of them separately;

(vii) a clause, paragraph, schedule or annexure refers to a clause , paragraph, schedule or annexure in this Deed;

(viii) this Deed includes any schedule or annexure;

(ix) time is a reference to Australian Eastern Standard Time;

(viii) a statute, ordinance, code or other law includes regulations and other instruments under it and includes all amendments, consolidations, re-enactments or replacements of any of them;

(b) the singular includes the plural and vice versa; words including a gender shall include all other genders;

(c) where a party is more than one person, this Deed binds all of them separately and each of them together;

(d) the meaning of general words is not limited by specific examples introduced by 'including, for example' or similar expressions;

(e) headings do not affect the meaning of the Deed;

(f) a rule of construction does not apply to the disadvantage of a party because the party was responsible for the preparation of this Deed or any part of it;

(g) another grammatical form of a defined word or expression has a corresponding meaning;

(h) a reference to "indemnity" means that the person giving the indemnity will indemnify and keep indemnified the person given the indemnity against any loss, damage, claims, actions, demands, costs (on a solicitor and own client basis and whether incurred by or awarded against the person indemnified) or expenses suffered or sustained, directly or indirectly, because of the event indemnified against. This means that if the person indemnified suffers any loss or must pay any money (whether or not it is actually paid) because of an indemnified event the party giving that indemnity must pay the amount of loss or the amount of liability to the indemnified party. If it does not, the indemnified party can recover the amount as a liquidated claim; and

(i) if anything to be done under the Deed falls on a Saturday, Sunday or public holiday, then it must be done on the next business day within that area unless the thing to be done under the Deed is a task which must be done on a Saturday, Sunday or public holiday to avoid a delay to the Services in which case it must be done on that day.

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2. APPOINTMENT OF DEVELOPER

2.1 As and from the Commencement Date the Company agrees to engage the Developer as an independent contractor to develop the Products and the Developer agrees to such engagement.

2.2 The Developer will develop the Products in accordance with the Specifications and the Development Plan and in accordance with any lawful requests and directions of the Company which relate to the development of the Products.

2.3 The Developer will deliver the Products to the Company in the format and by the dates specified in the Development Plan.

3. SPECIFICATIONS AND DEVELOPMENT PLAN

3.1 The Developer acknowledges that the Specifications and the Development Plan are in an early design stage and it is agreed between the parties as follows:

(a) The Company and the Developer will jointly design and document the Specifications and the Development Plan in Development Phases as requested by the Company;

(b) If the Company and the Developer cannot agree as to any matter relating to the Specifications and the Development Plan, the Company's determination will be final;

(c) The parties will consult with each other about any alterations to the Specifications and the Development Plan but if they cannot agree the Company's determination will be final.

3.2 The Company may request an alteration to the Specifications or the Development Plan.

3.3 The Company and the Developer will use their best endeavours to reach agreement on the matters specified above, in which case the terms of any agreement will be confirmed in writing by both parties.

3.4 If the Company makes a determination as above it will notify the Developer in writing.

3.5 The Specifications and/or Development Plan will be deemed to incorporate any alterations agreed to or determined as above.

4. COMPLIANCE WITH DEVELOPMENT PLAN

4.1 The Developer will achieve each Development Phase by the date specified in the Development Plan. The parties acknowledge that time is not of the essence in achieving each of the Development Phases.

4.2 Immediately after becoming aware of a potential or actual delay in achieving a Development Phase, the Developer will notify the Company in writing of the nature and cause of the delay and the steps being undertaken to overcome the delay.

4.3 The Company may in its absolute discretion, and on such terms as it may require, grant an extension of time for the achievement of a Development Phase as requested by the Developer.

4.4 If a delay in respect of any Development Phase continues for more than 30 days after the due date, such delay will constitute a Termination Event and the provisions of clause 12.2 will apply.

4.5 At the request of the Company (not exceeding more than one (1) request per calendar month), the Developer will report to the Company on the progress of the development of the Products. Such a report will be given to the Company within five (5) business days

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of the Company making such a request.

4.6 The Developer must keep such records as stipulated in the Development Plan or as directed by the Company relating to the Developer's performance of its obligations under this Deed, to provide a full and proper account of the activities of the Developer in the performance of such obligations.

4.7 Upon reasonable notice having regard to the circumstances, the Company may inspect the records of the Developer referred to in clause 4.6 above relating to any matter under this Deed. Upon receipt of such notice the Developer must provide the stipulated records to the Company expeditiously together with all access codes and similar. In exercising its rights under this clause, the Company agrees at all times to act reasonably and will use its best endeavours to minimise any disruption to the Developer and to ensure that confidentiality is maintained.

5. TESTING THE PRODUCTS

5.1 The Company will conduct an Acceptance Test at its own cost and under the supervision of the Developer within 14 days of the completion of each Development Phase and in accordance with the Development Plan.

5.2 If the Company is satisfied that the Products at that Development Phase comply with the Acceptance Test, the Company will issue a Certificate of Acceptance for that Development Phase, within two Business Days of the Acceptance Test.

5.3 If the Company is not reasonably satisfied that the Products at that Development Phase comply with the Development Plan, the Company may by written notice to the Developer:

(a) fix a new date for carrying out further tests on the same terms and conditions; or

(b) accept the Products conditionally; or

(c) reject the Products as not being in conformity with the Development Plan and, if the Developer does not remedy any non-compliance within 30 days thereafter, the Company may terminate this Deed and the provisions of clause 12.1 will apply.

5.4 If the Company accepts the Products at a Development Phase conditionally in accordance with clause 5.3(b), the Developer will ensure that the deficiencies are remedied in accordance with the terms of any conditional acceptance and, in any event, no later than by the completion of the final Development Phase.

6. WARRANTIES AND INDEMNITIES

6.1 Each party warrants that:

(a) it has authority to enter into and to perform its obligations under this Deed;

(b) it has the ability to perform its obligations under this Deed; and

(c) it is authorised by all necessary government and other agencies and authorities to perform its obligations under this Deed and will continue to be authorised to perform this Deed.

6.2 The Developer warrants that the Products will:

(a) perform in accordance with the Specifications;

(b) be fit for the purpose identified in the Specifications.

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6.3 The Products must be developed and supplied by the Developer to the highest professional standard and in compliance with the Development Plan.

6.4 The Developer warrants that no literary or other works employed or created by the Developer in the development of the Products shall infringe any copyright, obligation of confidentiality, patent or other right of property or contractual obligations belonging to or benefiting any third party.

6.5 If the Developer is in breach of any term of this Deed, the Developer must upon request being made by the Company remedy such breach at no charge to the Company. Such remedy to the Company shall be without prejudice to any other right or remedy to which the Company may be entitled, whether at law, in equity or otherwise.

6.6 Each party must indemnify the other from and against any costs, damages, loss or liability of any kind (including indemnity legal costs and disbursements in defending or settling the claim giving rise to same) however suffered or incurred by the indemnified party by virtue of any breach of this Deed by the other party. Such indemnity shall extend (without limiting the generality of the foregoing) to any costs, damages, loss or liability (including indemnity legal costs and disbursements in defending or settling the claim giving rise to the same) incurred by the indemnified party by virtue of any injury or disability suffered by any employee or sub-contractor of the other party, arising by whatever legal theory (whether statutory, tortious or otherwise).

7. INTELLECTUAL PROPERTY

7.1 Subject to clause 7.4, the Developer hereby assigns to the Company all present and future Intellectual Property created by the Developer or any contractor or employee of the Developer (whether or not in normal business hours or using the Premises or the equipment of the Company or the Developer), and the Developer acknowledges that by virtue of this clause, ownership of all Intellectual Property vests in the Company and, on their creation, any future rights will vest in the Company.

7.2 The Developer must disclose all Intellectual Property created by the Developer or any contractor or employee of the Developer as described in clause 7.1 above.

7.3 The Developer must both during and after the period of this Deed do all such acts and things, and sign all such documents, as the Company or its attorneys may reasonably request to secure the Company's ownership or rights in the Intellectual Property.

7.4 The Developer must use its best endeavours to protect all Intellectual Property rights in or related to the Products or created under this Deed and in particular must ensure that any employee or contractor of the Developer engaged for the purposes of this Deed execute a valid assignment of any Intellectual Property rights to which they would otherwise be entitled in relation to the Products and the subject matter of this Deed.

7.5 Where any Intellectual Property rights are owned by a third party ('third party rights'), the Developer will ensure that the use, reproduction and commercial exploitation of the Products will not infringe any such third party rights and that no fees, royalties or other payments are payable in respect of such third party rights as a result of any such use, reproduction and commercial exploitation unless agreed by the parties in writing to the contrary.

8. CONFIDENTIALITY

8.1 The Developer and the Company agree that during the term of this Deed they may become acquainted with or have access to Confidential Information belonging to the other party, and agree both during and after the term to maintain the Confidential Information and to prevent its unauthorised disclosure to or use by any other person,

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firm or company, unless or until authorised in writing to disclose any Confidential Information by the other party or any of its related bodies corporate.

8.2 The parties agree that they shall not:

(a) use the Confidential Information for any purpose other than for the benefit of the other party during or after the term of this Deed;

(b) remove or permit to be removed the Confidential Information from any Premises at which it is held under the terms of this Deed, without the written consent of the other party;

(c) for whatever reason, either for themselves or any third party, appropriate, copy, memorise or in any manner reproduce any of the Confidential Information.

8.3 The parties must use their best endeavours to ensure that their employees, agents, contractors and related entities do not make public or disclose any confidential information and agrees that they may only make disclosure to such persons if they need to know the information to perform their duties or for other proper purposes under this Deed and only after they have executed an Deed in similar terms under which they are bound to observe such obligations of confidentiality for the benefit of the other party.

8.4 The parties agree to return any or all Confidential Information howsoever embodied on the request of the other party.

8.5 The parties agree that they shall not, both during or after the term of this Deed for whatever reason, make improper use of the Confidential Information acquired by virtue of this Deed, to gain, directly or indirectly, an advantage for themselves or for any other person or to cause detriment to the other party.

8.6 Nothing in this Deed shall impose an obligation on a party with respect to maintaining confidence regarding information which is generally known or available by publication, commercial use or otherwise than as a result of a breach by that party of its obligation in this section.

9. REMUNERATION

9.1 The Company will pay the Developer's Fee to the Developer in the manner and at the times as set out in Item 4 of the Schedule.

9.2 The Company shall reimburse the Developer for such out-of-pocket expenses reasonably incurred by the Developer under this Deed, provided that such expenses were approved in writing by the Company prior to the Developer incurring the expenses.

10. EMPLOYEES

10.1 If the Developer wishes to carry out part of the development of the Products by one or more employees or contractors of the Developer the consent in writing from the Company must first be obtained and no such employee or contractor shall have access to any Confidential Information unless approved by the Company in writing and once approval has been obtained there shall be no variation unless such variation is agreed by the Company in writing.

10.2 If Clause 10.1 applies, the Developer agrees to use employees or contractors with proper qualifications and skill necessary for their work under this Deed. If the Company, acting reasonably, believes that a contractor or employee is incapable of adequately performing the work, is or may be likely to act dishonestly or otherwise in breach of this Deed, it may give written notice to the Developer requiring it to replace the contractor or employee. The Developer must investigate the matter urgently and must replace the contractor or employee unless it can demonstrate to the Company's satisfaction that its beliefs are unfounded.

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11. TRAINING AND DOCUMENTS

11.1 The Developer will provide to the Company, and any other person nominated by the Company, such training as provided in the Development Plan and such usual documentation as reasonably required to enable the Company to properly operate, effectively use and commercially exploit the Products.

11.2 Subsequent to delivering the Products and notwithstanding termination or expiry of this Deed, the Developer will, for a period of three (3) months, provide the Company with support at no charge as reasonably required to assist the Company in the use of the Products and all analysis and programming services necessary to correct and resolve any errors or problems in the Products caused by or attributable to the work of the Developer under this Deed.

12. TERMINATION

12.1 Either party (not being in default) may immediately terminate this Deed by written notice to the other, if:

(a) the other party commits a breach of this Deed or is in default of any provision of this Deed and the defaulting party fails to correct such breach or default within 14 days of receiving notice specifying such breach or default;

(b) the other party is insolvent or otherwise unable to pay its debts as and when they fall due;

(c) an administrator, trustee in bankruptcy, receiver, liquidator or controller is appointed to the other party;

(d) the other party commits a material breach of this Deed; or

(e) a party exercises its rights to terminate under any other part of this Deed.

12.2 The termination of this Deed is without prejudice to any rights which have accrued to a party before the date of termination.

12.3 The Developer acknowledges and accepts that if the Company is in breach of this Deed, the Developer's remedies will not include indirect or consequential losses.

12.4 Without prejudice to any other right or action or remedy which the Company may have, if the Developer is in breach of any term of this Deed, the Company may suspend payment of any Developer's Fee due at that time under this Deed until such breach is rectified.

12.5 This Deed will terminate on completion of all of the Developer's obligations herein.

12.5 On expiration or termination of this Deed the Developer will deliver to the Company, in the format and in the manner directed by the Company, the Products as developed as at the date of termination together with Documentation, Software, code and related property.

13. INSURANCE

13.1 The Developer will take out and maintain such policies of insurance as a prudent developer carrying out its work under this Agreement would be expected to take out and maintain and if requested by the Company on reasonable notice will supply the Company with certificates of currency or similar evidence of such insurance. At the minimum such insurance will include professional indemnity cover. The parties intend that reasonable notice should be a period of ten (10) business days.

13.2 The Developer will cause the Company's insurable interest (if applicable) to be noted on

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any policy of insurance taken out under this clause.

13.3 The Developer will deliver copies of such policies or proof of their currency to the Company as soon as practicable and in any event within 28 Business Days after execution of this Agreement.

13.4 The insurance policies will:

(a) name the Developer and the Company as co-insured;

(b) include a clause enabling one insured person to claim against the insurer where another insured person would have been entitled to claim against the insurer, but is precluded from doing so for any reason, including but not limited to, a breach of the policy by that other insured person; and

include a cross liability clause enabling one insured person to claim against the insurer even if the party making the claim against the insured person is also insured under the policy.

14. RELATIONSHIP OF PARTIES

The Developer's relationship with the Company shall be that of principal and independent contractor. Neither the Developer nor the Company shall have (and shall not represent that it has) any power, right or authority to bind the other, or to assume or create any obligation or responsibility, express or implied, on behalf of the other or in the other's name. Nothing stated in this Deed shall be construed as constituting the Company and the Developer as partners, principal and agent or employer and employee.

15. RETURN OF DOCUMENTATION

Upon the termination of this Deed for any reason the Developer shall leave with the Company all records, books, drawings, note books and other documentation and things pertaining to the Products and to the Confidential Information whether prepared by the Developer or any other person, and any equipment or the devices owned by the Company then in the possession of the Developer or any employee or contractor of the Developer, and the Developer will ensure that all such information is deleted from any computer or electronic information retrieval system under the control of the Developer or any of his employees or contractors.

16. GOODS AND SERVICES TAX

16.1 The price paid to the Developer under this Deed shall be inclusive of GST and the Developer will provide the Company with a tax invoice in respect to any required payments.

16.2 Notwithstanding clause 16.1, the Company has no liability to pay any amount to the Developer for or on account of GST unless the Developer has first delivered to the Company a tax invoice for the amount of such GST referable to the taxable supply, including such particulars as may be required by the GST Law from time to time.

16.3 If, for any reason and at any time, GST is assessed by the ATO as payable by any party to this Deed upon any supply provided for in this Deed ('additional GST assessment') and for which GST no provision, or improper, ineffective or inadequate provision, is made in this Deed:

(a) the party who made the supply shall, as soon practicable after becoming aware of the additional GST assessment, issue to the tax payer, an Adjustment Note or Tax Invoice, as the case requires, in respect of the original supply and the additional GST assessment;

DR

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Uber Technologies, Inc. v. SurgeTech, LLC

(b) the tax payer shall, upon receipt of such Adjustment Note or Tax Invoice, immediately pay to the Developer the amount of the additional GST assessment. In default of payment the Developer may recover from the tax payer the amount of the additional GST assessment, together with any other amounts payable on account of or in relation to the additional GST assessment, as a liquidated debt, plus any legal costs, calculated as between solicitor and own client, reasonably incurred by the Developer in or in relation to such recovery.

16.4 For the purposes of this Deed:

(a) **'Adjustment Note'** means an adjustment note under the GST Law;

(b) **'ATO'** means the Australian Taxation Office or such other statutory authority or person charged with the administration of the GST Law from time to time;

(c) **'GST'** means a tax, levy, duty, charge or deduction, together with any related additional tax, interest, penalty, fine or other charge, imposed by or under a GST law;

(d) **'GST Law'** means *A New Tax System (Goods and Services Tax) Act* 1999 (Cth) or an Act imposing, or relating to the imposition or administration of such a tax;

(e) **'Tax Invoice'** means a tax invoice under the GST Law; and

(f) **'Taxable supply'** means a supply which is subject to the GST Law and which is not exempt from the GST law and, unless the context otherwise requires, "supply" has a corresponding meaning.

17. DISPUTE RESOLUTION

17.1 If a party gives notice to the other that a dispute has arisen in relation to the subject matter of this Deed the parties must use their best endeavours and act bona fide in an attempt to resolve such dispute within fourteen (14) days of such notice.

17.2 If the dispute cannot be resolved, the dispute must be referred to a mediator sitting in Brisbane nominated by either party and agreed to by the other. Failing such agreement, the mediator will be appointed at the request of either party by the Australian Commercial Disputes Centre Queensland and the mediation will proceed in accordance with the rules of that Body.

17.3 If the mediation fails to resolve the dispute within thirty (30) days of appointment of the mediator, but not otherwise, a party may commence litigation in relation to the dispute.

17.4 Notwithstanding Clause 17.3 above, a party may at any time seek injunctive relief against the other party.

18. GENERAL

18.1 Notices. All notices and consents required or permitted to be given under this Deed shall be in writing and given by personal service, pre-paid postage, facsimile transmission or email transmission at the addresses of the parties set out in this Deed or to such other address as either party may designate to the other by written notice.

18.2 Assignment. Neither this Deed nor any rights or obligations hereunder may be assigned or otherwise transferred by the Developer without the prior written permission of the other.

18.3 Governing law. This Deed shall be governed by the laws of Queensland and the parties submit to the jurisdiction of that State.

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18.4 Force Majeure. A party is not liable for its inability to perform, or for any delay in performing, any of its obligations under this Deed if that inability or delay is caused by a Force Majeure Event.

18.5 Modification. This Deed may be modified only in writing signed by duly authorised persons for both parties.

18.6 Severability. If any provision of the Deed should be held to be invalid in any way or unenforceable, the remaining provisions shall not in any way be effected or impaired thereby, and this Deed shall be construed so as to most nearly give effect to the intent of the parties as it was originally executed.

18.7 **Legal Advice. The Developer acknowledges that this document is prepared by ffrench.commercial lawyers as Solicitors for the Company and that they do not represent him. The Developer upon signing this document acknowledges that he has obtained independent legal advice about its effect and meaning.**

EXECUTED as a Deed.

EXECUTED BY **ALLOTZ.COM LIMITED (ACN 118 777 245)** in accordance with the Corporations Act 2001 and in the presence of:)

MARTIN McCONNACHIE

.....
Signature of Witness

V INGRAM
Name of Witness

EXECUTED BY **DANIEL PAUL RUUL** in the presence of:)

Daniel Ruul

.....
Signature of Witness

V INGRAM
Name of Witness

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Uber Technologies, Inc. v. SurgeTech, LLC

SCHEDULE 1

Item 1	
Commencement date:	Date of this Deed
Item 2	
Name and address of Company:	ALLOTZ.COM LIMITED ACN 118 777 245 of C/-Quill Group, Level 6 Seabank Building, 12-14 Marine Parade, Southport QLD 4215
Item 3	
Name and address of Developer:	DANIEL PAUL RUUL of 24 Camelot Crescent, Hollywell Qld 4216
Item 4	
Developer's Fee:	Such fees as the Company and the Developer may agree upon, to be recorded in writing.

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SCHEDULE 2

The Products

A business to business web based application, designed specifically for accommodation properties to manage and distribute their inventory automatically across a broad range of online travel resellers and intermediaries. The website and database application will achieve and involve/require the following:

1. Provide member login and credit card payment gateway for membership fees.
2. Provide Search Engine analysis of the top ranking reseller sites for a property in any given area by location as well as commission rates charged.
3. Provide a complete accommodation package building database and client interface for members to create packages, rates and seasons as well as allotments for distribution.
4. Allow members to selectively distribute packages to as many channels as their membership rate allows.
5. Statistically report on yield and performance for each client.
6. Perform advanced, automatic distribution management functions as per the Intellalotz model.
7. Incorporate the elements described as "the invention" below.
8. Develop a communication interface based on XML in accordance with the Open Travel Association standard.
9. Build the website interface for the entire site.

FIELD OF THE INVENTION

The present invention relates to intelligent communication, analysis and re-distribution of inventory between accommodation properties and the online travel resellers, portals, airlines and agencies.

SUMMARY OF THE INVENTION

Allotz.com Limited will be the provider of a business to business website designed for its accommodation provider members to place their entire accommodation inventory required to be sold online via third party online resellers in a single location, this will also include the property's own online booking engine on their own website. The implementation of the invention will intelligently manage room allotments between different distribution channels. IntellAllotz will work out the rate of inventory sale for all properties and for each individual property, it will know the sale price and rate of commission and work out each channels performance rating. This performance rating will enable the system to intelligently re-assign distribution of property's inventory to any reseller online based on inventory demand and profit for the property, this assignment will be influenced by a minimum sale rate for all inventory sold. IntellAllotz will also calculate the sale rate index, which is the amount of rooms sold per hour in relation to the amount of rooms available to the channel. With the performance rating

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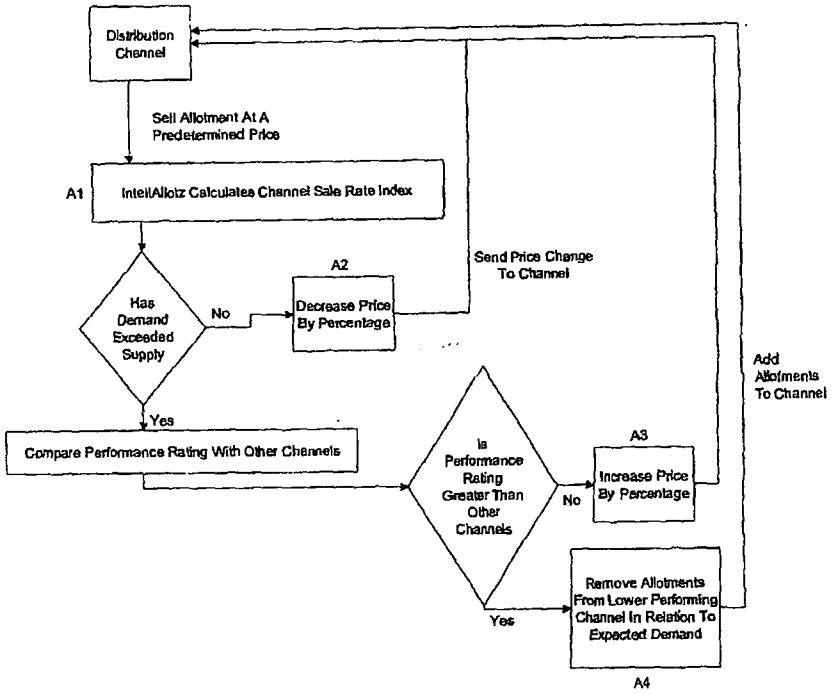
and the sale rate index IntelliAllotz will calculate how many rooms to allocate to a particular channel and the price at which it is sold for to maximize profit for the property.

We have to calculate the maximum rooms possibly sold to the channel with the highest performance rating.

Normally performance is based on a fixed rate for a room often referred to as a rack rate, IntelliAllotz however, allows for the setting of a minimum room rate and can adjust prices up from or back to that price based on channel performance to maximize potential profit. If the online reseller channel has higher demand than availability, it can automatically increase the room rate to maximize profit. IntelliAllotz can also increase the rate on high room selling channels that have a high rate of agents commission to bring their performance rating equal to or higher than other channels with lower agents commission. With this technique IntelliAllotz can maximize profit on a range of competing channels. So the rate at which a channel is selling compared to its performance rating is directly proportional to a surplus of supply and the rate at which the room is being sold. Basically the supply and commission control the rate at which a room is sold for each channel. If a shortage of supply should occur all channels will increase in price but if there is an abundance of supply they will decrease to a price relative to their performance rating. The property would have to set a rate of change that would be used to increase or decrease the rate at which the room would be sold i.e. 10%. Performance would be calculated per hour and related to previous statistical analysis of the targeted date range.

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FIGURE 1.1



Explanation of FIGURE 1.1

This is a systems flowchart of how IntelliAlotz works. The Distributions Channel is any user selected third party reseller that stocks real-time property availabilities. Via a XML standard IntelliAlotz will dynamically allocate/reallocate/update/query allotments to these channels.

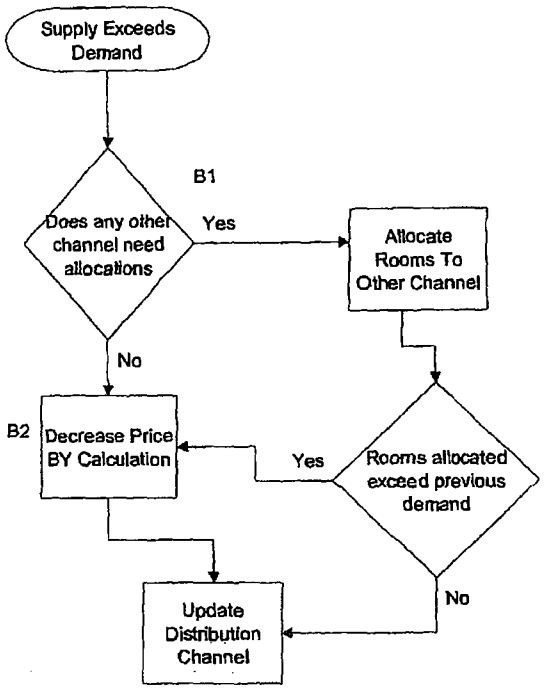
A1 is where IntelliAlotz works out the Channel Sale Rate Index. This value is a calculation of Amount Sold in a period of time divided by the amount allocated. This value is then multiplied by 100 to get a percentage.

This then can lead into A2 where supply exceeds demand; FIGURE 1.2 explains it in more detail.

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FIGURE 1.2



In B1 If supply exceeds demand IntellAllotz checks to see if other channels are in need of allotments, if they are it removes them from the original channel and adds them to the channel in need. B2 has a calculation that involves the minimum rack rate, the current rate and the surplus percentage. IntellAllotz will adjust the performance rating by 10% at a time and in this case it is a decrease. If a channel had a performance rating of 90 selling rooms at $100 with a commission of $10 and we wanted to reduce its performance rating by 10% we would use the calculation

90*0.9=81
81+$10(commission)=$91 sale rate

If the minimum sale rate was below the new rate then $91 would be the new sale price otherwise the minimum sale rate would be the new price.

The reverse can be said for A4 where an increase is used instead. The same adjustment rate of 10% is used, so if a channel with a performance rate of 90 selling rooms at $100 with a commission of $10 is increased by 10% we would use the calculation

90*1.1=99
99+$10(commission)=$109 sale rate

DR

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SCHEDULE 3

Specifications - See Clause 3

SCHEDULE 4

Development Plan - See Clause 3

APPENDIX B
PAGES 1-2

CULLENS
Patent and Trade Mark Attorneys

"B"

30 July 2009

By email and Registered Mail
Return Receipt Requested

Mr. Daniel Paul Ruul
Unit 6/35 McMillan Street
Labrador, 4215
Queensland
Australia

0 7 AUG 2009

ACCOUNTS		
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OPERATOR		

Dear Mr Ruul

Re: United States Patent Application serial number 12/227,451
Title: The management of inventory allocations
Applicant: Allotz.com Limited
Our Ref: 085348US/PN

We are patent attorneys for Allotz.com Limited ("Allotz ").

At the request of Allotz, we instructed our US associate attorney to file a patent application entitled "The Management of Inventory Allocations" in the United States. That application has been allotted serial no. 12/227,451. Based on information provided by Allotz, you were named as a co-inventor of the U.S. patent application, together with Andrew Loch, Helen Johnson and Geoffrey Toogood.

By a Product Development Deed (copy attached) dated 9 May 2006 between you and Allotz, you

a) assigned to Allotz all present and future Intellectual Property created by you, and
b) undertook to sign all documents requested by Allotz or its attorneys to secure Allotz's ownership or rights in the Intellectual Property.

The term 'Intellectual Property' was defined to include inventions (including patents).

On behalf of Allotz, we now request that you sign and date the attached

a) combined declaration in support of the US application (a copy of the patent specification of the US application being attached to the declaration) and power of attorney in favour of our US associate attorney;
and
b) confirmatory assignment of your rights in the invention.

The attached specification includes the claim set and drawings which were filed with the U.S. Patent and Trademark Office for patent application no. 12/227,451, including the amendments referred to in the declaration. Please review the specification, claims and drawings before signing and dating the Declaration/Power of Attorney, and assignment. If you do not understand the contents thereof, or require further information, please let us know.

Once signed, the combined declaration/power of attorney and assignment are to be returned to us as soon as possible, and preferably no later than 10 August 2009.

We enclosed an addressed, prepaid envelope for your convenience.

Cullens ABN 15 193 301 899
Level 32, 239 George Street, Brisbane QLD 4000, Australia
Mail GPO Box 1074, Brisbane QLD 4001, Australia
Phone +61 7 3011 5555 Fax +61 7 3229 3384
Email mail@cullens.com.au Web www.cullens.com.au

Offices
Brisbane
Gold Coast
Townsville

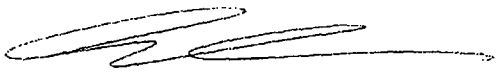
Uber Exhibit 1002 - p. 842
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If we receive no reply from you by 10 August 2009, we will interpret the lack of reply as a refusal to sign the Declaration and Assignment documents.

We mention that the combined declaration/power of attorney and assignment have been signed by the three other co-inventors, as evidenced by the attached copies of those signed documents.

We appreciate your prompt attention to this matter. You may direct any questions to the undersigned.

Yours faithfully
CULLENS



CLAUDE ANESE | PARTNER
Assisted by Patrick O'Neill | Technical Assistant
c.anese@cullens.com.au

pn

Enc. Copy of Product Development Deed
Combined declaration/power of attorney, with specification – for signature and return
Assignment document– for signature and return
Copy of documents signed by other co-inventors

APPENDIX C
PAGES 1-2

"C"

Avryl Pursey

From: Avryl Pursey
Sent: Friday, 31 July 2009 10:09 AM
To: 'd_p_ruul@hotmail.com'
Subject: United States Patent Application serial number 12/227,451 in the name of Allotz.com Limited Our Ref 085348US/PN

Attention: Mr Daniel Paul Ruul

Dear Mr Ruul

Email 1/2

Please find attached correspondence in relation to the above mentioned application.

085348US_001.pdf (62 KB)
Product elopment Deed_001
Declaration & POA_001.pdf (195...

Best regards

CULLENS
Patent and Trade Mark Attorneys

Avryl Pursey | Secretary
Cullens Patent and Trade Mark Attorneys
GPO Box 1074, Brisbane QLD 4001 Australia
Phone +61 7 3011 5555 | Fax +61 7 3229 3384 | Email a.pursey@cullens.com.au | Web www.cullens.com.au

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Uber Technologies, Inc. v. SurgeTech, LLC

Avryl Pursey

From: Avryl Pursey
Sent: Friday, 31 July 2009 10:09 AM
To: 'd_p_ruul@hotmail.com'
Subject: United States Patent Application serial number 12/227,451 in the name of Allotz.com Limited Our Ref 085348US/PN

Attention: Mr Daniel Paul Ruul

Dear Mr Ruul

Email 2/2

Please find attached correspondence in relation to the above mentioned application.


Specification_001.pdf (1 MB)


Documents by co inventor_001.p...

Best regards

CULLENS
Patent and Trade Mark Attorneys

Avryl Pursey | Secretary
Cullens Patent and Trade Mark Attorneys
GPO Box 1074, Brisbane QLD 4001 Australia
Phone +61 7 3011 5555 | Fax +61 7 3229 3384 | Email a.pursey@cullens.com.au | Web www.cullens.com.au

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To: Company Name

For urgent Attention of Mr Daniel Paul Ruul Telephone ( )

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Suburb or Town Labrador State QLD Postcode 4215

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APPENDIX D → 1 PAGE "D"

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Uber Technologies, Inc. v. SurgeTech, LLC

ANNEXURE B

Barry Eagar

From: Tom Taggart [tom@allotz.com]
Sent: Friday, 12 June 2009 12:59 PM
To: 'd_p_ruul@hotmail.com'
Subject: Meeting

Hello Dan,

I have been trying to contact you to see if we can get together for a coffee and a chat. It seems that the people I ask about you are trying to hide you, not sure why though. If you get this e-mail can you give me a call on 0408-335295 or 55740681 or send an e-mail back. If I don't answer the phones leave a message for me and a contact number so I can get back to you.

Best regards,
Tom

Tom Taggart
CEO

a: Level 5, 128 Bundall Rd Bundall QLD 4217 Australia
t: +61 7 5574 0681 m: +61 7 408 335 295 f: +61 7 5574 0932
e: tom@allotz.com w: www.allotz.com

Allotz.com limited

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ANNEXURE C

Barry Eagar

From: Daniel Ruul [dan@iwebbiz.com.au]
Sent: Saturday, 13 June 2009 1:38 PM
To: tom@allotz.com
Subject: meeting on monday

hi tom,
i got some advice on meeting you and signing documents and i was told to get the documents off you first with an explanation of why it is necessary for me to sign them. I am not trying to cause a fuss just being prudent.

thanks
dan.

Uber Exhibit 1002 - p. 848
Uber Technologies, Inc. v. SurgeTech, LLC

ANNEXURE D

Barry Eagar

From: Tom Taggart [tom@allotz.com]
Sent: Monday, 15 June 2009 7:33 AM
To: 'Daniel Ruul'
Subject: RE: meeting on monday
Attachments: USA Patent Application 003.jpg; USA Patent Application 004.jpg; USA Patent Application 005.jpg; USA Patent Application 006.jpg; USA Patent Application 001.jpg; USA Patent Application 002.jpg

Dan,

Sorry I just got this message this morning. I have attached the documents that I wanted to get you to sign. If you read through them I think they are self explanatory.

As we discussed on the phone Friday Allotz made applications some time ago for patent protection in Australia as well as a number of other countries. The paperwork that you and others previously signed, to assign the "Intellectual Property (IP)" ownership rights to Allotz.com Limited is suitable in all countries. However, I received notification last week that the USA Patents office and the Indian Patents office each require additional documents signed to complete the patent process in those two countries.

For the moment I am only dealing with the USA documentation which I have attached, the Indian documentation is not ready yet.

I would be grateful if you could read the attachments and get back to me today please so I can still fit in my appointment with you. If you need to ring, you can get me on 0408-335295.

Best Regards,

Tom

-----Original Message-----
From: Daniel Ruul [mailto:dan@iwebbiz.com.au]
Sent: Saturday, 13 June 2009 1:38 PM
To: tom@allotz.com
Subject: meeting on monday

hi tom,
i got some advice on meeting you and signing documents and i was told to get the documents off you first with an explanation of why it is necessary for me to sign them. I am not trying to cause a fuss just being prudent.

thanks
dan.

Uber Exhibit 1002 - p. 849
Uber Technologies, Inc. v. SurgeTech, LLC

ANNEXURE E

Barry Eagar

From: Tom Taggart [tom@allotz.com]
Sent: Tuesday, 16 June 2009 5:04 PM
To: 'd_p_ruul@hotmail.com'
Subject: Meeting

Dan,

I am not sure if you received my last e-mail. Have you had a chance to read the documents that I sent you as requested? If so is there anything you need me to clarify? I would be grateful if you could give me a call so that we can arrange to get together soon so that I can complete this task.

Best regards,
Tom

Tom Taggart
CEO

a: Level 5, 128 Bundall Rd Bundall QLD 4217 Australia
t: +61 7 5574 0681 m: +61 7 408 335 295 f: +61 7 5574 0932
e: tom@allotz.com w: www.allotz.com

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ANNEXURE F

Barry Eagar

From: Tom Taggart [tom@allotz.com]
Sent: Monday, 14 December 2009 6:30 PM
To: 'Barry Eagar'
Subject: FW: Contact

Barry,

Latest e-mail to Daniel RUUL.

Regards,

Tom

From: Tom Taggart [mailto:tom@allotz.com]
Sent: Monday, 14 December 2009 6:27 PM
To: 'd_p_ruul@hotmail.com'
Cc: 'dan@iwebbiz.com.au'
Subject: Contact

Hi Dan,

I haven't heard from you since July so I asked Geoff and Ingo to contact you last Friday to see if they could get you to give me a call. I was hoping that you might contact me so we can discuss signing those documents that I sent you back then. If you don't wish to sign or discuss them, I understand, but I would appreciate it if you could at least let me know what your intention is relative to the documents so I don't have to keep trying to contact you.

Thanks,
Tom

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ANNEXURE G 2 PAGES

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Gold Coast PHP Users (Inactive) Location: Gold Coast, Queensland Responsible: **Daniel Ruul** <email contact>. Melbourne PHP User Group (Inactive) ...
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Ruuge, Paul - Ruusalepp, Raivo | LinkedIn - [Translate this page]
... Andres **Ruul** · **Daniel Ruul** · George **Ruul** · Henrik **Ruul** · Karin **Ruul** · Kenno **Ruul** · Mati **Ruul** · Pille **Ruul** · Rünno **Ruul** · Kirsti **Ruul**-Kasemaa ...
www.linkedin.com/directory/people/ruus.html - Cached -

Table of Contents IP Telephony: An O ~ r v i e w
by CE Ldpez-Pezu
Daniel Tupia, Hector Perez, Mariko Nakano .... Cuevus Erik V., Zaldivar **Daniel**, Rojas Rad ... Cuevus Erik V., Zaldivur **Daniel**, Rojas **Ruul** ...
ieeexplore.ieee.org/iel5/9798/30907/01433836.pdf?amumber... - Similar -

(WO/2007/134379) THE MANAGEMENT OF INVENTORY ALLOCATIONS
by A LOCH - 2007 - All 2 versions
RUUL, **Daniel**, Paul; (AU). Agent: CULLEN & CO; Patent and Trade Mark Attorneys, GPO Box 1074, Brisbane, QLD 4001 (AU). Priority Data: ...
www.wipo.int/pctdb/en/wo.jsp?WO=2007134379 - Similar -

Uber Exhibit 1002 - p. 852
Uber Technologies, Inc. v. SurgeTech, LLC

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Uber Technologies, Inc. v. SurgeTech, LLC

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Surname	Initial	Location
ruul	d	
e.g. Smith	e.g. A	e.g. Melbourne VIC, or Victoria, or 3000

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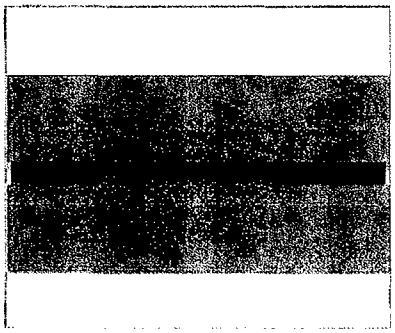
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Uber Exhibit 1002 - p. 855
Uber Technologies, Inc. v. SurgeTech, LLC

Electronic Patent Application Fee Transmittal

Application Number:	12227451
Filing Date:	
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Filer:	David Charles Peterson/Jonathan Ferguson
Attorney Docket Number:	2900.004US1

Filed as Large Entity

U.S. National Stage under 35 USC 371 Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Petition fee- 37 CFR 1.17(g) (Group II)	1463	1	200	200
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**200**

Electronic Acknowledgement Receipt

EFS ID:	6673612
Application Number:	12227451
International Application Number:	
Confirmation Number:	3275
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Customer Number:	21186
Filer:	David Charles Peterson/Jonathan Ferguson
Filer Authorized By:	David Charles Peterson
Attorney Docket Number:	2900.004US1
Receipt Date:	18-DEC-2009
Filing Date:	
Time Stamp:	18:53:12
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$200
RAM confirmation Number	5269
Deposit Account	190743
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

	Miscellaneous Incoming Letter		52	53	
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	30124 2e0bb2e56a558a7b1182d3a0c4d91a2a8c973030	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1822716		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Andrew LOCH et al.

Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS

Docket No.:	3158.001US1	Serial No.:	12/227,451
Filed:	November 18, 2008	Due Date:	December 21, 2009
Examiner:	Unknown	Group Art Unit:	3625
Customer No.:	21186	Confirmation No.:	3275

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the following attached items (as indicated with an "X"):

X Renewed Petition Under 37 C.F.R. 1.47(a) (7 pgs.)
X Copy of Combined Declaration and Power of Attorney (4 pgs.)
X Declaration of Patrick O'Neill in Support of Petition Under 37 C.F.R. 1.47(a) (3 pgs.)
X Declaration of Tom Taggart in Support of Petition Under 37 C.F.R. 1.47(a) (5 pgs.)
X Declaration of Barry Eagar in Support of Petition Under 37 C.F.R. 1.47(a) (2 pgs.)
X Appendix A (17 pgs.)
X Appendix B (2 pgs.)
X Appendix C (2 pgs.)
X Appendix D (1 pg.)
X Annexure B (1 pg.)
X Annexure C (1 pg.)
X Annexure D (1 pg.)
X Annexure E (1 pg.)
X Annexure F (1 pg.)
X Annexure G (2 pgs.)
X Annexure H (2 pgs.)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
Customer No.: 21186

By: /Robert B. Madden/
Robert B. Madden
Reg. No. 57,521

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to:, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 18th day of December, 2009.

/Jonathan Ferguson/

Jonathan Ferguson

UNITED STATES PATENT and TRADEMARK OFFICE

21 OCT 2009

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UNITED STATES PATENT AND TRADEMARK OFFICE
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SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS MN 55402

In re Application of	:	DECISION ON
LOCH et al	:	
Application No: 12/227,451	:	
PCT No.: PCT/AU2007/00684	:	
Int. Filing Date: 18 May 2007	:	PETITION UNDER
Priority Date: 18 May 2006	:	
Attorney's Docket No.: 2900.004US1	:	
For: THE MANAGEMENT OF INVENTORY ALLOCATIONS	:	37 CFR 1.47(a)

This is in response to the "PETITION UNDER 37 CFR 1.47(b)," which is being treated as a petition filed under 37 CFR 1.47(a) on 20 August 2009.

BACKGROUND

On 18 May 2007, applicants filed international application PCT/AU2007/227,451, which claimed priority of an earlier application filed 18 May 2006.

On 18 November 2008, applicants filed a transmittal letter for entry into the national stage in the United States, which was accompanied by, inter alia, the requisite basic national fee as required by 35 U.S.C. 371(c)(1). However, no executed declaration or oath was submitted at such time.

On 12 May 2009, the USPTO mailed a "NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C. 371 AND 37 C.F.R. 1.495 (Form PCT/DO/EO/903)," indicating that date of receipt of 35 U.S.C. 371 (c)(1), (c)(2), and (c)(4) requirements is 18 November 2008, and a date of completion of all 35 USC 371 requirements is 18 November 2008.

On 22 May 2009, the United States Designated/Elected Office (DO/EO/US) mailed a "NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)" (Form PCT/DO/EO/905) which informed applicants, *inter alia*, that "the oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the international application number and international filing date... is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68." The notification set two (2) months from the date of this notice or 32 months from the priority date for the application, whichever is later. Failure to properly respond will result in abandonment."

On 20 August 2009, petitioner filed the present petition, a declaration in support of filing on behalf of omitted joint inventor Daniel Paul Ruul accompanied, inter alia, an executed Declaration without the signature of Daniel Paul Ruul.

DISCUSSION

A petition under 37 CFR 1.47(a) must be accompanied by (1) the fee under 37 CFR 1.17(g), (2) factual proof that the missing joint inventor refuses to execute the application or cannot be reached after diligent effort, (3) a statement of the last known address of the missing inventor, and (4) an oath or declaration by each 37 CFR 1.47(a) applicant on his or her own behalf and on behalf of the non-signing joint inventor.

Petitioner has satisfied items (1) and (3) of 37 CFR 1.47(a) but not items (2) and (4).

Regarding item (1), petitioner has been charged the proper fee of $200.00 under 37 CFR 1.17(g) to Deposit Account No.: 19-0743.

Regarding item (2), the averments of Patrick Willem O'Neil are not sufficient to support a finding that the nonsigning inventor, Mr. Ruul, refuses to sign. Even though Mr. O'Neil states that Cullen mailed a copy of the application papers to him on 30 July 2009 (¶9) and on 31 July 2009 (¶12) a copy of the application papers were emailed to him. On 7 August 2009, the registered letter was returned and none of the phone calls placed to him were answered. No response has been received from Mr. Ruul with respect to the email which was sent to him. As such, it is unclear if Mr. Ruul received the application papers.

Moreover, it is not clear from the petition that it was Mr. O'Neil who performed the actions listed in the petition and the person who mailed and emailed the application papers, and has first hand knowledge of those facts as required by MPEP Section 409.03(d). The cover letter is signed by Claude Anese. If Mr. O'Neil was not the person who performed the actions listed, petitioner will need to submit statements, with specific facts on the actions referred in the petition by the persons who have first-hand knowledge of such facts.

Also, it is unclear if Mr. Ruul still resides in the last known addresses where the papers were mailed because no evidence has been submitted showing that the application papers were delivered to him.

Where the Office is being asked to accept the silence of the nonsigning inventor as evidence of a refusal to sign, petitioner must provide some evidence that the application materials have been received by the nonsigning applicants. Absent further firsthand evidence that the application and request for signature were received by the nonsigning inventors, item (2) cannot be considered satisfied.

If Mr. Ruul does not reside in his last known address, then petitioner is under an obligation to try to find or reach him. Where there is an inability to find or reach a joint inventor "after diligent effort, " petitioner may file a statement of facts that fully describes the exact facts which are relied on to establish that a diligent effort was made under **37 CFR 1.47**.

Accordingly, at this time it can not be concluded that the nonsigning co-inventor refuses to sign or could not be reached after diligent effort as stipulated under 37 CFR 1.47(a).

Regarding item (3), it petitioner has provided a statement of the last known address of the missing inventor.

Mr. Daniel Paul Ruul
Unit 6, 35 McMillan Street, Labrador
QLD Australia 4215

Regarding item (4), petitioner has provided an improper executed declaration because the signature block for Mr. Ruul is signed by someone else other than Mr. Ruul. If the other joint inventors are signing on their behalf and on the behalf of Mr. Ruul then the signature space for Mr. Ruul should be left blank.

Consequently, the petition does not satisfy all the items under 37 CFR 1.47(a).

CONCLUSION

The petition under 37 CFR 1.47(a) is **DISMISSED** without prejudice.

If reconsideration of the merits of the petition under 37 CFR 1.47(a) is desired, applicant must file a request for reconsideration within **TWO (2) MONTHS** from the mail date of this Decision. Any reconsideration request should include a cover letter entitled "Renewed Petition Under 37 CFR 1.47(a)."

Any further correspondence with respect to this matter should be addressed to the Mail Stop PCT, Commissioner for Patents, Office of PCT Legal Administration, P.O. Box 1450, Alexandria, Virginia 22313-1450, with the contents of the letter marked to the attention of the Office of PCT Legal Administration.

Rafael Bacares
PCT Legal Examiner
PCT Legal Office
Telephone: (571) 272-3276
Facsimile: (571) 273-0459

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Unknown	
Serial No.:	12/227,451	Group Art Unit: 3625	
Filed:	November 18, 2008	Docket No.: 2900.004US1	
Customer No.:	21186	Confirmation No.: 3275	
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

DECLARATION OF PATRICK O'NEILL IN SUPPORT OF RULE 1.47(b) PETITION

Commissioner for Patents
P.O. Box 1450
Alexandria , VA 22313-1450

I, Patrick Willem O'Neill, of 13 Murphy Street, Calamvale, Queensland, Australia-, declare as follows:

1. I am a permanent resident of Australia and employed as a technical assistant by Cullens, Patent and Trade Mark Attorneys of level 32, 239 George Street, Brisbane, Australia, 4000.

2. Cullens are the Australian patent attorneys for Allotz.com Limited ['Allotz'] the assignee of the invention of the above-identified application, and are authorized to act on behalf of Allotz.

3. Allotz believes that it is the beneficial owner of the proprietary interest in U.S. Patent Application Serial No. 12/227,451 ['the Application'].

4. At the request of Allotz, Cullens instructed its US associate attorney to file the Application.

5. Allotz has advised Cullens that it believes that the inventors of the invention of the Application are Andrew Loch, Helen Johnson, Geoffrey Toogood and Daniel Paul Ruul.

6. Andrew Loch, Helen Johnson and Geoffrey Toogood have signed a Declaration and Power of Attorney for the Application, as well as a Deed of Assignment for the invention thereof.

7. The inventor Daniel Paul Ruul is uncooperative and is unable to execute any Declaration and Power of Attorney papers associated with any U.S. Patent Application.

8. By a Product Development Deed dated 9 May 2006 between Daniel Paul Ruul and Allotz, a copy of which is attached hereto as Annex A, Daniel Paul Ruul

8.1 assigned to Allotz all present and future Intellectual Property created by him, and

8.2. undertook to sign all documents requested by Allotz or its attorneys to secure Allotz's ownership or rights in the Intellectual Property.

The term 'Intellectual Property' was defined to include inventions (including patents).

9. On 30 July 2009, at the request of Allotz, Cullens sent a letter by prepaid registered mail addressed to Daniel Paul Ruul using his last address known to Allotz, a copy of which is attached hereto as Annex B, in which Cullens explained the history of the Application, and enclosed:

9.1. a copy of the Product Development Deed;

9.2. a combined declaration in support of the Application (with a copy of the specification of the Application being attached to the declaration) and power of attorney in favour of our US associate attorney; and

9.3. a confirmatory assignment of his rights in the invention of the Application.

10. In that letter, Daniel Paul Ruul was asked to review the Declaration/Power of Attorney, the specification (which included the drawings and claim set) and the assignment.

11. In that letter, Daniel Paul Ruul was also asked to sign and return the Declaration/Power of Attorney and the assignment.

12. On 30 July 2009, at approximately 11h02, I telephoned Daniel Paul Ruul on his last known landline number but the dialed number was not operative.

13. On 30 July 2009, at approximately 11h06, I telephoned Daniel Paul Ruul on his last known cell phone number only to receive a message "The service which you have called is not connected".

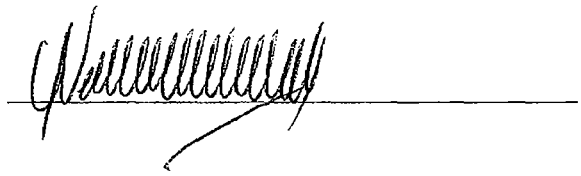
14. On 31 July 2009, at approximately 10h09, a copy of the letter and enclosures referred to in item 9 hereinabove was sent to the last known e-mail address of Daniel Paul Ruul. A copy of the emails attaching the letter and enclosures are attached hereto as Annex C.

15. On 7 August 2009, the registered letter was returned to Cullens marked 'NOT AT THIS ADDRESS. PLEASE RETURN TO SENDER.' The date stamp is evident on the letter attached hereto as Annex B and a copy of the envelope marked with the message is attached hereto as Annex D.

16. No response has been received to date from Daniel Paul Ruul in respect of the email which was sent to him.

17. The rights of Allotz will be irreparably damaged if this Petition under 37 C.F.R. 1.47(b) is not granted because Allotz will loose any rights which it may have in the Application as well as any protection which may be provided to Allotz as a result of the existence of the Application. Allotz will also loose the opportunity to attempt to prosecute the Application to registration.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any United States patent issued thereon.

Date: 19 August 2009 

"A"

PRODUCT DEVELOPMENT DEED

THIS DEED made the 9th day of MAY. 2006.

BETWEEN: **THE COMPANY REFERRED TO IN ITEM 2 OF SCHEDULE 1** ("Company")

AND: **THE DEVELOPER REFERRED TO IN ITEM 3 OF SCHEDULE 1** ("Developer")

RECITALS:

A. The Company intends to develop certain software products.

B. The Company will provide the Developer with Specifications for the Products.

C. The Developer has represented that he has the skill and capacity to develop the Products for the Company.

D. The Company wishes to engage the Developer to develop the Products in accordance with the Specifications and the Developer has agreed to accept such engagement on the terms and conditions of this Deed.

E. It is the intention of the parties that the Products, all Software and Intellectual Property relating to the Products are to be owned by the Company.

OPERATIVE PARTS

1. DEFINITIONS AND INTERPRETATION

1.1 In this Deed, unless a contrary intention appears:

'Acceptance Tests' means the acceptance tests for each of the Development Phases of the Products as set out in the Development Plan;

'Commencement Date' means the date stated in Item 1 of Schedule 1;

'Confidential Information' includes, but is not limited to matters not generally known or in the public domain, such as developments relating to existing and future products and services marketed or used or to be marketed or used, or rejected, by a party and persons or companies dealing with a party and also information relating to the general business operations with a party including:

(a) profit and loss statements;

(b) balance sheets;

(c) customer, licensee and distributor lists (actual and proposed);

(d) cost and selling price information;

(e) trade secrets, know-how and specifications in respect of the party's products, work-in-progress, services and intellectual property;

(f) business and marketing plans;

DR

(g) third party information disclosed to a party in confidence;

'Developer's Fee' means the consideration set out in Item 4 of Schedule 1;

'Development Phase' means the stage in the Development Plan at which specified parts of the development of the Products will have been completed, specified results achieved or specified conclusions reached as required by the Development Plan;

'Development Plan' means the plans and timetables for the development of the Products as set out in Schedule 4;

'Document' or **'Documentation'** includes handwritten, typed, printed and electronically created or stored records and copies thereof;

'Force Majeure Event' means:

(a) any act of God;

(b) any outbreak or escalation of hostilities (whether or not war has been declared);

(c) any other lawful act against public order or authority;

(d) any industrial dispute;

(e) any governmental restraint; or

(f) any other event which is not within the reasonable control of the parties;

'Intellectual Property' means rights to any and all intellectual, commercial and industrial property throughout the World, whether registered or not, connected with the Products and the Software including but not limited to:

(a) copyright (including future copyright and rights in the nature of or analogous to copyright);

(b) improvements to existing Intellectual Property;

(c) inventions (including patents);

(d) trade marks and service marks;

(e) designs and circuit layouts;

(f) any Confidential Information;

(g) the right to apply for protection of or take action relating to any intellectual property;

'Products' means the products described in Schedule 2 and includes all Related Software and Intellectual Property;

'Premises' means a place of business or other place under the control of a party;

'Related Software' means all Software underlying, forming part of, controlling or directing the operation of or related to the Products;

'Services' means all of the obligations of the Developer to develop the Products for the Company in accordance with this Deed;

'Software' means written programs, code, procedures, instructions or rules and associated documentation (print or electronic) pertaining to the operation or control of a computer or electronic device and unless otherwise expressly stated includes every individual item of software;

'Specifications' means the specifications set out in Schedule 3;

'Term' means the period from the date of this Deed to the date it is terminated.

1.2 In the interpretation of this Deed:

DR

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Uber Technologies, Inc. v. SurgeTech, LLC

(a) references to:

(i) a party is to a party to this Deed and includes the party's executors, administrators, successors and assigns;

(ii) anything includes part of that thing;

(iii) persons includes individuals, companies, associations, partnerships, bodies corporate, and governments and governmental, semi-governmental and local government and agencies or other entity;

(iv) documents include the document as changed or replaced from time to time;

(v) A$, dollar or $ is to Australian currency;

(vi) a party, where the party is more than one person, means all of them together and each of them separately;

(vii) a clause, paragraph, schedule or annexure refers to a clause , paragraph, schedule or annexure in this Deed;

(viii) this Deed includes any schedule or annexure;

(ix) time is a reference to Australian Eastern Standard Time;

(viii) a statute, ordinance, code or other law includes regulations and other instruments under it and includes all amendments, consolidations, re-enactments or replacements of any of them;

(b) the singular includes the plural and vice versa; words including a gender shall include all other genders;

(c) where a party is more than one person, this Deed binds all of them separately and each of them together;

(d) the meaning of general words is not limited by specific examples introduced by 'including, for example' or similar expressions;

(e) headings do not affect the meaning of the Deed;

(f) a rule of construction does not apply to the disadvantage of a party because the party was responsible for the preparation of this Deed or any part of it;

(g) another grammatical form of a defined word or expression has a corresponding meaning;

(h) a reference to "indemnity" means that the person giving the indemnity will indemnify and keep indemnified the person given the indemnity against any loss, damage, claims, actions, demands, costs (on a solicitor and own client basis and whether incurred by or awarded against the person indemnified) or expenses suffered or sustained, directly or indirectly, because of the event indemnified against. This means that if the person indemnified suffers any loss or must pay any money (whether or not it is actually paid) because of an indemnified event the party giving that indemnity must pay the amount of loss or the amount of liability to the indemnified party. If it does not, the indemnified party can recover the amount as a liquidated claim; and

(i) if anything to be done under the Deed falls on a Saturday, Sunday or public holiday, then it must be done on the next business day within that area unless the thing to be done under the Deed is a task which must be done on a Saturday, Sunday or public holiday to avoid a delay to the Services in which case it must be done on that day.

DR

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Uber Technologies, Inc. v. SurgeTech, LLC

2. APPOINTMENT OF DEVELOPER

2.1 As and from the Commencement Date the Company agrees to engage the Developer as an independent contractor to develop the Products and the Developer agrees to such engagement.

2.2 The Developer will develop the Products in accordance with the Specifications and the Development Plan and in accordance with any lawful requests and directions of the Company which relate to the development of the Products.

2.3 The Developer will deliver the Products to the Company in the format and by the dates specified in the Development Plan.

3. SPECIFICATIONS AND DEVELOPMENT PLAN

3.1 The Developer acknowledges that the Specifications and the Development Plan are in an early design stage and it is agreed between the parties as follows:

(a) The Company and the Developer will jointly design and document the Specifications and the Development Plan in Development Phases as requested by the Company;

(b) If the Company and the Developer cannot agree as to any matter relating to the Specifications and the Development Plan, the Company's determination will be final;

(c) The parties will consult with each other about any alterations to the Specifications and the Development Plan but if they cannot agree the Company's determination will be final.

3.2 The Company may request an alteration to the Specifications or the Development Plan.

3.3 The Company and the Developer will use their best endeavours to reach agreement on the matters specified above, in which case the terms of any agreement will be confirmed in writing by both parties.

3.4 If the Company makes a determination as above it will notify the Developer in writing.

3.5 The Specifications and/or Development Plan will be deemed to incorporate any alterations agreed to or determined as above.

4. COMPLIANCE WITH DEVELOPMENT PLAN

4.1 The Developer will achieve each Development Phase by the date specified in the Development Plan. The parties acknowledge that time is not of the essence in achieving each of the Development Phases.

4.2 Immediately after becoming aware of a potential or actual delay in achieving a Development Phase, the Developer will notify the Company in writing of the nature and cause of the delay and the steps being undertaken to overcome the delay.

4.3 The Company may in its absolute discretion, and on such terms as it may require, grant an extension of time for the achievement of a Development Phase as requested by the Developer.

4.4 If a delay in respect of any Development Phase continues for more than 30 days after the due date, such delay will constitute a Termination Event and the provisions of clause 12.2 will apply.

4.5 At the request of the Company (not exceeding more than one (1) request per calendar month), the Developer will report to the Company on the progress of the development of the Products. Such a report will be given to the Company within five (5) business days

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of the Company making such a request.

4.6 The Developer must keep such records as stipulated in the Development Plan or as directed by the Company relating to the Developer's performance of its obligations under this Deed, to provide a full and proper account of the activities of the Developer in the performance of such obligations.

4.7 Upon reasonable notice having regard to the circumstances, the Company may inspect the records of the Developer referred to in clause 4.6 above relating to any matter under this Deed. Upon receipt of such notice the Developer must provide the stipulated records to the Company expeditiously together with all access codes and similar. In exercising its rights under this clause, the Company agrees at all times to act reasonably and will use its best endeavours to minimise any disruption to the Developer and to ensure that confidentiality is maintained.

5. TESTING THE PRODUCTS

5.1 The Company will conduct an Acceptance Test at its own cost and under the supervision of the Developer within 14 days of the completion of each Development Phase and in accordance with the Development Plan.

5.2 If the Company is satisfied that the Products at that Development Phase comply with the Acceptance Test, the Company will issue a Certificate of Acceptance for that Development Phase, within two Business Days of the Acceptance Test.

5.3 If the Company is not reasonably satisfied that the Products at that Development Phase comply with the Development Plan, the Company may by written notice to the Developer:

(a) fix a new date for carrying out further tests on the same terms and conditions; or

(b) accept the Products conditionally; or

(c) reject the Products as not being in conformity with the Development Plan and, if the Developer does not remedy any non-compliance within 30 days thereafter, the Company may terminate this Deed and the provisions of clause 12.1 will apply.

5.4 If the Company accepts the Products at a Development Phase conditionally in accordance with clause 5.3(b), the Developer will ensure that the deficiencies are remedied in accordance with the terms of any conditional acceptance and, in any event, no later than by the completion of the final Development Phase.

6. WARRANTIES AND INDEMNITIES

6.1 Each party warrants that:

(a) it has authority to enter into and to perform its obligations under this Deed;

(b) it has the ability to perform its obligations under this Deed; and

(c) it is authorised by all necessary government and other agencies and authorities to perform its obligations under this Deed and will continue to be authorised to perform this Deed.

6.2 The Developer warrants that the Products will:

(a) perform in accordance with the Specifications;

(b) be fit for the purpose identified in the Specifications.

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6.3 The Products must be developed and supplied by the Developer to the highest professional standard and in compliance with the Development Plan.

6.4 The Developer warrants that no literary or other works employed or created by the Developer in the development of the Products shall infringe any copyright, obligation of confidentiality, patent or other right of property or contractual obligations belonging to or benefiting any third party.

6.5 If the Developer is in breach of any term of this Deed, the Developer must upon request being made by the Company remedy such breach at no charge to the Company. Such remedy to the Company shall be without prejudice to any other right or remedy to which the Company may be entitled, whether at law, in equity or otherwise.

6.6 Each party must indemnify the other from and against any costs, damages, loss or liability of any kind (including indemnity legal costs and disbursements in defending or settling the claim giving rise to same) however suffered or incurred by the indemnified party by virtue of any breach of this Deed by the other party. Such indemnity shall extend (without limiting the generality of the foregoing) to any costs, damages, loss or liability (including indemnity legal costs and disbursements in defending or settling the claim giving rise to the same) incurred by the indemnified party by virtue of any injury or disability suffered by any employee or sub-contractor of the other party, arising by whatever legal theory (whether statutory, tortious or otherwise).

7. INTELLECTUAL PROPERTY

7.1 Subject to clause 7.4, the Developer hereby assigns to the Company all present and future Intellectual Property created by the Developer or any contractor or employee of the Developer (whether or not in normal business hours or using the Premises or the equipment of the Company or the Developer), and the Developer acknowledges that by virtue of this clause, ownership of all Intellectual Property vests in the Company and, on their creation, any future rights will vest in the Company.

7.2 The Developer must disclose all Intellectual Property created by the Developer or any contractor or employee of the Developer as described in clause 7.1 above.

7.3 The Developer must both during and after the period of this Deed do all such acts and things, and sign all such documents, as the Company or its attorneys may reasonably request to secure the Company's ownership or rights in the Intellectual Property.

7.4 The Developer must use its best endeavours to protect all Intellectual Property rights in or related to the Products or created under this Deed and in particular must ensure that any employee or contractor of the Developer engaged for the purposes of this Deed execute a valid assignment of any Intellectual Property rights to which they would otherwise be entitled in relation to the Products and the subject matter of this Deed.

7.5 Where any Intellectual Property rights are owned by a third party ('third party rights'), the Developer will ensure that the use, reproduction and commercial exploitation of the Products will not infringe any such third party rights and that no fees, royalties or other payments are payable in respect of such third party rights as a result of any such use, reproduction and commercial exploitation unless agreed by the parties in writing to the contrary.

8. CONFIDENTIALITY

8.1 The Developer and the Company agree that during the term of this Deed they may become acquainted with or have access to Confidential Information belonging to the other party, and agree both during and after the term to maintain the Confidential Information and to prevent its unauthorised disclosure to or use by any other person,

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firm or company, unless or until authorised in writing to disclose any Confidential Information by the other party or any of its related bodies corporate.

8.2 The parties agree that they shall not:

(a) use the Confidential Information for any purpose other than for the benefit of the other party during or after the term of this Deed;

(b) remove or permit to be removed the Confidential Information from any Premises at which it is held under the terms of this Deed, without the written consent of the other party;

(c) for whatever reason, either for themselves or any third party, appropriate, copy, memorise or in any manner reproduce any of the Confidential Information.

8.3 The parties must use their best endeavours to ensure that their employees, agents, contractors and related entities do not make public or disclose any confidential information and agrees that they may only make disclosure to such persons if they need to know the information to perform their duties or for other proper purposes under this Deed and only after they have executed an Deed in similar terms under which they are bound to observe such obligations of confidentiality for the benefit of the other party.

8.4 The parties agree to return any or all Confidential Information howsoever embodied on the request of the other party.

8.5 The parties agree that they shall not, both during or after the term of this Deed for whatever reason, make improper use of the Confidential Information acquired by virtue of this Deed, to gain, directly or indirectly, an advantage for themselves or for any other person or to cause detriment to the other party.

8.6 Nothing in this Deed shall impose an obligation on a party with respect to maintaining confidence regarding information which is generally known or available by publication, commercial use or otherwise than as a result of a breach by that party of its obligation in this section.

9. REMUNERATION

9.1 The Company will pay the Developer's Fee to the Developer in the manner and at the times as set out in Item 4 of the Schedule.

9.2 The Company shall reimburse the Developer for such out-of-pocket expenses reasonably incurred by the Developer under this Deed, provided that such expenses were approved in writing by the Company prior to the Developer incurring the expenses.

10. EMPLOYEES

10.1 If the Developer wishes to carry out part of the development of the Products by one or more employees or contractors of the Developer the consent in writing from the Company must first be obtained and no such employee or contractor shall have access to any Confidential Information unless approved by the Company in writing and once approval has been obtained there shall be no variation unless such variation is agreed by the Company in writing.

10.2 If Clause 10.1 applies, the Developer agrees to use employees or contractors with proper qualifications and skill necessary for their work under this Deed. If the Company, acting reasonably, believes that a contractor or employee is incapable of adequately performing the work, is or may be likely to act dishonestly or otherwise in breach of this Deed, it may give written notice to the Developer requiring it to replace the contractor or employee. The Developer must investigate the matter urgently and must replace the contractor or employee unless it can demonstrate to the Company's satisfaction that its beliefs are unfounded.

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11. TRAINING AND DOCUMENTS

11.1 The Developer will provide to the Company, and any other person nominated by the Company, such training as provided in the Development Plan and such usual documentation as reasonably required to enable the Company to properly operate, effectively use and commercially exploit the Products.

11.2 Subsequent to delivering the Products and notwithstanding termination or expiry of this Deed, the Developer will, for a period of three (3) months, provide the Company with support at no charge as reasonably required to assist the Company in the use of the Products and all analysis and programming services necessary to correct and resolve any errors or problems in the Products caused by or attributable to the work of the Developer under this Deed.

12. TERMINATION

12.1 Either party (not being in default) may immediately terminate this Deed by written notice to the other, if:

(a) the other party commits a breach of this Deed or is in default of any provision of this Deed and the defaulting party fails to correct such breach or default within 14 days of receiving notice specifying such breach or default;

(b) the other party is insolvent or otherwise unable to pay its debts as and when they fall due;

(c) an administrator, trustee in bankruptcy, receiver, liquidator or controller is appointed to the other party;

(d) the other party commits a material breach of this Deed; or

(e) a party exercises its rights to terminate under any other part of this Deed.

12.2 The termination of this Deed is without prejudice to any rights which have accrued to a party before the date of termination.

12.3 The Developer acknowledges and accepts that if the Company is in breach of this Deed, the Developer's remedies will not include indirect or consequential losses.

12.4 Without prejudice to any other right or action or remedy which the Company may have, if the Developer is in breach of any term of this Deed, the Company may suspend payment of any Developer's Fee due at that time under this Deed until such breach is rectified.

12.5 This Deed will terminate on completion of all of the Developer's obligations herein.

12.5 On expiration or termination of this Deed the Developer will deliver to the Company, in the format and in the manner directed by the Company, the Products as developed as at the date of termination together with Documentation, Software, code and related property.

13. INSURANCE

13.1 The Developer will take out and maintain such policies of insurance as a prudent developer carrying out its work under this Agreement would be expected to take out and maintain and if requested by the Company on reasonable notice will supply the Company with certificates of currency or similar evidence of such insurance. At the minimum such insurance will include professional indemnity cover. The parties intend that reasonable notice should be a period of ten (10) business days.

13.2 The Developer will cause the Company's insurable interest (if applicable) to be noted on

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any policy of insurance taken out under this clause.

13.3 The Developer will deliver copies of such policies or proof of their currency to the Company as soon as practicable and in any event within 28 Business Days after execution of this Agreement.

13.4 The insurance policies will:

(a) name the Developer and the Company as co-insured;

(b) include a clause enabling one insured person to claim against the insurer where another insured person would have been entitled to claim against the insurer, but is precluded from doing so for any reason, including but not limited to, a breach of the policy by that other insured person; and

include a cross liability clause enabling one insured person to claim against the insurer even if the party making the claim against the insured person is also insured under the policy.

14. RELATIONSHIP OF PARTIES

The Developer's relationship with the Company shall be that of principal and independent contractor. Neither the Developer nor the Company shall have (and shall not represent that it has) any power, right or authority to bind the other, or to assume or create any obligation or responsibility, express or implied, on behalf of the other or in the other's name. Nothing stated in this Deed shall be construed as constituting the Company and the Developer as partners, principal and agent or employer and employee.

15. RETURN OF DOCUMENTATION

Upon the termination of this Deed for any reason the Developer shall leave with the Company all records, books, drawings, note books and other documentation and things pertaining to the Products and to the Confidential Information whether prepared by the Developer or any other person, and any equipment or the devices owned by the Company then in the possession of the Developer or any employee or contractor of the Developer, and the Developer will ensure that all such information is deleted from any computer or electronic information retrieval system under the control of the Developer or any of his employees or contractors.

16. GOODS AND SERVICES TAX

16.1 The price paid to the Developer under this Deed shall be inclusive of GST and the Developer will provide the Company with a tax invoice in respect to any required payments.

16.2 Notwithstanding clause 16.1, the Company has no liability to pay any amount to the Developer for or on account of GST unless the Developer has first delivered to the Company a tax invoice for the amount of such GST referable to the taxable supply, including such particulars as may be required by the GST Law from time to time.

16.3 If, for any reason and at any time, GST is assessed by the ATO as payable by any party to this Deed upon any supply provided for in this Deed ('additional GST assessment') and for which GST no provision, or improper, ineffective or inadequate provision, is made in this Deed:

(a) the party who made the supply shall, as soon practicable after becoming aware of the additional GST assessment, issue to the tax payer, an Adjustment Note or Tax Invoice, as the case requires, in respect of the original supply and the additional GST assessment;

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(b) the tax payer shall, upon receipt of such Adjustment Note or Tax Invoice, immediately pay to the Developer the amount of the additional GST assessment. In default of payment the Developer may recover from the tax payer the amount of the additional GST assessment, together with any other amounts payable on account of or in relation to the additional GST assessment, as a liquidated debt, plus any legal costs, calculated as between solicitor and own client, reasonably incurred by the Developer in or in relation to such recovery.

16.4 For the purposes of this Deed:

(a) **'Adjustment Note'** means an adjustment note under the GST Law;

(b) **'ATO'** means the Australian Taxation Office or such other statutory authority or person charged with the administration of the GST Law from time to time;

(c) **'GST'** means a tax, levy, duty, charge or deduction, together with any related additional tax, interest, penalty, fine or other charge, imposed by or under a GST law;

(d) **'GST Law'** means *A New Tax System (Goods and Services Tax) Act* 1999 (Cth) or an Act imposing, or relating to the imposition or administration of such a tax;

(e) **'Tax Invoice'** means a tax invoice under the GST Law; and

(f) **'Taxable supply'** means a supply which is subject to the GST Law and which is not exempt from the GST law and, unless the context otherwise requires, "supply" has a corresponding meaning.

17. DISPUTE RESOLUTION

17.1 If a party gives notice to the other that a dispute has arisen in relation to the subject matter of this Deed the parties must use their best endeavours and act bona fide in an attempt to resolve such dispute within fourteen (14) days of such notice.

17.2 If the dispute cannot be resolved, the dispute must be referred to a mediator sitting in Brisbane nominated by either party and agreed to by the other. Failing such agreement, the mediator will be appointed at the request of either party by the Australian Commercial Disputes Centre Queensland and the mediation will proceed in accordance with the rules of that Body.

17.3 If the mediation fails to resolve the dispute within thirty (30) days of appointment of the mediator, but not otherwise, a party may commence litigation in relation to the dispute.

17.4 Notwithstanding Clause 17.3 above, a party may at any time seek injunctive relief against the other party.

18. GENERAL

18.1 Notices. All notices and consents required or permitted to be given under this Deed shall be in writing and given by personal service, pre-paid postage, facsimile transmission or email transmission at the addresses of the parties set out in this Deed or to such other address as either party may designate to the other by written notice.

18.2 Assignment. Neither this Deed nor any rights or obligations hereunder may be assigned or otherwise transferred by the Developer without the prior written permission of the other.

18.3 Governing law. This Deed shall be governed by the laws of Queensland and the parties submit to the jurisdiction of that State.

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18.4 Force Majeure. A party is not liable for its inability to perform, or for any delay in performing, any of its obligations under this Deed if that inability or delay is caused by a Force Majeure Event.

18.5 Modification. This Deed may be modified only in writing signed by duly authorised persons for both parties.

18.6 Severability. If any provision of the Deed should be held to be invalid in any way or unenforceable, the remaining provisions shall not in any way be effected or impaired thereby, and this Deed shall be construed so as to most nearly give effect to the intent of the parties as it was originally executed.

18.7 Legal Advice. The Developer acknowledges that this document is prepared by ffrench.commercial lawyers as Solicitors for the Company and that they do not represent him. The Developer upon signing this document acknowledges that he has obtained independent legal advice about its effect and meaning.

EXECUTED as a Deed.

EXECUTED BY **ALLOTZ.COM LIMITED (ACN 118 777 245)** in accordance with the Corporations Act 2001 and in the presence of:)

MARTIN McCONNACHIE

.....
Signature of Witness

V INGRAM
Name of Witness

EXECUTED BY **DANIEL PAUL RUUL** in the presence of:)

Daniel Ruul

.....
Signature of Witness

V INGRAM
Name of Witness

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SCHEDULE 1

Item 1	
Commencement date:	Date of this Deed
Item 2	
Name and address of Company:	ALLOTZ.COM LIMITED ACN 118 777 245 of C/-Quill Group, Level 6 Seabank Building, 12-14 Marine Parade, Southport QLD 4215
Item 3	
Name and address of Developer:	DANIEL PAUL RUUL of 24 Camelot Crescent, Hollywell Qld 4216
Item 4	
Developer's Fee:	Such fees as the Company and the Developer may agree upon, to be recorded in writing.

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SCHEDULE 2

The Products

A business to business web based application, designed specifically for accommodation properties to manage and distribute their inventory automatically across a broad range of online travel resellers and intermediaries. The website and database application will achieve and involve/require the following:

1. Provide member login and credit card payment gateway for membership fees.
2. Provide Search Engine analysis of the top ranking reseller sites for a property in any given area by location as well as commission rates charged.
3. Provide a complete accommodation package building database and client interface for members to create packages, rates and seasons as well as allotments for distribution.
4. Allow members to selectively distribute packages to as many channels as their membership rate allows.
5. Statistically report on yield and performance for each client.
6. Perform advanced, automatic distribution management functions as per the Intellalotz model.
7. Incorporate the elements described as "the invention" below.
8. Develop a communication interface based on XML in accordance with the Open Travel Association standard.
9. Build the website interface for the entire site.

FIELD OF THE INVENTION

The present invention relates to intelligent communication, analysis and re-distribution of inventory between accommodation properties and the online travel resellers, portals, airlines and agencies.

SUMMARY OF THE INVENTION

Allotz.com Limited will be the provider of a business to business website designed for its accommodation provider members to place their entire accommodation inventory required to be sold online via third party online resellers in a single location, this will also include the property's own online booking engine on their own website. The implementation of the invention will intelligently manage room allotments between different distribution channels. IntelliAllotz will work out the rate of inventory sale for all properties and for each individual property, it will know the sale price and rate of commission and work out each channels performance rating. This performance rating will enable the system to intelligently re-assign distribution of property's inventory to any reseller online based on inventory demand and profit for the property, this assignment will be influenced by a minimum sale rate for all inventory sold. IntelliAllotz will also calculate the sale rate index, which is the amount of rooms sold per hour in relation to the amount of rooms available to the channel. With the performance rating

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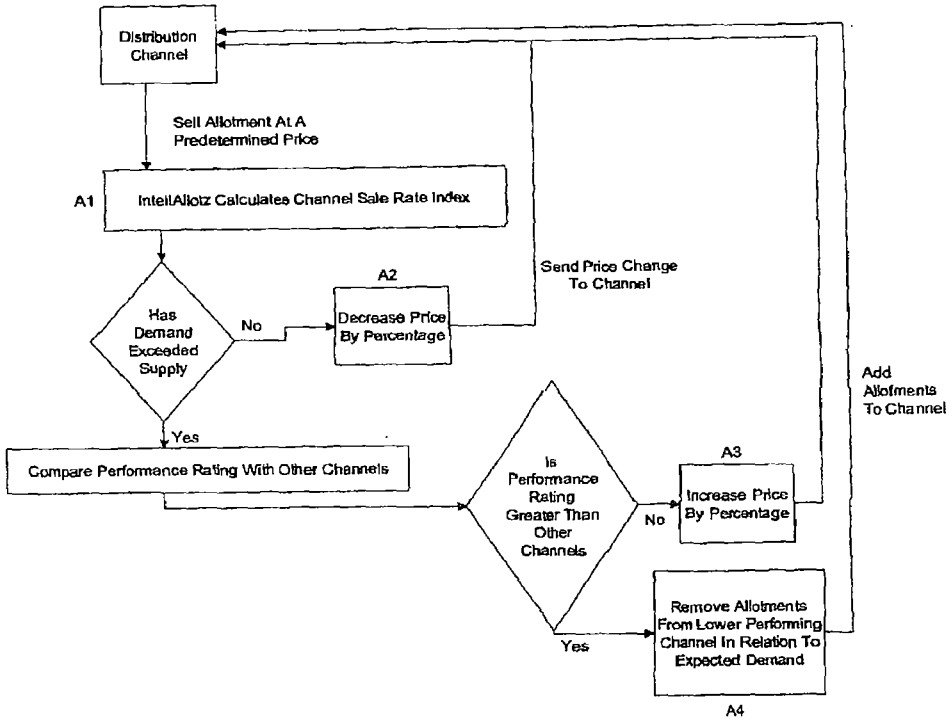
and the sale rate index IntelIAllotz will calculate how many rooms to allocate to a particular channel and the price at which it is sold for to maximize profit for the property.

We have to calculate the maximum rooms possibly sold to the channel with the highest performance rating.

Normally performance is based on a fixed rate for a room often referred to as a rack rate, IntelIAllotz however, allows for the setting of a minimum room rate and can adjust prices up from or back to that price based on channel performance to maximize potential profit. If the online reseller channel has higher demand than availability, it can automatically increase the room rate to maximize profit. IntelIAllotz can also increase the rate on high room selling channels that have a high rate of agents commission to bring their performance rating equal to or higher than other channels with lower agents commission. With this technique IntelIAllotz can maximize profit on a range of competing channels. So the rate at which a channel is selling compared to its performance rating is directly proportional to a surplus of supply and the rate at which the room is being sold. Basically the supply and commission control the rate at which a room is sold for each channel. If a shortage of supply should occur all channels will increase in price but if there is an abundance of supply they will decrease to a price relative to their performance rating. The property would have to set a rate of change that would be used to increase or decrease the rate at which the room would be sold i.e. 10%. Performance would be calculated per hour and related to previous statistical analysis of the targeted date range.

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FIGURE 1.1



Explanation of FIGURE 1.1

This is a systems flowchart of how IntellAlotz works. The Distributions Channel is any user selected third party reseller that stocks real-time property availabilities. Via a XML standard IntellAlotz will dynamically allocate/reallocate/update/query allotments to these channels.

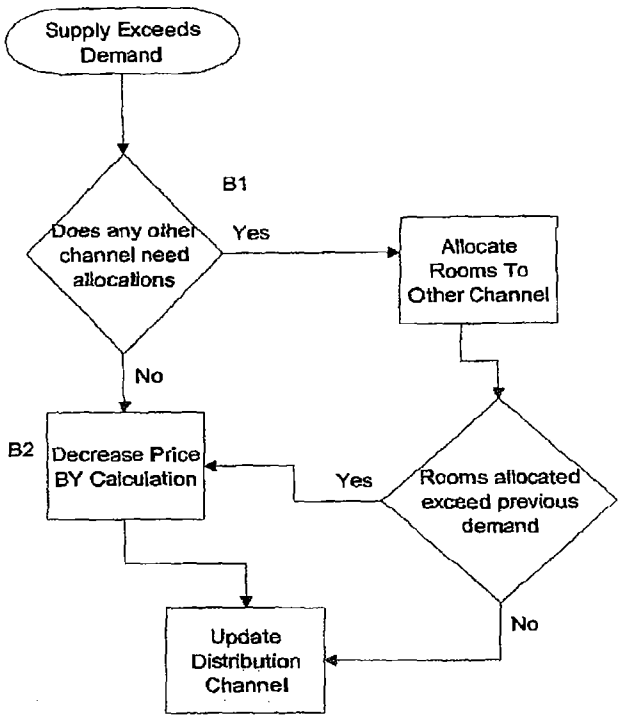
A1 is where IntellAlotz works out the Channel Sale Rate Index. This value is a calculation of Amount Sold in a period of time divided by the amount allocated. This value is then multiplied by 100 to get a percentage.

This then can lead into A2 where supply exceeds demand; FIGURE 1.2 explains it in more detail.

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FIGURE 1.2



In B1 If supply exceeds demand IntellAllotz checks to see if other channels are in need of allotments, if they are it removes them from the original channel and adds them to the channel in need. B2 has a calculation that involves the minimum rack rate, the current rate and the surplus percentage. IntellAllotz will adjust the performance rating by 10% at a time and in this case it is a decrease. If a channel had a performance rating of 90 selling rooms at $100 with a commission of $10 and we wanted to reduce its performance rating by 10% we would use the calculation

90*0.9=81
81+$10(commission)=$91 sale rate

If the minimum sale rate was below the new rate then $91 would be the new sale price otherwise the minimum sale rate would be the new price.

The reverse can be said for A4 where an increase is used instead. The same adjustment rate of 10% is used, so if a channel with a performance rate of 90 selling rooms at $100 with a commission of $10 is increased by 10% we would use the calculation

90*1.1=99
99+$10(commission)=$109 sale rate

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SCHEDULE 3

Specifications - See Clause 3

SCHEDULE 4

Development Plan - See Clause 3

CULLENS
Patent and Trade Mark Attorneys

"B"

30 July 2009

By email and Registered Mail
Return Receipt Requested

Mr. Daniel Paul Ruul
Unit 6/35 McMillan Street
Labrador, 4215
Queensland
Australia

07 AUG 2009

ACCOUNTS		
DIARY		
RECORDS		
OPERATOR		

Dear Mr Ruul

Re:	United States Patent Application serial number 12/227,451
Title:	The management of inventory allocations
Applicant:	Allotz.com Limited
Our Ref:	085348US/PN

We are patent attorneys for Allotz.com Limited ("Allotz ").

At the request of Allotz, we instructed our US associate attorney to file a patent application entitled "The Management of Inventory Allocations" in the United States. That application has been allotted serial no. 12/227,451. Based on information provided by Allotz, you were named as a co-inventor of the U.S. patent application, together with Andrew Loch, Helen Johnson and Geoffrey Toogood.

By a Product Development Deed (copy attached) dated 9 May 2006 between you and Allotz, you

a) assigned to Allotz all present and future Intellectual Property created by you, and
b) undertook to sign all documents requested by Allotz or its attorneys to secure Allotz's ownership or rights in the Intellectual Property.

The term 'Intellectual Property' was defined to include inventions (including patents).

On behalf of Allotz, we now request that you sign and date the attached

a) combined declaration in support of the US application (a copy of the patent specification of the US application being attached to the declaration) and power of attorney in favour of our US associate attorney;
and
b) confirmatory assignment of your rights in the invention.

The attached specification includes the claim set and drawings which were filed with the U.S. Patent and Trademark Office for patent application no. 12/227,451, including the amendments referred to in the declaration. Please review the specification, claims and drawings before signing and dating the Declaration/Power of Attorney, and assignment. If you do not understand the contents thereof, or require further information, please let us know.

Once signed, the combined declaration/power of attorney and assignment are to be returned to us as soon as possible, and preferably no later than 10 August 2009.

We enclosed an addressed, prepaid envelope for your convenience.

Cullens ABN 15 193 301 859
Level 32, 239 George Street, Brisbane QLD 4000, Australia
Mail GPO Box 1074, Brisbane QLD 4001, Australia
Phone +61 7 3011 5555 Fax +61 7 3229 3384
Email mail@cullens.com.au Web www.cullens.com.au

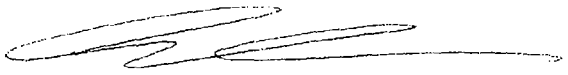
Offices
Brisbane
Gold Coast
Townsville

If we receive no reply from you by 10 August 2009, we will interpret the lack of reply as a refusal to sign the Declaration and Assignment documents.

We mention that the combined declaration/power of attorney and assignment have been signed by the three other co-inventors, as evidenced by the attached copies of those signed documents.

We appreciate your prompt attention to this matter. You may direct any questions to the undersigned.

Yours faithfully
CULLENS



CLAUDE ANESE | PARTNER
Assisted by Patrick O'Neill | Technical Assistant
c.anese@cullens.com.au

pn

Enc. Copy of Product Development Deed
Combined declaration/power of attorney, with specification – for signature and return
Assignment document– for signature and return
Copy of documents signed by other co-inventors

"C"

Avryl Pursey

From: Avryl Pursey
Sent: Friday, 31 July 2009 10:09 AM
To: 'd_p_ruul@hotmail.com'
Subject: United States Patent Application serial number 12/227,451 in the name of Allotz.com Limited Our Ref 085348US/PN

Attention: Mr Daniel Paul Ruul

Dear Mr Ruul

Email 1/2

Please find attached correspondence in relation to the above mentioned application.

085348US_001.pdf (62 KB) | Product elopment Deed_001 | Declaration & POA_001.pdf (195...

Best regards

CULLENS
Patent and Trade Mark Attorneys

Avryl Pursey | Secretary
Cullens Patent and Trade Mark Attorneys
GPO Box 1074, Brisbane QLD 4001 Australia
Phone +61 7 3011 5555 | Fax +61 7 3229 3384 | Email a.pursey@cullens.com.au | Web www.cullens.com.au

Confidentiality warning:
This e-mail message and any attachment contains information intended solely for the use of the person(s) named above and client-attorney privilege is claimed where applicable. If received in error, please delete the message and attachment(s) from your computer, destroy any hard copies, and advise the sender immediately by e-mail.

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Avryl Pursey

From: Avryl Pursey
Sent: Friday, 31 July 2009 10:09 AM
To: 'd_p_ruul@hotmail.com'
Subject: United States Patent Application serial number 12/227,451 in the name of Allotz.com Limited Our Ref 085348US/PN

Attention: Mr Daniel Paul Ruul

Dear Mr Ruul

Email 2/2

Please find attached correspondence in relation to the above mentioned application.


Specification_001.pdf (1 MB)


Documents by co inventor_001.p...

Best regards

CULLENS
Patent and Trade Mark Attorneys

Avryl Pursey | Secretary
Cullens Patent and Trade Mark Attorneys
GPO Box 1074, Brisbane QLD 4001 Australia
Phone +61 7 3011 5555 | Fax +61 7 3229 3384 | Email a.pursey@cullens.com.au | Web www.cullens.com.au

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Uber Exhibit 1002 - p. 888
Uber Technologies, Inc. v. SurgeTech, LLC



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OFFICIAL USE

BQ7640459

BARCODES FOR DELIVERY RECORD ONLY

NOT AT THIS ADDRESS PLEASE RETURN TO SENDER

To: Company Name

For urgent Attention of Mr Daniel Paul Ruul Telephone ( )

PO Box Number† or Street Address Unit 6/35 McMillan Street

Suburb or Town Labrador State QLD Postcode 4215

† PO Box Addresses help ensure early morning delivery

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AUSTRALIA POST

Uber Technologies, Inc. v. SurgeTech, LLC
Uber Exhibit 1002 - p. 889

SCHWEGMAN ■ LUNDBERG ■ WOESSNER

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: **THE MANAGEMENT OF INVENTORY ALLOCATIONS**,

the specification of which was filed on November 18, 2008 as application serial no. 12/227,451 and was amended on November 18, 2008.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability of this application in accordance with 37 C.F.R. § 1.56 (attached hereto). I also acknowledge my duty to disclose all information known to be material to patentability which became available between a filing date of a prior application and the national or PCT international filing date in the event this is a Continuation-In-Part application in accordance with 37 C.F.R. § 1.63(e).

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

Foreign application(s), if any, claiming priority under 35 U.S.C. § 119:

Application Number	Country	Day/Month/Year Filed
2006902685	Australia	18/05/2006

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

No such claim for priority is being made at this time.

I hereby claim the benefit under 35 U.S.C. § 120 or 365(c) of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. § 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Number	Filing Date	Status
PCTAU2007000684	May 18, 2007	Published

I hereby appoint the attorneys associated with the customer number listed below to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Customer Number: 21186

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization/who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Schwegman, Lundberg & Woessner, P.A. to the contrary.

Please direct all correspondence in this case to **Schwegman, Lundberg & Woessner, P.A. at** the address indicated below:
Customer Number. 21186

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of joint inventor number 1 : **Andrew Loch**
Citizenship: **Australia** Residence: **Worongary, QLD Australia**
Post Office Address: 37 Quambone Street
Worongary, QLD 4213
Australia

Signature: _____ Date: 10/6/09
Andrew Loch

Full Name of joint inventor number 2 : **Helen Johnson**
Citizenship: **Australia** Residence: **Red Hill, QLD Australia**
Post Office Address: 26 Thorn Street
Red Hill, QLD 4059
Australia

Signature: _____ Date: 22/7/09
Helen Johnson

Full Name of joint inventor number 3 : **Geoffrey Toogood**
Citizenship: **Australia** Residence: **Greenslopes, QLD Australia**
Post Office Address: 83 Renman Street
Greenslopes, QLD 4120
Australia

Signature: _____ Date: 10/6/2009
Geoffrey Toogood

X Additional inventors are being named on separately numbered sheets, attached hereto.

Full Name of joint inventor number 4 : **Daniel Paul Ruul**
Citizenship: **Australia** Residence: **Labrador, QLD Australia**
Post Office Address: Unit 6, 35 McMillan Street
Labrador, QLD 4215
Australia

Signature: _____ Date: 18th August 2009
ON BEHALF OF Daniel Paul Ruul

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application:

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

Electronic Patent Application Fee Transmittal

Application Number:	12227451
Filing Date:	
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Filer:	David Dzurilla/Sheena Devine-Remitz
Attorney Docket Number:	2900.004US1

Filed as Large Entity

U.S. National Stage under 35 USC 371 Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Oath/decl > 30 months from priority date	1617	1	130	130
Petition:				
Petition fee- 37 CFR 1.17(g) (Group II)	1463	1	200	200
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	130	130
Miscellaneous:				
			Total in USD ($)	**460**

Electronic Acknowledgement Receipt

EFS ID:	5926205
Application Number:	12227451
International Application Number:	
Confirmation Number:	3275
Title of Invention:	Management of inventory allocations
First Named Inventor/Applicant Name:	Andrew Loch
Customer Number:	21186
Filer:	David Dzurilla/Sheena Devine-Remitz
Filer Authorized By:	David Dzurilla
Attorney Docket Number:	2900.004US1
Receipt Date:	20-AUG-2009
Filing Date:	
Time Stamp:	16:19:15
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$460
RAM confirmation Number	2382
Deposit Account	190743
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2900004US1MissingRequirements.PDF	1475039 d93c1e0ddc79a46623b960ff20d122fb425c1087	yes	36

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	1
Miscellaneous Incoming Letter	2	2
Extension of Time	3	3
Petition for review by the Office of Petitions.	4	7
Petition for review by the Office of Petitions.	8	32
Oath or Declaration filed	33	36

Warnings:

Information:

2	Fee Worksheet (PTO-875)	fee-info.pdf	33711 798e1ac9f5a024256d76ba9c8a016fba539fbc78	no	2

Warnings:

Information:

Total Files Size (in bytes):	1508750

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Andrew LOCH et al.

Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS

Docket No.:	2900.004US1	Serial No.:	12/227,451
Filed:	November 18, 2008	Due Date:	August 22, 2009
Examiner:	Unknown	Group Art Unit:	3625
Customer No.:	21186	Confirmation No.:	3275

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the attached:

X Communication Re: Missing Requirements (1 pg.).
X Authorization to charge Deposit Account 19-0743 in the amount of $130.00 to cover the Large Entity Surcharge.
X Petition for Extension of Time (1 pg.).
X Authorization to charge Deposit Account 19-0743 in the amount of $130.00 to cover the Extension of Time Fee.
X Petition Under 37 CFR 1.47(b) (4 pgs.).
X Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition (25 pgs.).
X Signed Combined Declaration and Power of Attorney (4 pgs.).
X Authorization to charge Deposit Account 19-0743 in the amount of $200.00 to cover the fee required under 37 CFR § 1.17 (g)

If not provided for in a separate paper filed herewith, please consider this a PETITION FOR EXTENSION OF TIME for sufficient number of months to enter these papers, and please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
Customer No.: 21186
RBM:CMG:smd

By Robert B. Madden
Robert B. Madden
Reg. No. 57,521

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 20th day of August, 2009.

Sheena M. Devine-Remitz
Name

Sheena M. Devine-Remitz
Signature

S/N 12/227,451 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Andrew LOCH et al.	Examiner: Unknown	
Serial No.:	12/227,451	Group Art Unit: 3625	
Filed:	November 18, 2008	Docket: 2900.004US1	
Customer No.:	21186	Confirmation No.: 3275	
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

COMMUNICATION RE: MISSING REQUIREMENTS

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In response to the Notice to File Missing Requirements, we submit the signed Combined Declaration and Power of Attorney, and authorization to charge Deposit Account 19-0743 in the amount of $130.00 to cover the Large Entity surcharge.

Applicants assume the application is now in proper order and in condition for examination. Please direct any inquiries to the undersigned attorney at (612) 371-2132. If necessary, please charge any additional fees or credit overpayment to Deposit Account 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2132

Date AUGUST 20/2009 By Robert B Madden

Robert B. Madden
Reg. No. 57,521

RBM:CMG:smd

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 20th day of August, 2009.

Sheena M. Devine-Remitz
Name

Sheena M Devine-Remitz
Signature

S/N 12/227,451 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Andrew LOCH et al.	Examiner:	Unknown
Serial No.:	12/227,451	Group Art Unit:	3625
Filed:	November 18, 2008	Docket:	2900.004US1
Customer No.:	21186	Confirmation No.:	3275
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

PETITION FOR A ONE-MONTH EXTENSION OF TIME

Mail Stop Missing Requirements
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In accordance with the provision of 37 C.F.R § 1.136(a), it is respectfully requested that a one-month extension of time be granted in which to respond to the Missing Requirements mailed May 22, 2009, said period of response being extended from July 22, 2009 to August 22, 2009.

Please charge Deposit Account No. 19-0743 in the amount of $130.00 to cover the required extension fee. Please charge any additional fees or credit overpayment to deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2132

Date AUGUST 20/2009 By Robt B Madden

Robert B. Madden
Reg. No. 57,521

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop Missing Requirements, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 20th day of August, 2009.

Sheena M. Devine-Remitz
Name

Sheena M Devine-Remitz
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Andrew LOCH et al.	Examiner: Unknown	
Serial No.:	12/227,451	Group Art Unit: 3625	
Filed:	November 18, 2008	Docket No.: 2900.004US1	
Customer No.:	21186	Confirmation No.: 3275	
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

PETITION UNDER 37 CFR 1.47(b)

Mail Stop PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Attention: Office of PCT Legal Administration

Pursuant to 37 C.F.R. § 1.47(b) and 35 U.S.C. § 118, Assignee's undersigned representative (hereinafter "Petitioner") submits this Petition seeking permission to file a Combined Declaration and Power of Attorney signed by other than all of the inventors in the above-identified patent application (hereinafter the "Application"), without the signature of Daniel Paul Ruul, a joint inventor of the Application, who is either refusing to sign the Combined Declaration and Power of Attorney, or who cannot be contacted after diligent effort. The last known address for Daniel Paul Ruul is Unit 6, 35 McMillan Street, Labrador, QLD Australia 4215.

This Petition under 37 CFR 1.47(b) is accompanied by:

(1) the fee under 37 CFR 1.17(g);

(2) factual proof that the inventor refuses to execute the Application or cannot be reached after diligent effort;

(3) a statement of the last known address of the inventor;

(4) an oath or declaration by the 37 CFR 1.47(b) applicant on behalf of and as agent for the non-signing inventor;

(5) proof that the 37 CFR 1.47(b) applicant has sufficient proprietary interest in the Application; and

(6) a showing that such action is necessary to preserve the rights of the parties or to prevent irreparable damage.

1) The Fee Under 37 CFR 1.17(g)

Petitioner grants Authorization to charge Deposit Account 19-0743 in the amount of $200.00 which is required under 37 C.F.R. §1.17(g). If additional fees or credits should exist, please debit or credit Deposit Account No. 19-0743 in the appropriate amount.

2) Factual Proof that the Inventor Is Uncooperative

The Application is a U.S. National Stage filing under 35 U.S.C. §371 from International Application No. PCT/AU2007/000684 filed May 18, 2007 and published as WO 2007/1343709 A1 on November 29, 2007, which claims priority from Australian Application No. 2006902685, filed May 18, 2006.

At the time of filing of the Application, Daniel Paul Ruul was listed as one of the inventors in the Application. In the document titled "Declaration of Patrick O'Neill in Support of Rule 1.47(b) Petition," filed even date with this Petition, a listing of facts related to the diligent effort made to reach inventor Daniel Paul Ruul in order to obtain his signature on the above-identified Combined Declaration and Power of Attorney is presented.

On these facts, Petitioner respectfully submits that a proper showing has been provided to prove that the inventor Daniel Paul Ruul is either uncooperative or cannot be reached after diligent effort.

Petitioner respectfully submits that the foregoing facts, as supported by the attached documents, establish *bona fide* attempts to comply with the provisions of Rule 1.47, and accordingly, request that this Petition be granted.

3) Statement of Last Known Addresses

The last known address for Daniel Paul Ruul is Unit 6, 35 McMillan Street, Labrador, QLD Australia 4215.

4) An Oath or Declaration

In accordance with M.P.E.P. § 409.03(a), a Combined Declaration and Power of Attorney document is enclosed, signed by all the available joint inventors.

5) Proof of Assignment

Included herewith is Annex A, a copy of the Product Development Deed, signed by Daniel Paul Ruul, and which indicates that inventor Daniel Paul Ruul has agreed in writing to assign any invention(s), including patents, related to any and all of the subject matter included in the Application to the Assignee Allotz.com Limited.

6) A Showing that such Action is Necessary

To support a showing that such action is necessary, Petitioner has provided, as included in the above-identified Declaration by Patrick O'Neill, statements that the above-identified Assignee will be irreparably damaged if the Petition is not granted.

CONCLUSION

The Petitioner respectfully submits that based on the above, the Assignee has been unable to obtain the omitted inventor Daniel Paul Ruul's signature on a Combined Declaration and Power of Attorney pursuant to 37 C.F.R. § 1.65 for the Application. In addition, Petitioner respectfully reiterates the Assignee's statements and conclusions that the present Petition is necessary to preserve its rights of the Assignee, to avoid further extension fees, and to prevent irreparable harm by the loss of valuable patent rights.

Petitioner submits that the foregoing facts establish a *bona fide* attempt to comply with the provisions of Rule 1.47, and, accordingly, request that this Petition be granted.

The Examiner is invited to telephone Applicant's undersigned attorney at (612) 371-2132 to facilitate prosecution of the Application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 371-2132

Date AUGUST 20/2009 By Robert B Madden

Robert B. Madden
Reg. No. 57,521

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to:, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 20th day of ~~July~~ August 2009.

Sheena M. Devine-Remitz
Name

Sheena M Devine-Remitz
Signature

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
12/227,451	Andrew Loch	2900.004US1

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

INTERNATIONAL APPLICATION NO.	
PCT/AU2007/000684	
I.A. FILING DATE	PRIORITY DATE
05/18/2007	05/18/2006

CONFIRMATION NO. 3275
371 WITHDRAWAL NOTICE

OC000000036085433

Date Mailed: 05/22/2009

Letter Regarding a New Notice and/or the Status of the Application

If a new notice or Filing Receipt is enclosed, applicant may disregard the previous notice mailed on 05/12/2009. The time period for reply runs from the mail date of the new notice. Within the time period for reply, applicant is required to file a reply in compliance with the requirements set forth in the new notice to avoid abandonment of the application.

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web. https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

For more information about EFS-Web please call the USPTO Electronic Business Center at **1-866-217-9197** or visit our website at http://www.uspto.gov/ebc.

If the reply is not filed electronically via EFS-Web, the reply must be accompanied by a copy of the new notice.

If the Office previously granted a petition to withdraw the holding of abandonment or a petition to revive under 37 CFR 1.137, the status of the application has been returned to pending status.

CHARITTA A SHELTON

Telephone: (703) 756-1471

FORM PCT/DO/EO/WITH (371 Withdrawal Notice)

Uber Exhibit 1002 - p. 906
Uber Technologies, Inc. v. SurgeTech, LLC

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
12/227,451	Andrew Loch	2900.004US1

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

INTERNATIONAL APPLICATION NO.	
PCT/AU2007/000684	
I.A. FILING DATE	PRIORITY DATE
05/18/2007	05/18/2006

CONFIRMATION NO. 3275
371 FORMALITIES LETTER

OC000000036085446

Date Mailed: 05/22/2009

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as an Elected Office (37 CFR 1.495):

- Priority Document
- Copy of the International Application filed on 11/18/2008
- Copy of the International Search Report filed on 11/18/2008
- Copy of IPE Report filed on 11/18/2008
- Preliminary Amendments filed on 11/18/2008
- Information Disclosure Statements filed on 11/18/2008
- Oath or Declaration filed on 11/18/2008
- Request for Immediate Examination filed on 11/18/2008
- U.S. Basic National Fees filed on 11/18/2008
- Priority Documents filed on 11/18/2008

The applicant needs to satisfy supplemental fees problems indicated below.

The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

- Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date. The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) in that it:
  - is not executed in accordance with either 37 CFR 1.66 or 37 CFR 1.68.
- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.492(h) of $130 for a non-small entity, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fees required for this application is $**130** for a Large Entity:
- $**130** Surcharge.

ALL OF THE ITEMS SET FORTH ABOVE MUST BE SUBMITTED WITHIN TWO (2) MONTHS FROM THE DATE OF THIS NOTICE OR BY 32 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

Uber Exhibit 1002 - p. 907
Uber Technologies, Inc. v. SurgeTech, LLC

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

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https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

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If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

CHARITTA A SHELTON

Telephone: (703) 756-1471

FORM PCT/DO/EO/905 (371 Formalities Notice)

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 02, 2008

Application or Docket Number: 12227457

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)	SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
			RATE	FEE		RATE	FEE
U.S. NATIONAL STAGE FEES							
BASIC FEE	SMALL ENT. = $ 150	LARGE ENT. = $ 300	BASIC FEE	$165	OR	BASIC FEE	$330
EXAMINATION FEE	Satisfies PCT Article 33(1)-(4) = $ 50 / $ 100	All other situations = $ 110 / $ 220	EXAM. FEE	$110		EXAM. FEE	$220
SEARCH FEE	U.S. is ISA = $ 50 / $ 100 ALL other countries = $ 200 / $ 400	ALL other situations = $ 270 / $ 540	SEARCH FEE	$215		SEARCH FEE	$430
FEE FOR EXTRA SPEC. PGS.	minus 100 =	/ 50 =	X $ 135 =			X $ 270 =	
TOTAL CHARGEABLE CLAIMS	21 minus 20 =	* 1	X $ 26 =		OR	X $ 52 =	52
INDEPENDENT CLAIMS	3 minus 3 =	*	X $ 110 =		OR	X $ 220 =	
MULTIPLE DEPENDENT CLAIM PRESENT			+ $ 195 =		OR	+ $ 390 =	
			TOTAL		OR	TOTAL	1032

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE	SMALL ENTITY ADDI-TIONAL FEE	OR	OTHER THAN SMALL ENTITY RATE	OTHER THAN SMALL ENTITY ADDI-TIONAL FEE
AMENDMENT A	Total	*	Minus	**	=	X $ 26 =		OR	X $ 52 =	
	Independent	*	Minus	***	=	X $ 110 =		OR	X $ 220 =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐					+ $ 195 =		OR	+ $ 390 =	
						TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE	ADDI-TIONAL FEE	OR	RATE	ADDI-TIONAL FEE
AMENDMENT B	Total	*	Minus	**	=	X $ 26 =		OR	X $ 52 =	
	Independent	*	Minus	***	=	X $ 110 =		OR	X $ 220 =	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐					+ $ 195 =		OR	+ $ 390 =	
						TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than '20', enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than '3', enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Uber Exhibit 1002 - p. 909
Uber Technologies, Inc. v. SurgeTech, LLC

MULTIPLE DEPENDENT CLAIM CALCULATION SHEET (FOR USE WITH FORM PTO-875)	SERIAL NO.	FILING DATE
	12/227451	

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
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TOTAL IND.			3			
TOTAL DEP.			18			
TOTAL CLAIMS			21			

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT	
	IND.	DEP.	IND.	DEP.	IND.	DEP.
51						
52						
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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U.S. APPLICATION NUMBER NO.	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
12/227,451	Andrew Loch	2900.004US1

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

INTERNATIONAL APPLICATION NO.	
PCT/AU2007/000684	
I.A. FILING DATE	PRIORITY DATE
05/18/2007	05/18/2006

CONFIRMATION NO. 3275
371 ACCEPTANCE LETTER

OC000000035881507

Date Mailed: 05/12/2009

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated / Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is ACCEPTED for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above and the relevant dates are:

11/18/2008	11/18/2008
DATE OF RECEIPT OF 35 U.S.C. 371(c)(1), (c)(2) and (c)(4) REQUIREMENTS	DATE OF COMPLETION OF ALL 35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE " FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1), (c)(2) and (c)(4) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** *The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363).* Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

The following items have been received:

- Copy of the International Application filed on 11/18/2008
- Copy of the International Search Report filed on 11/18/2008
- Copy of IPE Report filed on 11/18/2008
- Preliminary Amendments filed on 11/18/2008
- Information Disclosure Statements filed on 11/18/2008
- Oath or Declaration filed on 11/18/2008
- Request for Immediate Examination filed on 11/18/2008
- U.S. Basic National Fees filed on 11/18/2008
- Priority Documents filed on 11/18/2008

FORM PCT/DO/EO/903 (371 Acceptance Notice)

Uber Exhibit 1002 - p. 911
Uber Technologies, Inc. v. SurgeTech, LLC

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CHARITTA A SHELTON

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Uber Exhibit 1002 - p. 912
Uber Technologies, Inc. v. SurgeTech, LLC

UNITED STATES PATENT AND TRADEMARK OFFICE

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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/227,451	11/18/2008	3625	1032	2900.004US1	21	3

CONFIRMATION NO. 3275

21186
SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. BOX 2938
MINNEAPOLIS, MN 55402

FILING RECEIPT

OC00000035881506

Date Mailed: 05/12/2009

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Andrew Loch, Queensland, AUSTRALIA;
Helen Johnson, Queensland, AUSTRALIA;
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Daniel Paul Ruul, Queensland, AUSTRALIA;

Assignment For Published Patent Application

Allotz.com Limited, Bundall, QLD, AUSTRALIA

Power of Attorney: The patent practitioners associated with Customer Number 21186

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/AU2007/000684 05/18/2007

Foreign Applications

AUSTRALIA 2006902685 05/18/2006

If Required, Foreign Filing License Granted: 05/07/2009

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/227,451**

Projected Publication Date: 08/20/2009

Non-Publication Request: No

Early Publication Request: No

Uber Exhibit 1002 - p. 913
Uber Technologies, Inc. v. SurgeTech, LLC

Title

Management of inventory allocations

Preliminary Class

705

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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Uber Exhibit 1002 - p. 915
Uber Technologies, Inc. v. SurgeTech, LLC

PTO/SB/08A(10-01)
Approved for use through 10/31/2002. OMB 651-0031
US Patent & Trademark Office: U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known

12/227451

Application Number	Unknown
Filing Date	Even Date Herewith
First Named Inventor	LOCH, Andrew
Group Art Unit	Unknown
Examiner Name	Unknown

Sheet 1 of 1

Attorney Docket No: 2900.004US1

US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Filing Date If Appropriate
	US-2003/0088616A1	05/08/2003	Etessami, H. , et al.	11/02/2001
	US-2004/0153359A1	08/05/2004	Ho, M.-K. , et al.	01/31/2003

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	T[2]
	GB-2302427	01/15/1997	Kennedy, B. M.	
	WO-01/67356A1	09/13/2001	Lucas, M.	
	WO-01/82135A1	11/01/2001	Newell, G. S., et al.	
	WO-01/84278A2	11/08/2001	Kohn, R. D., et al.	
	WO-2005/001615A2	01/06/2005	Ramakrishnan, V. S., et al.	
	WO-2005/010675A2	02/03/2005	Ramakrishnan, V. S.	

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"International Application Serial No. PCT/AU2007/000684, International Preliminary Report on Patentability mailed 04-28-2008", 9 pgs.	
		"International Application Serial No. PCT/AU2007/000684, International Search Report mailed 08-03-2007", 3 pgs.	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

(12) UK Patent Application (19) GB (11) 2 302 427 (13) A

(43) Date of A Publication 15.01.1997

(21) Application No 9611770.0

(22) Date of Filing 05.06.1996

(30) Priority Data
(31) 08491167 (32) 16.06.1995 (33) US

(51) INT CL[6]
G06F 17/60 // G06F 153:00

(52) UK CL (Edition O)
G4A AUXP

(56) Documents Cited
EP 0425405 A2 US 5128861 A

(58) Field of Search
UK CL (Edition O) G4A AUXF AUXP
INT CL[6] G06F

(71) Applicant(s)
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909 East Las Colinas Boulevard, Suite 1600, Irving, Texas 75039, United States of America

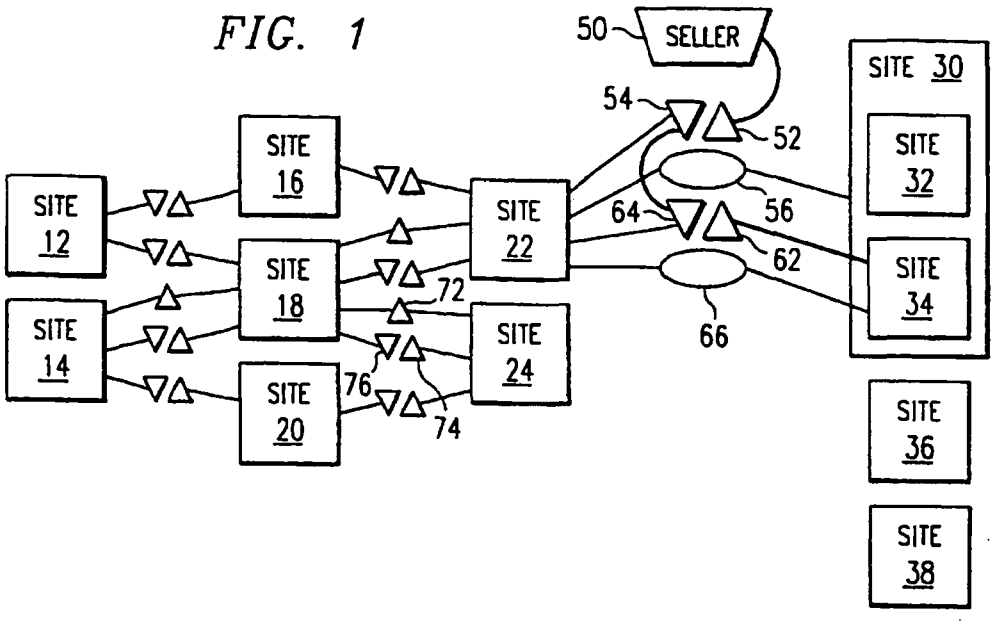
(72) Inventor(s)
Brian M Kennedy

(74) Agent and/or Address for Service
D Young & Co
21 New Fetter Lane, LONDON, EC4A 1DA, United Kingdom

(54) Managing available-to-promise in demand management

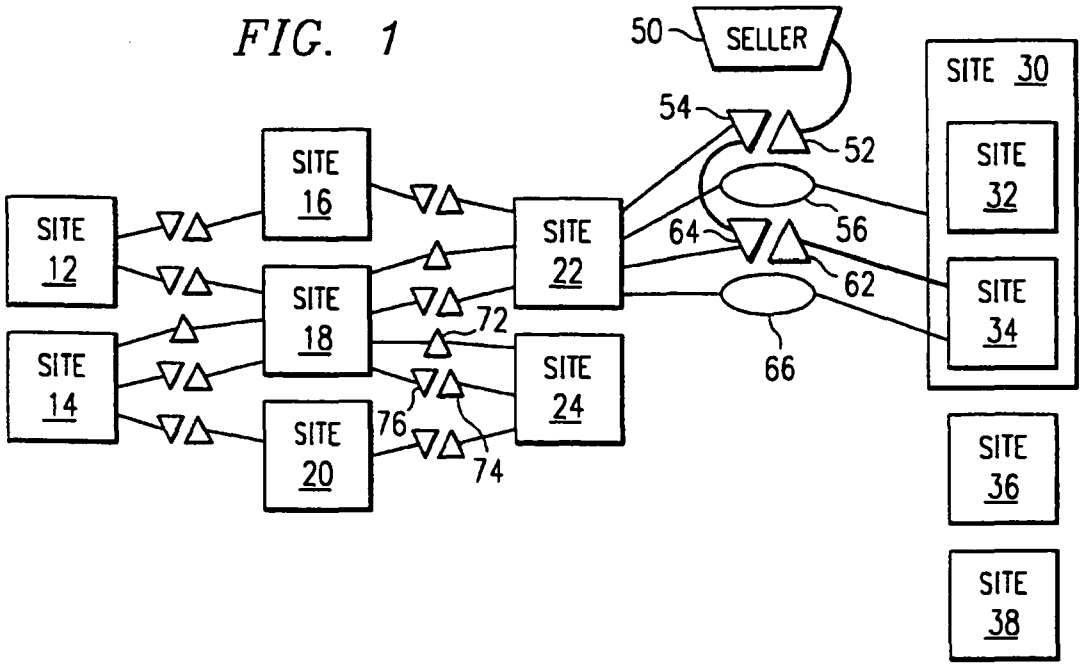
(57) A system for managing available-to-promise and making promises to fulfill customer requests includes a supply chain model representing a chain of supply. The supply chain model includes site models e.g. 12 that represent sites having capacity and that manage material flow. The supply chain model also includes seller models e.g. 50 that represent sellers and that manage forecasting and purchasing. Commitments between sites are modeled by requests e.g. 52 and promises e.g. 54, and the sellers can post requests on behalf of sites in anticipation of future requests from the sites.

FIG. 1



GB 2 302 427 A

FIG. 1


50
SELLER
SITE 30
54
52
SITE 16
SITE 12
SITE 22
SITE 32
64
56
SITE 18
62
72
SITE 34
SITE 14
SITE 24
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SITE 20
SITE 36
SITE 38

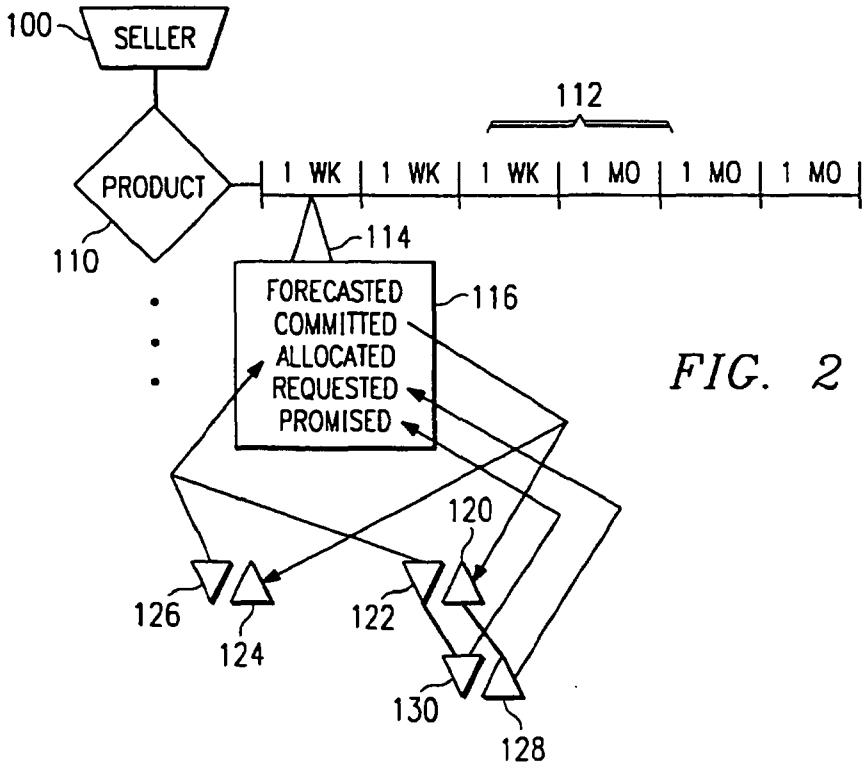

100
SELLER
112
PRODUCT
1 WK
1 WK
1 WK
1 MO
1 MO
1 MO
110
114
FORECASTED
COMMITTED
ALLOCATED
REQUESTED
PROMISED
116
120
126
122
124
130
128

FIG. 2

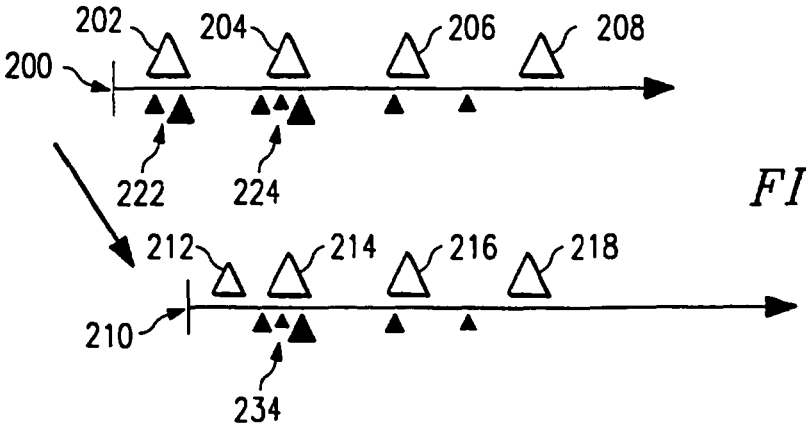
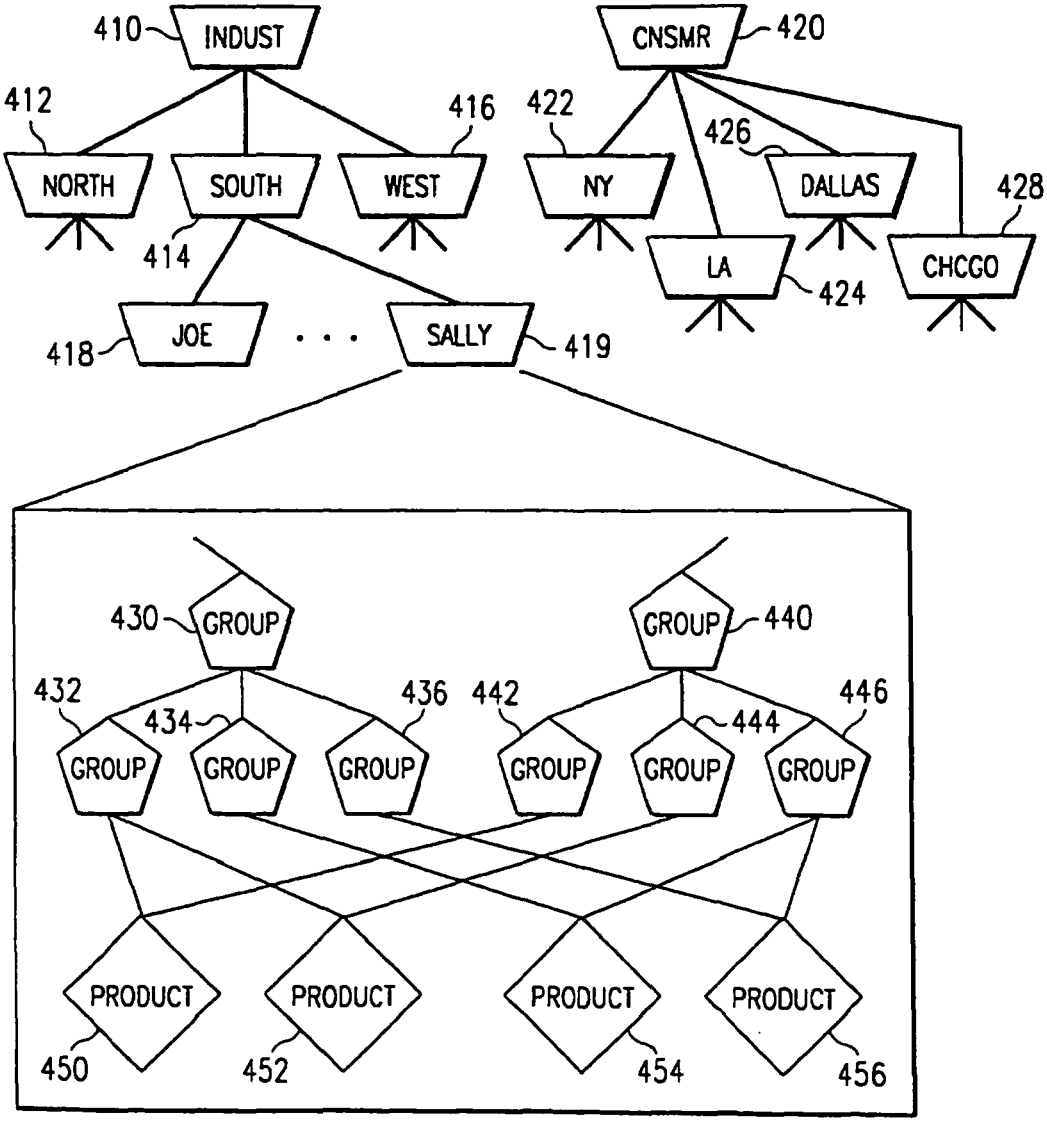

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FIG. 3

FIG. 4


410
INDUST
CNSMR
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NORTH
SOUTH
WEST
NY
DALLAS
428
414
LA
CHCGO
424
418
JOE
SALLY
419
430
GROUP
GROUP
440
432
434
436
442
444
446
PRODUCT
PRODUCT
PRODUCT
PRODUCT
450
452
454
456

SYSTEM AND METHOD FOR MANAGING ATP

This invention relates in general to the fields of demand management, supply chain management, and capacity management. More particularly, the present invention relates to a system and method for managing available-to-promise(ATP) and making promises to fulfill customer requests.

Manufacturers produce products for sale to customers. In the sales process, customers place demands on manufacturers. A customer demand may consist of a request for a particular quantity of a product by a specific date. This date and quantity information may be collectively referred to as the "customer request" or "request information".

Manufacturing and distribution facilities have limited resources (capacity)and limited inventories (materials). Therefore, every customer request may not be satisfiable in that some may receive no promise, others may receive an inadequate one. Planning and managing which customer requests to promise and fulfill, termed "demand management", is a fundamental and critical activity of most manufacturing and distribution organizations.

Due to material, capacity and other limitations, a manufacturer may not be able to meet a particular customer request. In this situation, the manufacturer typically negotiates with the customer to deliver a quantity of product by one or more dates agreeable to the customer. This date and quantity information may be referred to as the "manufacturer promise" or "promise information". Based on the manufacturer promise, the manufacturer creates operational plans to implement the promise information. Manufacturers may use a combination of diverse software tools in the negotiating and planning processes.

Traditional methods for demand management have several problems. First, such methods and systems are not integrated. Several different tools may be required to implement the entire demand management strategy.

Second, such traditional systems and methods are not dynamic. Once a plan is in place, it is difficult for the manufacturer to react to changing circumstances and update the plan. Third, order promising to customers is often done based upon an infeasible plan. Later attempts to find a feasible plan that will satisfy the promises are often futile.

The environment today requires more and more responsiveness. Customers require significant product diversity and want promises to be made to their requests immediately, while on the phone. The traditional way of promising in configure-to-order or make-to-order environments involves submitting the request to the planners and then, a few days or weeks later, after the planners have gone through a planning cycle, receiving a promise or rejection.

Many manufacturing and distribution organizations have several sales offices associated with each manufacturing factory. Each sales office independently promises to supply products from the factory to customers. This is referred to as a "distributed organization". Each sales person in each of the sales organizations needs to be able to make instantaneous promises, simultaneously with other sales people doing the same. In addition, each of those promises need to be fulfillable by a feasible plan.

To better meet customer demand, the manufacturer must build product and/or intermediate items before receiving customer orders. This production is based on projections called "forecast orders". A product produced based on these forecast orders is referred to as "available to promise" or "ATP". ATP consists of quantities of products with associated dates that the

products are scheduled to be available for delivery to the customer.

In distributed organizations a sales office may need approval from the factory before ATP may be promised to meet a customer request. This approval process may take up to a week under current practices. This delay is unacceptable in today's business environment.

SUMMARY OF THE INVENTION

In accordance with the present invention, a system and method for managing ATP is provided that substantially eliminate or reduce disadvantages and problems associated with previously developed systems and methods.

In accordance with one aspect of the invention, there is provided a system for managing available-to-promise and making promises to fulfill customer requests, the system comprising: at least one seller model representing a seller that is selling at least one product, the seller model operable to forecast for the at least one product and operable to choose commitment levels creating forecast requests; the forecast requests receiving promises made by supplier sites; and the promises available to the seller entity to promise to actual customer requests.

In accordance with another aspect of the invention, there is provided a system for managing available-to-promise and making promises to fulfill customer requests, the system comprising: a supply chain model representing a chain of supply, the supply chain model comprising: site models that represent sites having capacity and that manage material flow; and seller models that represent sellers and that manage forecasting and purchasing; wherein commitments between sites is modeled by requests and promises; and wherein the seller can post requests on behalf of sites in anticipation of future requests from the sites.

In accordance with a further aspect of the invention there is provided a system for managing available-to-promise and making promises to fulfill customer requests, the system comprising: a product model representing a product, the product model specifying a supplier site, an item produced by that site, a minimum quantity, a minimum order lead time, a list of customers allowed to purchase, and pricing for the product; wherein a customer request having desired characteristics matching the product can be fulfilled by a promise of the product; such that a list of all matching products and associated available promises can be displayed as available-to-promise for the request.

More particularly, one embodiment of the present invention provides a method for managing ATP in a distributed organization. The distributed organization comprises at least one supplying facility such as a factory. Additionally, the distributed organization comprises a plurality of requesting facilities for each supplying facility. The requesting facilities may comprise, for example, sales offices. The requesting facilities and the supplying facilities may be coupled by a computer network.

In this embodiment, the requesting facilities each store forecast orders in a memory of a computer at the requesting facility. The forecast orders include request information. As defined previously, the request information includes the quantity (or range of quantities) of product requested from the supplying facility and the date (or range of dates) it is needed. A master scheduling software system may be used to selectively plan use of, for example, manufacturing capacity of the supplying facility to meet selected forecast orders based on predetermined criteria. If a feasible and desirable plan can be devised that satisfies the request, then the supplier may make a

promise to the customer that the supplier will satisfy the request. The promises to meet the selected forecast orders may be transmitted directly to the customers over a computer network.

In environments where customers are not willing to wait for a plan to be developed to get a promise, the supplying facility must create promises in advance that are available for immediate transfer to a customer. In this embodiment, future requests can be forecasted and a plan can be made to satisfy and promise those forecast requests. When an actual customer request is received, one or more (or a portion of) promises made to forecast requests may be instantly reassigned to the customer request.

An embodiment of the invention provides a technical advantage as a result of an ability in a distributed organization with distributed sales people to allocate some of the promises made to forecast requests to certain sales people, thereby preventing them from simultaneously using the same forecast promise as a promise to a customer, without requiring them to check with each other before making promises. In this embodiment, each sales organization or person can be modeled and each forecast request/promise can be allocated to one such sales entity.

The allocation of promises may also be done for business management reasons. For example, a sales organization may be allocated promises based upon how much they are willing to commit to selling. This embodiment allows each sales entity to create its own forecast of what it could sell and establish the level it is willing to commit to selling. Forecast requests are then generated from the committed levels. Promises made to those requests become allocated to that sales entity for it to use to form promises for customer requests.

An embodiment of the invention provides a technical advantage in that it allows these sales entities to be

organized into hierarchies (for example, sales person within sales office within marketing organisation). Promises that are allocated to a sales organization can be used by the sales people within that organization. Coordination is required in such cases to ensure that two sales people do not consume the same promises. But where such coordination is feasible, it is typically desirable to have some allocations that are common among them.

An embodiment of the invention provides a technical advantage in that customer requests that cannot currently be promised can be queued. As conditions change, the queued requests have the first opportunity to be promised. Without such a queuing mechanism, requests that cannot be promised are forgotten. When new capacity frees, the next customer that happens to make a request gets that newly freed capacity.

An embodiment of the invention provides an additional technical advantage in that an entire distributed organization of suppliers and customers can be modeled along with the requests and promises placed between them. In this way, planners can view, manage, and plan the activity of a whole network where the interfaces between elements must be formal (separate corporations).

An embodiment of the present invention also enables each sales entity to define the "products" it sells, where a product is an item priced based on the item, the quantity, the order lead time (time from accepting the order to the requested due date), and the customer. For each such product, an independent forecast and commitment can be made, independent forecast requests can be issued, and independent promises can be received. In this way,, promises can be allocated for requests with particular characteristics. For example, one product may sell an item for $5 if the order lead time is greater than 6 weeks. Another product may sell the same item for $10 but with as

short as 1 week lead time. Thus, a customer request with 6 week order lead time may be received when all allocations for that product have been consumed. However, if all the allocations for the 1 week order lead time product have not been consumed, then the customer can be given an option: the next available promise for the 6 week order lead time product would be 2 weeks later than your due date, or alternatively you may choose to pay $10 for the 1 week order lead time product and to receive it on time. Such management of products can prevent higher future profits for being sold at lower profits because they are promised first-come-first-served.

An embodiment of the invention provides a further technical advantage in that the forecast requests can specify how they expire. Some may shift out in time if they are not consumed; others may expire and disappear if not consumed. Such auto-maintenance of forecast requests can be very valuable in maintaining accurate forecasts and allocations for hundreds or thousands of products.

An embodiment of the present invention is described hereinafter, by way of example only, with reference to the accompanying drawings in which like reference numbers indicate like features, and wherein:

FIGURE 1 is a block diagram of one embodiment of a supply chain model, including site models and seller models, and requests and promises between them;

FIGURE 2 illustrates one embodiment of a forecast entry for one of several forecast periods for one of several products within a seller;

FIGURE 3 illustrates one embodiment of a time horizon with forecast requests and actual requests showing the time horizon moving as time passes and the forecast requests adjusting in response; and

FIGURE 4 illustrates one embodiment of a seller model hierarchy and a product group hierarchy within a seller.

The Supply Chain, Site, and Seller Models

Figure 1 is a block diagram of one embodiment of a supply chain model, including site models and seller models, and requests and promises between them. FIGURE 1 provides an example of a supply chain according to the present invention. The supply chain model of FIGURE 1 comprises twelve site models, 12, 14, 16, 18, 20, 22, 24, 30, 32, 34, 36, and 38. These site models represent organizational units that may have the capacity and materials to produce or consume items. Each site can place requests for items upon other sites. Requests are in general indicated in FIGURE 1 by triangles 52, 62, 72, and 74. For each request 52, 62, 72, and 74, the site 12, 14, 16, 18, 20, 22, 24, 30, 32, 34, 36, or 38 being requested can make a promise to fulfill (wholly or partially) that request. Promises are in general indicated by inverted triangles 54, 64, and 76.

Other primary members of a supply chain model are seller models. The embodiment of a supply chain of FIGURE 1 consists of a single seller model 50. The seller model 50 is partially depicted in FIGURE 2 and consists of a list of products 110 that seller 50 offers for sale. A product model 110 defines the supplier site, the item at that site, a minimum order lead time, a minimum quantity, and the allowed customer sites. If a customer request fits those criteria of a product, then that request is eligible to be filled by that product, at the pricing specified by that product.

FIGURE 2 illustrates one embodiment of a forecast entry for one of several forecast periods for one of several products within a seller. For each product 110, a forecast horizon 112 is laid out. Forecast horizon 112

can be broken up arbitrarily. In this embodiment, three 1-week periods (the first being 114) are followed by three 1-month periods. For each forecast period for each product, a forecast-entry 116 is generated. The 'forecasted' and 'committed' values can be filled in. The value 'forecasted' is the seller's estimate for how much could be sold of that product 110 during that period. The value 'committed' is the quantity the seller is willing to commit to selling.

The committed quantity results in 'forecast' requests being generated in an amount equal to the committed quantity, spread out through the corresponding forecast period according to a forecast policy specified by the product 110. In the embodiment of FIGURE 2, the committed amount results in generation of requests 120 and 124, spaced out in the period 114. The site on which the requests 120 and 124 were placed (specified by the product 110) can then issue promises. Assuming promises 122 and 126 are made for requests 120 and 124, respectively, the value of 'allocated' in the forecast entry 116 for period 114 will be the sum total of the promised quantities.

The allocated amount is the summary amount the seller has available to promise customer requests. When customer request 128 arrives to the seller for product 110 during period 114, the seller can take one or both (or part of one or both) promises that it has already received, break them up or combine them to form a promise for the customer request. The forecast requests are simultaneously adjusted down by the amount of the customer request. So, for example, if the committed value of forecast entry 116 was 500 units, the two forecast requests 120 and 124 were for 250 units each, the two promises 122 and 126 were received for 200 units,

and the customer request 128 was for 300 units, then the two forecast requests 120 and 124 will be adjusted to a total of 200 (i.e., 200 and 0 or 100 and 100 or some other combination, dependent upon the product's forecast policy). The two promises 122 and 126 will be adjusted to a total of 100, and a new promise 130 will be created for 300 units to satisfy request 128. The 'committed' and 'allocated' values of forecast entry 116 do not change as a result, but the 'requested' and 'promised' values do. When 'promised' is equal to 'allocated', then there are no more promises available for promising customer requests.

This process is also depicted in the supply chain model example of FIGURE 1. In FIGURE 1, seller 50 generates forecast request 52 on site 22 for delivery to site 30 (which need not be a physical site). Request 52 results in site 22 generating operation 56 to perform the activity involved in delivering the requested items to site 30. If operation 56 is feasible to perform, then site 22 may choose to create promise 54 to seller 50 that the item can be delivered as requested by request 52.

Site 34 then places request 62 through seller 50 for the same product as request 52. If that customer request 62 is consistent with what seller 50 was forecasting, then seller 50 can reduce request 52, promise 54, and operation 56 by the amount of request 62, and then add promise 64 and operation 66 to fulfill request 62. That simple action did not require replanning through site 22. Effectively, the ability of site 22 to satisfy request 62 had been pre-computed in the form of promise 54. Thus, that promise 54 can be split in order to form promise 64.

A primary caveat is that the load and times of the operation 56 may not be valid when split into operation 66. For example, if operation 56 involved using a truck

to transport the items, then splitting out operation 66 may result in an additional truck being used. If none was available, then operation 66 may have to wait. To compensate for this, each product defines criteria for splitting promises, which can include an amount of time with which to pad the due dates quoted.

Of the site models that make up a supply chain model (as in FIGURE 1), some of the sites can be under the control of that supply chain model, while others can be modeling sites which are planned independently. A field of the site model called 'managed' indicates which sites are managed by this supply chain model and which are not. Two sites that are both managed do not need to make formal promises between each other -- the request will generate an operation and all changes to the requests are immediately passed through the operation to the other site. Requests between a managed Site and an unmanaged site require formal promises. The promises must be made explicitly, and once accepted constitute a rigid agreement between two Sites. Changing that agreement requires both sites' consensus.

Adjustment as Time Passes

Forecasts are often, by their nature, wrong. Thus, as time passes and customer requests arrive faster or slower than expected, it is desirable to modify the forecasts as appropriate. Given a large number of products and numerous forecast periods, automated adjustment is highly desirable.

Thus, the product forecast policy can specify how the forecasted and committed quantities should be adjusted as time passes and actual Requests are received or not.

FIGURE 3 illustrates one embodiment of a time horizon with forecast requests and actual requests showing the time horizon moving as time passes and the forecast requests adjusting in response. The timeline 200 represents the initial state. Forecast requests 202, 204, 206, and 208 have been made in their respective forecast periods. Customer requests are indicated with triangles, as shown. The two customer requests 222 correspond to forecast request 202. The three customer requests 224 correspond to forecast request 204.

Time passes and no more requests are received. The timeline 210 represents that later state. Time has advanced beyond the forecast period of the forecast request 202. The customer requests 222 received during that period were less than that forecast request. One option is to assume the forecast was too high and simply expire the leftover forecast. Another option is to assume the forecast quantity is right, but that the timing is off -- that the total quantity will be requested soon. In the latter case, the forecast request should be moved forward in time and reduced in quantity. This is shown as forecast request 212. There are many other options for how to expire, reduce, or increase forecast requests based on the arrival rate of customer requests that can be encoded in the product's forecast policy.

Allocation to Sellers

FIGURE 4 illustrates one embodiment of a seller model hierarchy and a product group hierarchy within a seller. FIGURE 4 shows two Seller hierarchies. Seller 410 represents an Industrial Products marketing division, and seller 420 represents a Consumer Products marketing division. Within Industrial Products 410, there are

three sales offices that each handle a region: the North is handled by seller 412; the South is handled by seller 414; the West is handled by seller 416. Each sales office is made up of numerous sales people, who are each represented by a seller (for example, Joe is seller 418 and Sally is seller 419).

In many organizations, the sellers may own their own allocations against which they can promise to their customers without consulting the company. However, sellers need not own any allocations. For example, Joe 418 and Sally 419, along with the other sellers in the South sales office 414, may each forecast what they intend to sell. Those forecasts are aggregated up to the sales office seller 414, where they are used as an input. The seller 414 can independently forecast for the whole sales office. That, in turn, is allocated up to the Industrial Products 410 division.

Clearly, forecast requests should not be generated for the forecasts at all three levels -- that would result in triple the requests appropriate.

Instead, each seller can independently commit to selling some or all of the forecast. By committing, forecast requests are created in order to obtain promises which can be used to promise their customers. Those promises are owned by (or controlled by) that seller that committed to selling that amount.

However, it may be that some sellers do not commit at all. For example, none of the salespeople, including Joe 418 and Sally 419 commit to any of the forecast. Instead, the South sales office 414 commits as a whole. That results in allocations to the South Seller 414. Those allocations can be used by any of the sub-sellers, such as Joe 418 and Sally 419. However, such collective usage of the allocations requires coordination. They

must reserve the amount they need before they can actually promise it, since the other sales people may be considering using the same allocations.

A seller is committed to anything its sub-sellers commit to. However, a seller can commit to additional, beyond what the sub-sellers commit to. For instance, each sales person may make a conservative commitment. The sales office will know that some of the sales people will surely sell over their commitment, but it is not clear which sales people. So the sales office can commit to sell additional, and those additional allocations will be available to the first sales people who exceed their personal allocation.

Product Groups

Forecasts tend to be more accurate in aggregate. A monthly forecast will generally be more accurate than a weekly forecast. A forecast for North America will generally be more accurate than a forecast for Texas. Similarly, a forecast for milk will generally be more accurate than for skim milk in pint containers.

Thus, it is important to be able to aggregate up forecasts, modify the aggregated forecasts, and propagate the changes back down to the individual products. The product group model supports this functionality.

Product groups form hierarchies. A product group can have at most one parent product group, and thus can be in at most one product group hierarchy.

Products, on the other hand, can appear in numerous product groups; however, only in one product group of any one hierarchy. A product group defines one consistent hierarchy for aggregation. However, sellers will need to aggregate the products in many different ways. For example, milk products can be aggregated by their

container size (gallon, half gallon, quart, pint), by their fat content (whole, 2%, 1%, skim), by the customer grouping (grocery-store, restaurant, convenience-store), or by brand (ECONO-COW, PUREWHITE).

Various product groups are depicted in FIGURE 4. Products 450, 452, 454, and 456 are grouped into two product group hierarchies, rooted at product groups 430 and 440. Product group 430 is broken down into product groups 432, 434, and 436.

Advanced Available-To-Promise (ATP)

Each seller has allocation (promises) available for the various products sold. When a customer request comes in to a seller, there may be numerous products that match the request. If the lowest cost product can fully satisfy the request (has sufficient quantity by the requested due date), then the request can simply be promised. Otherwise, a decision may be needed. For example, the customer may be able to choose to have it for a low price but a week later than requested, or by the date requested but 10% higher price. It may be that half the order can be completed on time at the lowest price, but the other half can either be delivered later or for a higher price, and so on. Thus, the ATP can be a list of different products (pricings) with different order lead times, minimum quantities, availability dates, and availability quantities.

Extensible Product Model

The product model type has a forecast policy extension selector that allows additional fields and semantics to be added to a product model. Extension selectors are described in more detail in U.K. Application No. _____, filed on the same date as the present application and entitled

EXTENSIBLE MODEL NETWORK REPRESENTATION SYSTEM FOR PROCESS PLANNING (Attorney Docket No. N701-6), a copy of which has been placed on the UK Patent Office file for this application and the disclosure of which has been incorporated herein by reference.

In this way, additional forecast information such as forecast error or forecasted variance in either quantity or time or both can be input and used. Additional fields for expected skew during the month can affect how the committed quantity is split out into forecast requests. The expected variance or order arrival rates can affect how forecast requests expire or adjust as time passes, based on the customer requests that have been received.

Although an embodiment of the present invention has been described in detail herein, it should be understood that various changes, substitutions and alternations can be made hereto without departing from the scope of the invention.

For example, although an embodiment of the invention in the form of a computer software system has been described, it will be appreciated that at least some of the functionality of the described embodiment may be implemented by means of special purpose hardware (e.g. an ASIC).

CLAIMS

1. A system for managing available-to-promise and making promises to fulfill customer requests, the system comprising:

at least one seller model representing a seller that is selling at least one product, the seller model operable to forecast for the at least one product and operable to choose commitment levels creating forecast requests;

the forecast requests receiving promises made by supplier sites; and

the promises available to the seller entity to promise to actual customer requests.

2. The system of Claim 1, wherein the at least one seller model can comprise a hierarchy such that allocations to a seller can be used by the seller or any sub sellers and such that commitments made by a seller also commit the related sellers.

3. The system of Claim 1 or Claim 2, wherein the system is a software system located in and executed by a digital computer, the digital computer comprising:

a data storage device;

an execution memory operable to hold the software system; and

a processor coupled to the data storage device and the execution memory, the processor operable to execute the software system.

4. A system for managing available-to-promise and making promises to fulfill customer requests, the system comprising:

a supply chain model representing a chain of supply, the supply chain model comprising:

site models that represent sites having capacity and that manage material flow; and

seller models that represent sellers and that manage forecasting and purchasing;

wherein commitments between sites is modeled by requests and promises; and

wherein the sellers can post requests on behalf of sites in anticipation of future requests from the sites.

5. The system of Claim 4, further comprising a queue that allows rejected requests to be queued for consideration whenever capacity frees up.

6. The system of Claim 4 or Claim 5, wherein the system is a software system located in and executed by a digital computer, the digital computer comprising:

a data storage device;

an execution memory operable to hold the software system; and

a processor coupled to the data storage device and the execution memory, the processor operable to execute the software system.

7. A system for managing available-to-promise and making promises to fulfill customer requests, the system comprising:

a product model representing a product, the product model specifying a supplier site, an item produced by that site, a minimum quantity, a minimum order lead time, a list of customers allowed to purchase, and pricing for the product;

wherein a customer request having desired characteristics matching the product can be fulfilled by a promise of the product;

such that a list of all matching products and associated available promises can be displayed as available-to-promise for the request.

8. The system of Claim 7, wherein the product model

specifies an extension allowing different forecast information to be recorded and used to compute and distribute forecast requests.

9. The system of Claim 8, wherein the product model specifies expiration and adjustment semantics for forecasts as time passes and as actual customer requests arrive faster or slower than expected.

10. The system of any of Claims 7 to 9, wherein the system is a software system located in and executed by a digital computer, the digital computer comprising:

a data storage device;

an execution memory operable to hold the software system; and

a processor coupled to the data storage device and the execution memory, the processor operable to execute the software system.

11. A system substantially as hereinbefore described with reference to the accompanying drawings.

The Patent Office

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Application No: GB 9611770.0 **Examiner:** Mike Davis
Claims searched: 4-6 **Date of search:** 24 October 1996

Patents Act 1977
Further Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): G4A (AUXP,AUXF)

Int Cl (Ed.6): G06F

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	EP 0425405 A2 (IBM)	4 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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The Patent Office

23

Application No:	GB 9611770.0	**Examiner:**	Mike Davis
Claims searched:	7-10	**Date of search:**	24 October 1996

Patents Act 1977
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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): G4A (AUXP,AUXF)

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Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	None	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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The Patent Office

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Application No: GB 9611770.0 **Examiner:** Mike Davis
Claims searched: 1-3 **Date of search:** 23 July 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): G4A (AUXP,AUXF)

Int Cl (Ed.6): G06F

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	EP 0425405 A2	(IBM)	1 at least
X	US 5128861	(KAGAMI ET AL)	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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(54) Title: SYSTEM AND METHOD OF SUPPLY CHAIN MANAGEMENT

(57) Abstract: A supply chain management system and method for managing a supply chain that enables a user to analyze and control numerous aspects of the supply chain including up-stream supplier capabilities and constraints, and down-stream customer needs and constraints. The system applies data warehouse design concepts to the Supply Chain Operations Reference (SCOR) model processes developed by the Supply Chain Council (SCC). The supply chain management system permits vertical integration of order management, vendor managed inventory, transportation management, and legacy transaction systems. The system consolidates transaction history across multiple, disparate systems to allow query and analysis of business key indicators and metrics, and can help to closely track supply verses demand.

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SYSTEM AND METHOD OF SUPPLY CHAIN MANAGEMENT

1. BACKGROUND OF THE INVENTION

1.1 FIELD OF THE INVENTION

The present invention relates to a supply chain management system and method therefor. More particularly, the present invention relates to system and method for managing a supply chain that enables a user to analyze and control numerous aspects of the supply chain including up-stream supplier capabilities and constraints, and down-stream customer needs and constraints. The system applies data warehouse design concepts to the Supply Chain Operations Reference (SCOR) model processes developed by the Supply Chain Council (SCC).

1.2. DESCRIPTION OF THE PRIOR ART

At present, there is no convenient way for a business to analyze and/or quickly and easily manage its supply chain, be it in an upstream or downstream direction. The number of factors affecting the supply chain makes such management an arduous task, at best. For example, the cost of raw materials, the cost of transportation, labor costs, market considerations, customer demands, product changes, inventory stocks, and accounts receivable and payable are just some of the factors that need to be accounted for.

In addition entities making up the supply chain operate with different management and accounting systems, and are not necessarily inclined to making their internal data public. As a result, there is no simple method for providing management of the supply chain that works across multiple platforms.

The Supply Chain Council (SCC) was formed in the late 1990's as a grass roots initiative to model the entire supply chain and all of its processes. The SCC produced the Supply Chain Operations Reference (SCOR) model processes as a result of this initiative. However, the various methods of accessing data, from and about the supply chain components, do not make use of the SCOR model, and are often manual or stovepipe, requiring complex extraction from various enterprise legacy systems. Such methods often are without meaningful decision support capabilities.

2. SUMMARY OF THE INVENTION

These and other deficiencies of the prior art are addressed by the present invention that is directed to a supply chain management system and method therefor.

The present invention applies data warehouse design concepts to supply chain operation model processes, thus permitting vertical integration of order management, vendor managed inventory, transportation management, and legacy transaction systems. The system consolidates transaction history across multiple, disparate systems to allow query and analysis of business key indicators and metrics.

The present invention can help to closely track supply verses demand when, for instance, a business has an excessive amount of inventory in its warehouse. The system of the present invention can be used to analyze current business practices and needs, and determine how an organization compares to the Supply-Chain Council's list of best practices. The system can further be used to recommend modifications to improve the business, and to help implement these changes.

The present supply chain management system provides a supportive process that will assist the client team in documenting a supply chain vision that supports the strategic business strategy. The system can assist in the definition of the supply chain processes required to execute the strategy, and establish the organizational issues and requirements to execute the processes to meet the strategy. In addition, the system facilitates collaborative process and organizational interaction required to support the vision and strategy.

Other benefits include the ability to determine the information requirements for the process and organizational elements, and to determine the technology requirements to deliver the information and environment for collaborative participation. The system will then be able to document the final "To Be" system required to support the vision and strategy in terms of process, organization and technology. In summary, the supply chain management system can provide: a supply chain vision, mission, and process definition; a supply chain metrics and targets, organizational specifications for successful execution; and information and technology specifications for successful execution.

The supply chain management system of the present invention provides the following capabilities:

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Evaluate a company's current business model;

Determine a company's requirements, and evaluate the commercial-off-the-shelf (COTS) tools needed to achieve these requirements;

Use the Supply-Chain Council's list of best practices, analyze the current business metrics and a determine what metrics should be tracked in the future;

Perform Business Process Reengineering (BPR) functions, if required;

Analyze industry trends as they relate the company's business;

Develop processes and work flows; and

Determine the gap between the company's current business practice and the desired result.

The supply chain management system of the present invention can document the organizational net assessment, including the associated deliverables, namely organizational net assessment, documented business performance requirements, team cast portrayal of the supply chain, and documented gaps from supply chain model.

From the foregoing, it is an object of the present invention to provide a supply chain management system that establishes available industry benchmarks, and establishes the meaning of success for a business.

Another object of the supply chain management system according to the present invention is to establish the degree of supply chain maturity of an organization.

Yet another object of the supply chain management system according to the present invention is to establish the scope of supply chain performance required of an organization, and establish the baseline for current performance within the supply chain; identify extremes.

Still another object of the supply chain management system according to the present invention is to analyze organization and structure, quality and measurement, operations management, information and technology, customer and external relationships, and knowledge and its use.

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Another object of the supply chain management system according to the present invention is to team cast for roles within the organization, supply side participants and demand side participants; identify decision authorities and decision methods.

3. BRIEF DESCRIPTION OF THE DRAWINGS

These and other attributes of the present invention will be described with respect to the following drawings in which:

FIG. 1 is a block diagram of Business Integration and Decision Support Architecture;

FIG. 2 is a diagram of a methodology for ensuring that the business needs are understood, and that the strategy is expressed in business processes, the business organization, and then the supporting technology for those two elements;

FIG. 3 is a chart illustrating the flow of information according to the supply chain management system of the present invention;

FIG. 4 is a flow diagram of order management process functions of the present invention;

FIG. 5 is a flow diagram of the warehouse management process of the present invention;

FIG. 6 is a flow diagram of the product monitoring process of the present invention;

FIG. 7 is a diagram of the transportation management process of the present invention;

FIG. 8 is a graphical representation of the data warehouse/marts infrastructure according to the present invention;

FIG. 9 is a graphical representation of an N-Tier network/server architecture according to the present invention;

FIG. 10 is a graphical representation of the a base view of the supply chain according to the present invention;

FIG. 11 is a graphical representation of a meta view of the supply chain management according to the present invention;

FIG. 12 is a graphical representation of a meta view of the supply chain measurement according to the present invention; and

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FIG. 13 is a flow chart of integrated logistics for the supply chain management system according to the present invention;

FIG. 14 illustrates a user interface login screen according to the present invention;

FIG. 15 illustrates a system main menu screen according to the present invention;

FIG. 16 illustrates an SCM operation management system menu according to the present invention; and

FIGS. 17 and 18 illustrate an accounts payable screen and an accounts receivable screen, respectively, according to the present invention.

4. DETAILED DESCRIPTION OF THE INVENTION

The present invention can help to closely track supply verses demand when, for instance, a business has an excessive amount of inventory in its warehouse. The system of the present invention can be used to analyze current business practices and needs, and determine how an organization compares to the Supply-Chain Council's list of best practices. The system can further be used to recommend modifications to improve the business, and to help implement these changes.

The primary functions of the supply chain management system of the present invention include the ability to extract data from legacy systems using automated programming interfaces, message queuing, and processware, the ability to populate an operational data store with enterprise views of existing legacy data, the ability to map the enterprise operational data store and business processes to the SCOR model, and the ability to apply OracleTM data warehouse techniques and tools to an analysis and management of key performance indicators and metrics.

The supply chain management system solution set allows application of the SCOR model to any business requiring advanced supply chain management analysis capability. The data warehouse is structured generally to allow mapping of virtually any legacy transaction system or set of systems, through an operational data store and enterprise view of legacy data and business processes, directly to the processes contained within the SCOR model.

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As a result, the system provides for the development of a multi-tier, decision support infrastructure capability integrated with back office functions. The system allows for the application of supply chain information mining and knowledge management. Automated messaging and alerts may be initiated when supply chain performance or events deviate from expectations and preset metrics. Further, the system facilitates vertical integration of legacy applications or ERP transaction systems without modifying the underlying systems.

Using the SCOR model as the basis for mapping processes and measuring performance against established benchmarks allows for decision support against best-of-class criteria. Further, the application of the SCOR model within a solid data warehouse framework allows rapid and dynamic implementation in almost any environment or business model. The extract, transform and transport (ETT) methodology used in the solution set allows mapping of legacy data from any source to the generic data warehouse. The business scenario templates modeled in the design repository, supporting the solution set, provide for rapid mapping and modeling of business problems and requirements to the underlying models and architecture. The enterprise visibility components of the solution set provide flexible and scalable decision support capability across multiple, disparate legacy applications and transaction systems without requiring extensive and costly modifications to the underlying systems. All of the foregoing aspects are leveraged in one solution set that is generic enough to apply across large spectrums of supply chain disciplines.

The management system can: provide a supportive process that will assist the client team in documenting a supply chain vision that supports the strategic business strategy; assist in the definition of the supply chain processes required to execute the strategy; establish the organizational issues and requirements to execute the processes to meet the strategy; facilitate collaborative process and organizational interaction required to support the vision and strategy; determine the information requirements for the process and organizational elements; determine the technology requirements to deliver the information and environment for collaborative participation; and document the final "To Be" system required to support the vision and strategy in terms of process, organization and technology

The supply chain management system of the present invention provides:

The ability to evaluate a company's current business model;

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The ability to determine a company's requirements, and evaluate the commercial-off-the-shelf (COTS) tools needed to achieve these requirements;

The ability to use the Supply-Chain Council's list of best practices, analyze the current business metrics and a determine what metrics should be tracked in the future;

The capability to perform Business Process Reengineering (BPR) functions, if required;

The ability to analyze industry trends as they relate the company's business;

The ability to develop processes and work flows; and

The ability to determine the gap between the company's current business practice and the desired result.

The supply chain management system of present invention provides the dynamic capability of integrating information across multiple applications and enterprises into a system for inter-enterprise decision support.

The system supports multiple applications that provide executive information from a logistics business domain. Through supply chain management, the logistics business domain encompasses most business critical systems and extensions beyond a single enterprise to all participants in business so that they can achieve success through their supply chain performance.

Vertical integration is the modeling of the business processes and decisions as well as other key factors in a dynamic repository so they can be used to provide access to real data, and to adjust rapidly when the business changes, without impacting the transaction systems in use. The actual transaction systems are not physically integrated (horizontal integration) at the transaction level. A business transaction can be analyzed within the business rules, which leads to the generation of applicable Electronic Data Interchange "EDI" transaction messages that update the appropriate transaction systems of record.

A Business Integration and Decision Support (BIDS) environment has many components, as shown in Figure 1.

Query analysis and data mining OLAP tools, shown in block 50 are normally strap-on tools that allow one to design specific queries, as a user, to build views into information. The richer the information, the better comparisons can be made with the tools 50. The user must have

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access to the information and have some training if pre-defined queries are not provided to support the business needs. The unique queries and the graphics are configured to display meaningful information. Data Mining (looking through large volumes of information across multiple domains) is an ultimate use of this capability. OLAP capability normally requires modeling the business decisions and key performance indicators as a means to understand what queries are needed to support the business. The result is generally easy to read graphics about competitiveness, profitability, marketing comparisons, etc.

Without already defined key performance indicators and business processes, this activity could be lengthy and often is described as Business Process Reengineering if done from scratch.

In order to present the routine business process requirements, most applications build screens or windows to allow individuals to obtain the information tailored to their job and required workflow. These screens are constructed from standard coding practices, or from assembling pieces from repositories or libraries (more current practice). It is uncommon to develop web capability for these systems since most development environments have the tools necessary to make any screen you develop into a web accessible page. To develop these screens, it is necessary to understand the business processes that one's screens will support.

When libraries are used to build the screens, the savings in time and dollars can be up to five times what it would take without the libraries available. Without the business processes described, this initial activity could also be lengthy.

The information directory 52 is the navigation mechanism for the data warehouse 54. It includes levels of relationships that tie data dictionary information to the business processes and data-flows. The directory 52 is used to navigate through legacy or other transaction systems 56 to obtain the right piece of data to bring to the data warehouse database 54 for use in the decision support systems that are presented to the user. The capability allows you to define what your business will call certain data elements and to give you the capability to use your definitions to navigate to and select data from multiple other systems. Without the defined business processes, the relationships between the data and the processes, and the internal navigation to work-flow screens, the development of a means 58 to tie the data to the business processes would require at least 36% of one's total development effort. Changes can be expected for each new similar

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business domain (stay within the supply chain area) with great savings (average of 80% already done).

There are levels of databases in a data warehouse. The lowest level is called an operational data store 60. It is a physical database that is constructed to represent a business at a given point in time. There are also logical databases that are multi-dimensional to capture the nuances of particular business segments such as marketing, purchasing, accounting, transportation, etc. (with the third dimension often being time). Each of these multi-dimensional "cubes" must have relationships described to manage the way that populating the databases would occur. Marts 62 and Enterprise Data Warehouses 64 fall into this category.

Without the business processes being fully developed, there is no certainty that all of the data required to support the business would be represented in the databases. Once the databases are developed and applications are built to use them it becomes much harder to retrofit changes to the databases. Therefore, the business processes need to be well developed to minimize retrofitting time.

This component of data warehouses/marts 62 and 64 is the actual capability to go and get data elements from multiple systems, clean the data to user standards, transform the data to the format required within the warehouse/mart, and commit it to the warehouse or mart in a usable form.

There are significant tools available to perform this function. The use of the tools is empowered significantly from having the information directory in a dynamic form; otherwise the descriptions and configurations of the tools would be lengthy to ensure that the data is coming across correctly.

There are many forms of electronic commerce (EC) and security has similarly many types of application. Many tools come with the capability to handle EC and to configure security environments. In custom coded applications there are protocols and standards to meet to build features that can provide the EC and security capabilities. Also, it is not uncommon lately to see these features built into production environments through an integrated suite of tools. EC is more commonly applied to transaction systems, but information may also be pertinent to the decision support systems. Security is required for both domains and multiple layers are common to ensure

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not only access to what the user needs, but also protection from access by those who should not have access.

The environment readiness for these features is critical to not having to develop these applications since such development could be lengthy and less tested.

The supply chain management system of the present invention provides for secure web access to information with controlled access to participants that need total assurance that their competitive data is not accessible by other participants in the system. A preferred embodiment in the environment deals with supply chain processes; similar capabilities exist for business specific needs. The environment is a technical solution to a particular domain. Achieving the technical solution requires a methodology to ensure that the business needs are understood, and that the strategy is expressed in business processes, the business organization, and then the supporting technology for those two elements. Figure 1 identifies the methodology used to define the parameters for the technical solution.

Referring to Fig. 1, data from the existing ERP and operational systems 56 is acquired through the ETT 58. The data manager 66 and the information directory 52 receive data from the ETT 58. The information directory 52 is accessed through design tools and data warehouse/marts builder 68. The query analysis and mining tools 50 utilize the information from the data manger 66. Information creation and delivery 70 utilizes information from both the data manager 66 and the information directory 52. The information produced in the information directory 52 is stored in the repository database 72. The results of the information creation are displayed through a user interface 74.

The methodology of supply chain management system according to the present invention allows a business to be modeled incrementally with the enterprise, and with an inter-enterprise view in mind while constructing rapid business operational capability. A business enterprise system will most generally provide services at three levels:

1. The strategic level will provide the highest level of information for strategic decision-making.

2. The tactical level will provide information across business functions to assist the horizontal process management of all participating organizations.

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3. The operational level allows sharing of pertinent information that execution personnel need to make things happen in the immediate context of providing services to all participants.

The management system of the present invention provides a very versatile business/supply chain assessment feature. The system can establish available industry benchmarks, and thereby define the meaning of success for each organization. The system can also establish the degree of supply chain maturity of an organization, and establish the scope of supply chain performance required of an organization. The baseline for current performance within the supply chain can be established, and extremes can be identified.

The system is further able to analyze organization and structure, quality and measurement, operations management, information and technology, customer and external relationships, and knowledge and its use. The system determines roles within the organization, supply side participants and demand side participants, as well as identifying decision authorities and decision methods. Gaps in performance and characteristics with the model can be established. The system can further focus on the catalyst for change, the most compelling reasons for change, and the willingness of individuals and organizations to change.

Another feature of the present system is providing valuation positioning. Value positioning provides diverse data, such as value proposition curves for potential process changes, organization value priorities, and investment guidelines. The valuation positioning can determine the key metrics that the enterprise has determined as key to their business, establish the sensitivity of metrics at multiple levels to specific changes in performance within supply chain processes, and establish the priorities for the organization with regard to most desired value propositions. The valuation-positioning feature can further determine the likely payback for given initiatives within the organization as an initial means to adjust the focus of effort based on perceived likely value. Value positioning can determine what the potential payback is so that the investment can be gauged for appropriateness, and can obtain client buy-in on value propositions and possible methods for performing projects based on the potential value proposition.

As stated previously, the supply chain management system uses data warehouse design concepts to vertically integrate order management (OM), inventory management (IM), vendor managed inventory (VMI), and transportation management (TM) systems. The system provides a big picture of the operation of a business.

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The data warehouse will provide an enterprise-wide performance view of the business operation of the supply chain management system. By consolidating the history of transactions across disparate supply chain management transactional systems, the data warehouse can be queried for a number of business key performance indicators and metrics. These include:

Asset measurement	Revenue
Cost	Customer profitability
Consumer service	Speed
Productivity	Integrated metrics
Quality	Miscellaneous
Timeliness of shipments	

In ordinary operation, it is expected that the customer's supplier information will provide inventory data by product and warehouse, while the customer information furnishes purchase order and inventory data. Purchase order data will be organized by order date, product, supplier, and delivery terms. The customer's customers (customer2) information will provide purchase order, inventory and sales data. The sales data will be transmitted to the vendor managed inventory system. The partner providers, which includes carriers and warehouse facility providers, will transmit shipment data for orders shipped from supplier to the SCM customer, and for orders shipped from SCM customer to customer2. The data will be consolidated in the enterprise Web-Enabled Data Warehouse/Mart. The warehouse can then be queried to develop a host of measures for supplier shipment, supplier inventory, customer purchase orders, customer inventory, customer shipment, customer2 purchase orders, customer2 inventory, and customer2 sales.

Referring to figure 3, a chart illustrating the flow of information according to the supply chain management system of the present invention is shown. In the ETT 58, when an ERP transaction 76 occurs it is logged as an incoming transaction 78 and placed in the receiving queue 80, which in turn launches an electronic messaging process 82. The electronic messaging process 82 interacts with an electronic message database 84, which may send messages to

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customer relations management 86, message definitions 88, and/or message definitions 90. An OS Demon/Watchdog 92 monitors the electronic messaging process 82 and the receiving queue 80.

In ODS acquisition, information from the electronic messaging process 82 is sent to a process queue 94. The process queue 94 launches an operational data store process 96, which is monitored by an ODS scheduler Demon/Watchdog 98. The operational data store process 96 updates an operation data store 100 and an SCM repository 102. The SCM repository 102 contains customer and product relations management, and performance measurement metrics.

Information from the operation data store process 96 is sent in a data warehouse transaction to an archive queue 104, which in turn launches a data warehouse marts process 106. A data warehouse demon/watchdog 108 monitors the data warehouse marts process 106. The data warehouse marts process 106 updates the data warehouse 110 and the data marts 112.

The primary points of contact among the software package suites are the individual input data requirements for each system, the data transactions among systems, and vertical integration logic.

The next aspect of the supply chain management system is the order management process functions. For inbound items, inbound processing controls a purchase order (PO) from requisition through payment authorization, which includes sourcing, purchase release, receiving, and payment authorization.

The first step is the monitoring and maintenance of open requisitions, consolidation of stock-keeping unit (SKU) purchase quantities by vendor, and creation of a planned PO, by sourcing. Next, the purchase release creates the P.O., either from a purchase requisition or by direct entry, and establishes purchase price, considering any special discount schedules or volume purchase agreements. It also creates the authorization to receive product in the Warehouse Management system, and follows the progress of the order from time of requisition through receipt.

In the receiving step, the incoming products are identified, and verification that they were ordered is made. The product is then controlled through counting and quality control. The

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receiving step supports put-away tasks, and posts the record of receipt, including date and quantity shipped, based on an authorization to pay from warehouse management.

The final step is payment authorization. Here, invoices from vendors are authorized for payment by determining that the quantities invoiced were received at the purchase price invoiced. Exceptions are noted and the appropriate manager is notified.

In outbound processing, the customer order from time of product creation through billing is controlled, which includes sourcing, order release, shipping, and invoicing.

In the sourcing step, any customer, product, and any special pricing requirements are identified. Credit checks are performed, and inventory availability is determined. Inventory required for immediate shipments are then reserved.

In the order release step the requirements for future delivery of non-standard product, back-ordered items, or scheduled shipments are captured. Next the authorization to ship for items that can be shipped immediately are created.

In the shipping step outbound products are identified, quantities picked are confirmed, products are controlled through packing, quality control, and shipping, and the record of shipment, including date and quantity shipped, based on an authorization to bill from warehouse management is posted.

The next step is the invoicing step. Here, all orders shipped to a customer are invoiced. Exceptions are noted and the appropriate manager is notified.

The final step is physical distribution. Physical Distribution controls the warehousing and transportation of all orders as follows:

Distribution Center Planning

1. Plans and manages efficient and economical strategic center's (SC) operations based on order backlog, supply, storage capacity, and available manpower.

2. Schedules inbound receipts based on authorizations to receive (ATR).

3. Directs put-away operations either cross-dock to fill order backlog, such as back-orders or scheduled releases, or to storage.

4. Releases outbound orders for shipment based on authorizations to ship (ATS).

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5. Directs inventory replenishment to support established picking procedures, and

6. Controls work queues in support of these operations.

Picking

1. Identifies outbound products; confirms quantities picked.

2. Controls product through packing, quality control, and staging, and

3. Updates inventory balances.

Put-Away

1. Identifies inbound receipts.

2. Controls product through counting and quality control.

3. Supports put-away tasks; and updates inventory balances.

Storage Management

1. Establishes and maintains the warehouse location map.

2. Maintains perpetual inventory balances.

3. Controls internal movement of product, including put-away and replenishment requirements.

Billing is the link between Inventory Management and Financial Management in the receivable area. All orders shipped to a customer are invoiced. Exceptions are noted and the appropriate manager is notified. The order management process functions are identified in Figure 4.

In order management (OM), new customer information is created in step 120. Items, customers and suppliers are maintained in steps 122, 124, and 126, respectively. In step 128, a confirmation of a valid order is produced in response to the customer. The order is sent to distribution center planning 132 through Assian lines 130. A put away is created in step 134.

The data from steps 122, 124, and 126 are also employed in data validation step 140, which is part of the transportation management system (TMS) as well as the business. When the data is validated in step 140, confirmation is sent back to process the valid order received step

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128. In addition, as part of the vendor managed inventory (VMI), a deployment plan 142 is created after the data validation.

Information from the step of creating the put away 134 is sent to a shipment received step 144, which in turn is sent to a shipment received step 146 at the customer end. Both shipment received steps 144 and 146 send confirmations to transaction receipt step 148, which produces an invoice payable 150.

The data validation steps 140 are part of a larger data capture step 150. Customer history 152 is used in a forecasting step 154 so that the data validation step 140 can utilize this information in the creation of the deployment plan in step 142. The data capture step 150 also produces a new customer contract in response to a valid order from a new customer in step 156.

As part of the order validation process, supplier sourcing is determined in step 160. The selected supplier information is sent to supplier order entry step 162 and to tendering step 164. The supplier order entry step 162 initiates an order received step 166, and is further used in the data validation step 140. Finally, the transaction receipt step 148 initiates a customer invoice payable 170.

The functions of the inventory management process are forecasting, deployment, leveling, and replenishment. Inventory Forecasting determines what to stock. Provides statistical and/or empirical techniques to forecast product demand, based on historical sales performance.

Inventory deployment manages planned availability for each SKU, including:

1. How much to stock, based on projected demand.

2. Where to stock to satisfy established service levels.

3. When to replenish to maintain established levels.

4. How much to buy, based on the following economic order quantities:

a.) Availability Management

Manages planned availability for each SKU, including quantities on hand, on order, committed, and quarantined.

b) Inventory Leveling

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Allocates planned availability to fill customer orders or to maintain stocking levels in the distribution network.

Determines net requirements based on planned allocations.

Identifies excess inventory.

Recommends adjustments to minimum stocking levels.

Recommends whether inventory will be bought or transferred to maintain recommended stocking levels.

c) Inventory Replenishment

Generates requisitions to either buy or transfer inventory to meet net requirements in the distribution network.

The functions of vendor managed inventory are demand planning, inventory planning, inventory deployment, sourcing, order release, and shipping.

Demand planning determines what to stock. Provides statistical and/or empirical techniques to forecast product demand, based on historical sales performance.

Inventory planning manages planned availability for each SKU, including:

1. How much to stock based on projected demand.

2. Where to stock in order to satisfy established service levels.

3. When to replenish to maintain established levels.

4. How much to buy based on economic order quantities.

Inventory deployment performs a number of functions, namely, it allocates planned availability to fill customer orders or to maintain stocking levels in the distribution network. Inventory deployment determines net requirements based on planned allocations, identifies excess inventory; recommends adjustments to minimum stocking levels, recommends whether inventory will be bought or transferred to maintain recommended stocking levels, and generates requisitions to either buy or transfer inventory to meet net requirements in the distribution network.

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Sourcing (common with order management) assists in identifying customer, product, and any special pricing requirements, performs credit checks determines inventory availability, and reserves inventory required for immediate shipments.

Order Release (common with order management) captures requirements for future delivery of non-standard product, back-ordered items, or scheduled shipments, and creates the authorization to ship for items that can be shipped immediately.

Shipping (common with order management) identifies outbound products, confirms quantities picked, controls products through packing, quality control, and shipping, and posts the record of shipment, including date and quantity shipped, based on an authorization to bill from warehouse management.

The functions of warehouse management are distribution center planning, picking, put-away, storage management, and inventory accounting.

Distribution center planning plans and manages efficient and economical SLC operations based on order backlog, supply, storage capacity, and available manpower, schedules inbound receipts based on Authorizations To Receive (ATR) from Purchase Management, directs put-away operations either cross-dock to fill order backlog, such as back-orders or scheduled releases, or to storage, releases outbound orders for shipment based on authorizations to ship from Order Management, directs inventory replenishment to support established picking procedures, and controls work queues in support of these operations.

The picking function identifies outbound products, confirms quantities picked, controls product through packing, quality control, and staging, and updates inventory balances. Shipping functions related to order processing controls, bills of lading, truck manifests, and billing procedures are included in the Order Management checklists.

The put-away function identifies inbound receipts, controls product through counting and quality control, supports put-away tasks, and updates inventory balances. Receiving functions related to purchase order controls and payment procedures are included in the Purchase Management checklists.

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The storage management establishes and maintains the warehouse location map, maintains perpetual inventory balances, and controls internal movement of product, including put-away, multiple customers per location/bin and replenishment requirements.

The inventory accounting controls real-time inventory updates, provides on-line inquiry to perpetual balances; and supports cyclical/physical inventory procedures, (an effective Warehouse Management functionally isolates warehouse business operations from other business operations.) Work requirements are received as either authorizations to ship (ATS) from order management or authorizations to receive (ATR) from purchase management.

The warehouse management controls planning, inbound, outbound, and storage management operations. The warehouse automation controls the actions of any automated devices, such as carousels, fixed scanners, and palletizers. When a required business operation, such as shipment or receipt, is completed, authorizations to bill (ATB) or authorizations to pay (ATP) are returned as appropriate. Periodically, reports are generated of on-hand inventory to the inventory management and financial management. The Warehouse Management process flow is shown in Figure 5.

An availability manager 200 monitors the movement of goods, and receives goods receipts 202, and produces goods issues 204. Authorizations to ship goods (ATS) are sent by the availability manager 200 to a pick planner 206, and includes prioritized customer information, ship date/time information, and transit time information. The information from the pick planner is sent to a shipment planner step 208 that produces load planning and tendering information. A pick order step 210 is performed based on the information from the shipment planning step 208. The pick order step 210 produces directed picking information, updated location status information, first-in-first-out information, labeling and scanning information, customized pallet information, and building, case pick, and order assembly information.

The information from the pick order step 210 is used to perform a ship orders step 212, which is sent to both the availability manager 200 and an ATMS step 214. In the ATMS step the carrier system is selected, the load is tendered to the carrier, and a carrier assignment is made.

Periodically a count of the physical inventory is cycled in step 216. Storage management step 220 is performed parallel to the availability manager 200. The storage management step monitors the available storage space, storage locations including storage configurations,

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replenishment, and re-warehousing. Furthermore, the storage management 220 performs productivity analysis and management reporting, produces performance measures, and monitors equipment utilization and maintenance.

Product monitoring is the ability to inquire and report the current location, quantity, and status of products throughout the supply chain at any time. Two categories of information are supported: inventory visibility and in-transit visibility. Through automated and manual procedures, Product Monitoring provides a consolidated view of all products across warehouses, vendors, customers, and in-transit modes.

As a result, customers can track and manage in-transit progress. By proactively tracking in-transit progress the customer can identify potentially late deliveries in time to redirect the shipment and plan loads for possible deliveries enroute. Customers can consider alternate sourcing. By viewing total inventory status, customers can determine the most appropriate location from which to fill an order. Furthermore, customers can combine individual visibility solutions to Enterprise visibility. By consolidating information across multiple departments and organizations, the customer can see a total view of their supply chain, including internal organizations and external partners. Finally, customers can automate tracking to lower costs. Product Monitoring Automation will reduce the staff required to track the product and resolve both internal and external inquiries. The product monitoring process flow is shown in Figure 6.

A query 250 initiates a determination 252 whether in-stock status is required. If the answer is yes the inventory is viewed in step 254. The view inventory step 254 sends and receives information with the order management status in step 256. Next, a decision 258 is made whether in-transit status is required. If no in-transit status is required a query response step 260 is performed.

If in-stock status is not required in step 252, or if in-transit status is required in step 258, then view transit step 262 is performed. In the course of step 262 shipment information 264 is shared. A carrier and an expected delivery date are determined in step 266. A carrier bill of lading file is maintained in step 268. The delivery is validated in step 270 and the data is confirmed in step 272. If the data is correct the query response is generated in step 260, and if incorrect the carrier bill of lading file is updated in step 274.

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A bill of lading (BOL) is created from shipment information. The transportation management auto-rating program, diagramed in Figure 7, validates the shipment information, creates bill of lading records, and calculates the freight cost for the bills of lading. If the freight cost is successfully calculated, shipment history and charge history records are created. The network 300 receives information from the shipper 302, the carrier 304, the consignee 306, and the freight/ vehicle 308.

In the case of consolidated shipment, the shipment is contained within a master bill of lading. Each individual shipment of the consolidation retains a separate bill of lading. Transportation management refers to the master bill of lading as a bill of lading group.

When the shipment is populated with shipments transported under a master bill, a shipment interface record with the bill of lading group ID must be populated as well as all individual bills of lading referencing the master bill of lading number. If a shipment interface record is entered without a detail record (individual bill of lading), the auto-rating program will create a master bill of lading instead of a single bill of lading.

A BOL is created either from shipment information received through the shipment interface or when shipment information moves from shipment planning to shipment execution. Transportation management rates the line haul portion and the distribution leg separately for shipments going through a pool point. The shipment interface will need two types of records, the line haul shipment with the master bill of lading information and each distribution leg for individual sub-bill of lading information. The through point on the shipment interface record has to be populated with the pool point location.

Track a shipment by the contents (i.e., cookies, candies, chocolate, etc.) in a package. Transportation management generates non-cartonized bills of lading when a shipment tracked by package content is rated. Non-cartonized bills of lading list itemized products (ship items), and provide specific instructions to a carrier on a BOL (i.e., Inside Delivery, Hot Delivery or Delivery to Room 210).

The status notification receives a delivery status notification through the EDI 214 Delivery Status Transaction set. A carrier can transmit the shipment tracking status via EDI to an organization (either the shipper or customer), eventually to be populated in transportation management.

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Shipment tracking is accomplished through the use of delivery status messages. These messages are added to the shipment history record.

Referring to Figure 8, a graphical representation of the data warehouse/marts infrastructure according to the present invention is shown. The ETT 58 draws information from the existing ERP and operating system 56, external feed data 350, and text, image and video data 352. Information from the ETT 58 is sent to the information directory 52, which in turn send s information to the operational data store 60, the data warehouse time series 54 and the information creation 70. The information creation 70 sends information to the data marts 62, exceptions and alerts 354, and DSS tools 356. Furthermore, knowledge base distribution 360 is fed to the data marts 62, exceptions and alerts 354, and DSS tools 356.

A graphical representation of an N-Tier network/server architecture according to the present invention is shown in Fig. 9. In a presentation tier, the system is viewed through a web browser 400. A web server Intra/Internet 402 forms a distribution tier 404. A publication tier is made up of at least one web application server. A ROLAP/ application tier includes a web agent/broker 406 and stored process cartridges 408. The data marts tier includes enterprise servers 410 and 412. The data Warehouse tier is connected tot he enterprise servers 410 and 412 and includes an ORDBMS server 416. Finally a source tier includes source data legacy systems 416 and source data (COTS) 418.

Referring to Fig 10, a graphical representation of a base view of the supply chain according to the present invention is shown. A customer 440 receives inventory from a supplier 442 and ships to customer2 444. A partner provider 446 carries the goods from the supplier 442 to the customer2 444.

Fig. 11 is a graphical representation of meta views of the supply chain management according to the present invention. A customer to customer shipment 450 is graphed to show the shipment mode over time. Aggregate customer shipment is represented by a graph 452 of customer verses partner provider over time. Customer inventory is represented by a graph 454 of warehouse inventory verses product over time.

Referring to Fig. 12, a graphical representation of a meta view of the supply chain measurement according to the present invention is shown. The factual data 460 is disseminated

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into product dimension data 462, channel dimension data 464, time dimension data 466, and customer dimension data 468.

A flow chart of integrated logistics for the supply chain management system according to the present invention is illustrated in Fig. 13. A sales plan 600 is developed and process, volumes, and planned promotions are sent to promotional management 602, and category management and customer contact team 604, and a sales forecast is sent to distribution planning 606. The distribution planning sends adjustments to supply planning 608 and demand planning 610, which in turn send supply and demand information back to the distribution planning 606. The distribution planning 606 net requirements to deployment planning 610 that returns availability information back to the distribution planning 606.

Supply planning 608 sends promotion requests and planned orders to vendors and suppliers 612, planned orders to inbound order management 614, and a supply plan to the deployment planning 610. Order management returns an on order inventory to the supply planning 608. Inbound order management 614 further sends on order inventory to the deployment planning 610, purchase information to the vendors and suppliers 612, matched receipts to accounts payable 616, and authorization to receive orders and to ship returns to warehouse management 618. The vendors and suppliers 612 send return authorization and invoices to the inbound order management 614. Deployment planning 610 sends planned transfer information to inbound order management 614. Warehouse management 618 sends authorization to pay to inbound order management 614.

Accounts payable 616 receives invoices from the vendors and suppliers 612 and sends payments and deductions to the vendors and suppliers 612.

Demand planning 610 sends planned orders to outbound order management 620, which in turn sends ship point demand data to demand planning 610. Outbound order management 620 sends committed inventory information to the deployment planning 610 and receives planned transfers in return. Outbound order management further sends return authorization and invoices to category management and customer contact team 604, which returns orders. The invoices are also sent to accounts receivable 622. The category management and customer contact team 604 further sends promotional requests and planned orders to demand planning 610, payments and deductions to accounts receivable 622, and returns to warehouse management 618.

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Credit status is sent by accounts receivable to warehouse management 618, which also receives authorization to ship orders and to receive returns from the outbound order management 620. Warehouse management sends authorization to bill to outbound order management 620, and cyclical inventories to the general ledger 624. Warehouse management 618 further receives shipments data from the vendors and suppliers 612, and sends returns in return. Similarly, category management and customer contact team 604 sends shipments to the warehouse management 618 and receives returns therefrom. Warehouse management 618 sends receipts, on hand inventory, and shipment data to deployment planning 610 and receives anticipated workload data in return.

The following is a description of the user interface screens utilized in the present invention. Fig. 14 is a user interface login screen 650, which requires user ID and password. Figure 15 is a system main menu screen 652 that appears upon successful login. Figure 16 shows an SCM operation management system menu 654 that may be accessed through the SCM operation management system menu 654. Figs. 17 and 18 illustrate an accounts payable screen 656 and an accounts receivable screen 658, respectively.

The foregoing screens are the interface through which a user accesses the system set forth previously. Additional user interface screens may be provided to utilize the other features of the present invention set forth in detail previously.

Having described several embodiments of the system and method of supply chain management in accordance with the present invention, it is believed that other modifications, variations and changes will be suggested to those skilled in the art in view of the description set forth above. It is therefor to be understood that all such variations, modifications and changes are believed to fall within the scope of the invention as defined in the appended claims.

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What is claimed is:

1. A method of managing a supply chain comprising the steps of:

extracting supply chain data from one of existing systems, new systems, and both existing and new systems for entities in said supply chain;

populating an operational data store with enterprise views of said supply chain data;

mapping process models from Supply Chain Operations Reference (SCOR) model processes to said enterprise views of said supply chain data; and

applying data warehouse techniques to provide analysis of indicators and metrics for said entities in said supply chain.

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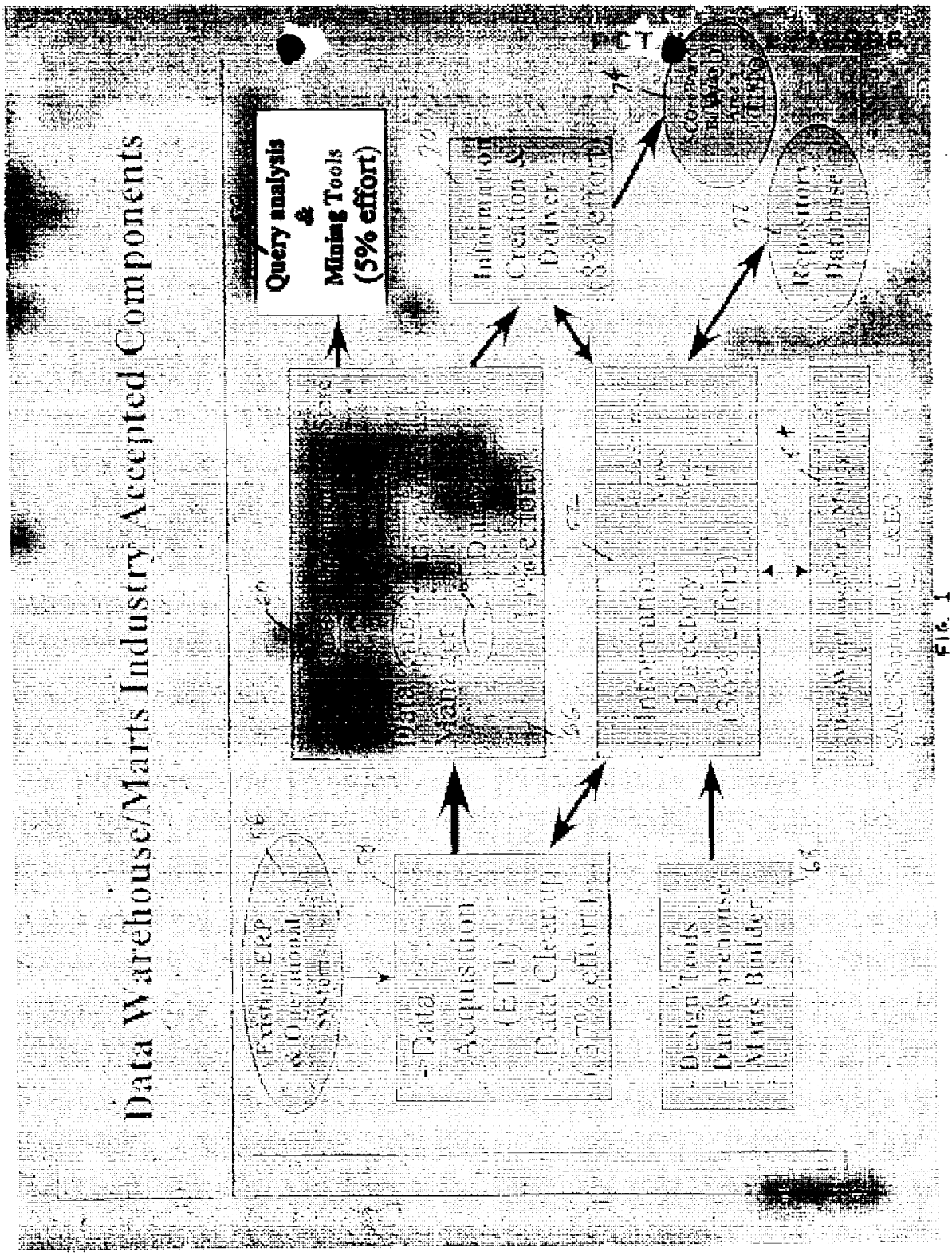


Fig. 1

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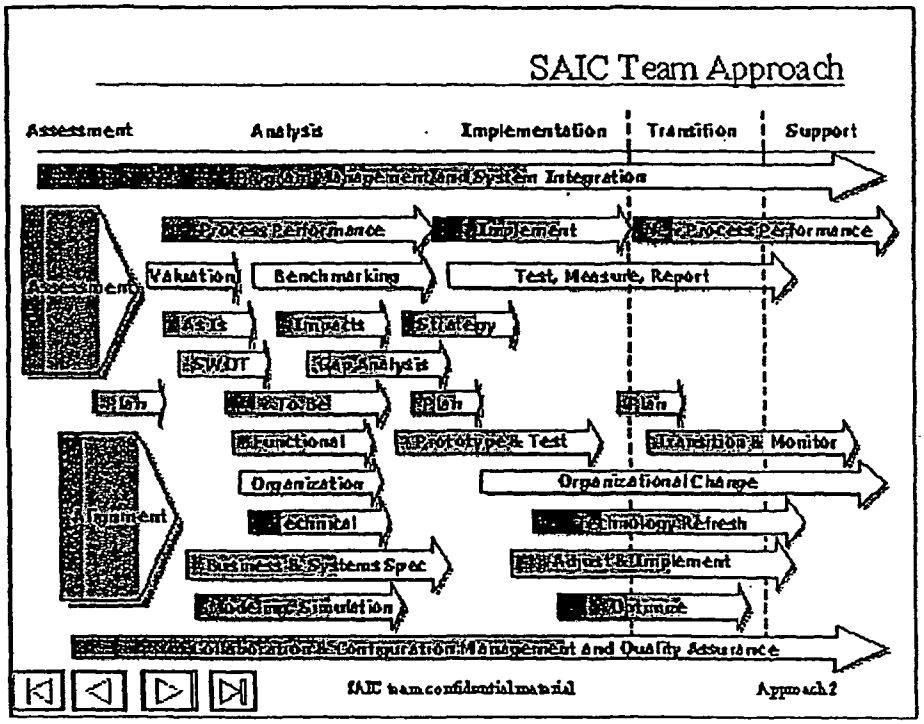


Figure 2. Technical Solution Methodology.

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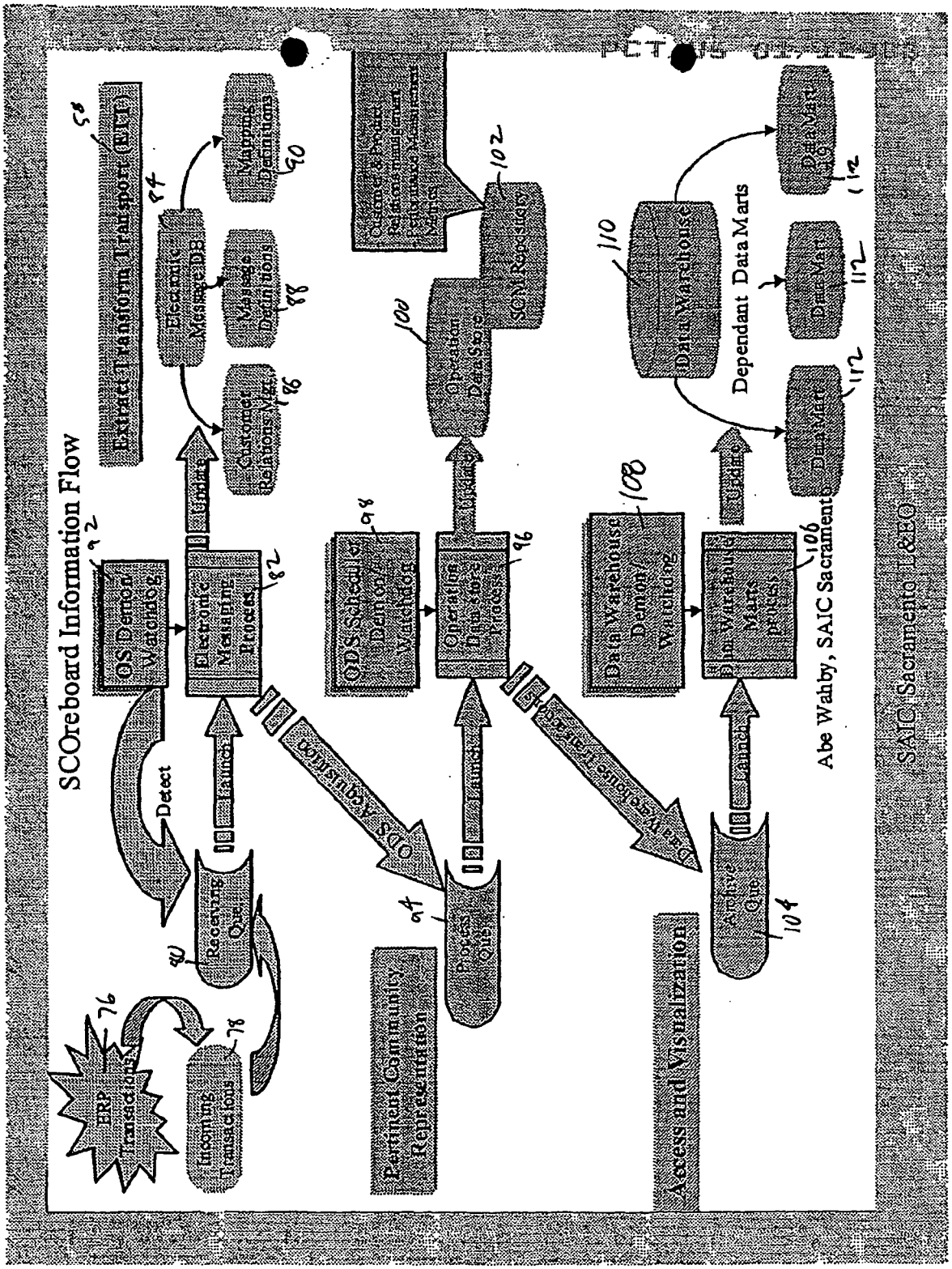


FIG 3

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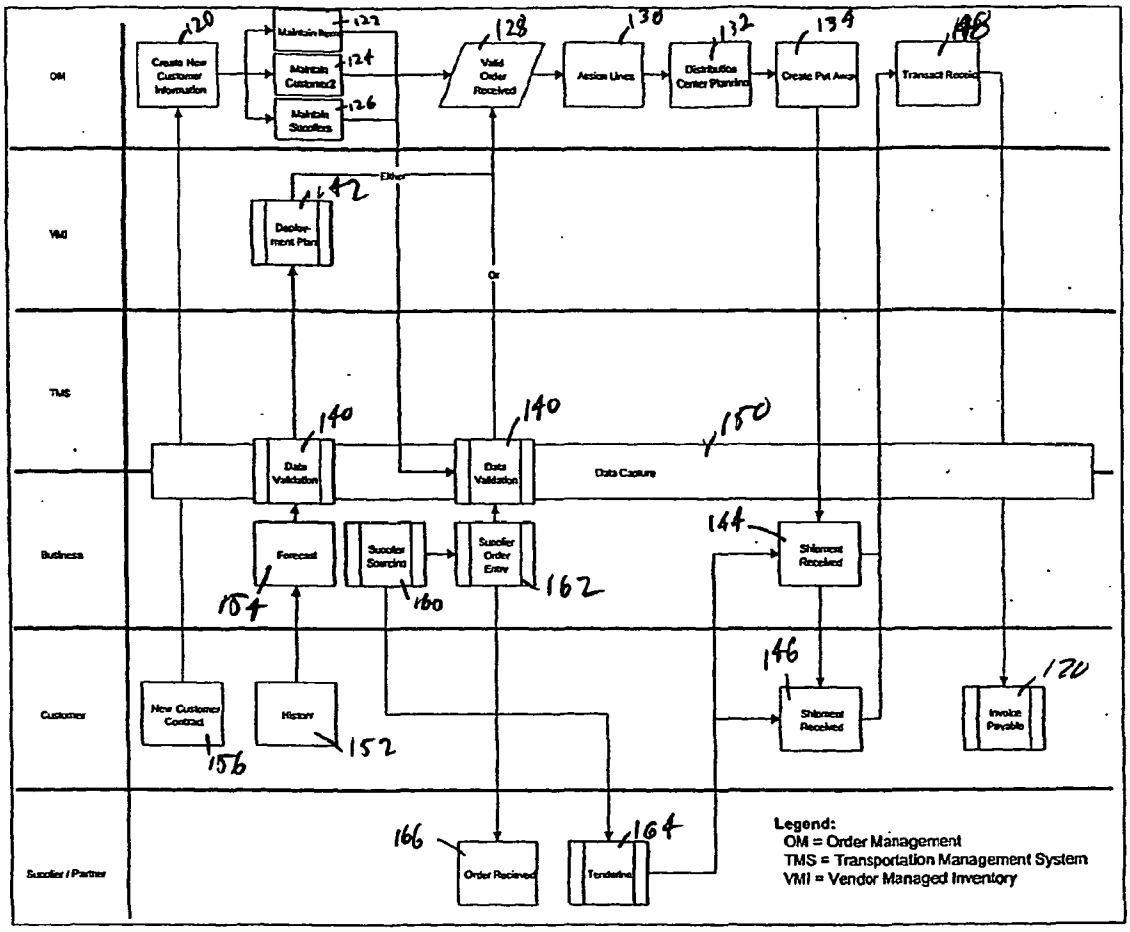


Figure 4. Order Management Process Functions.

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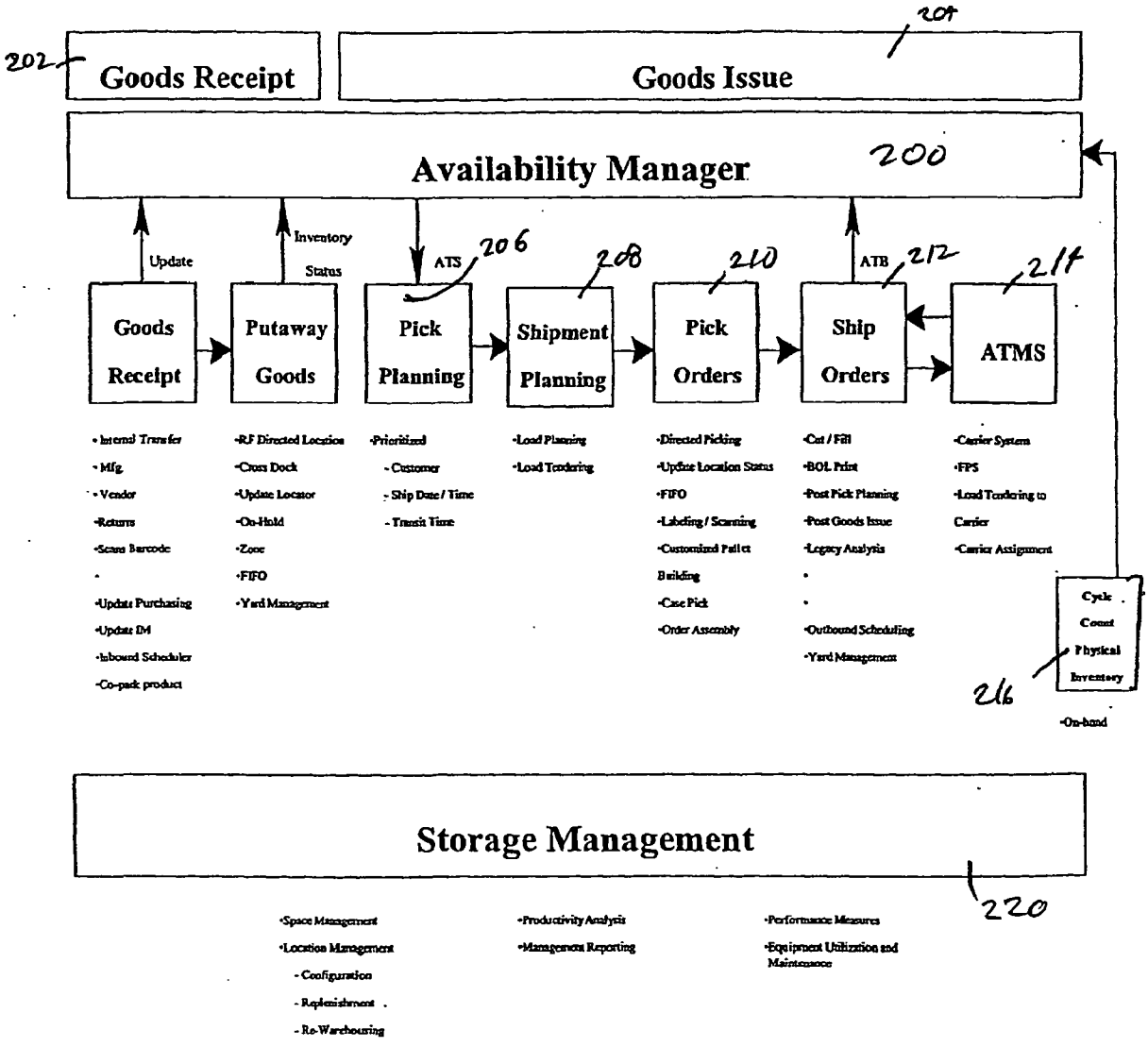


Figure 5. Warehouse Management Process Flow Diagram.

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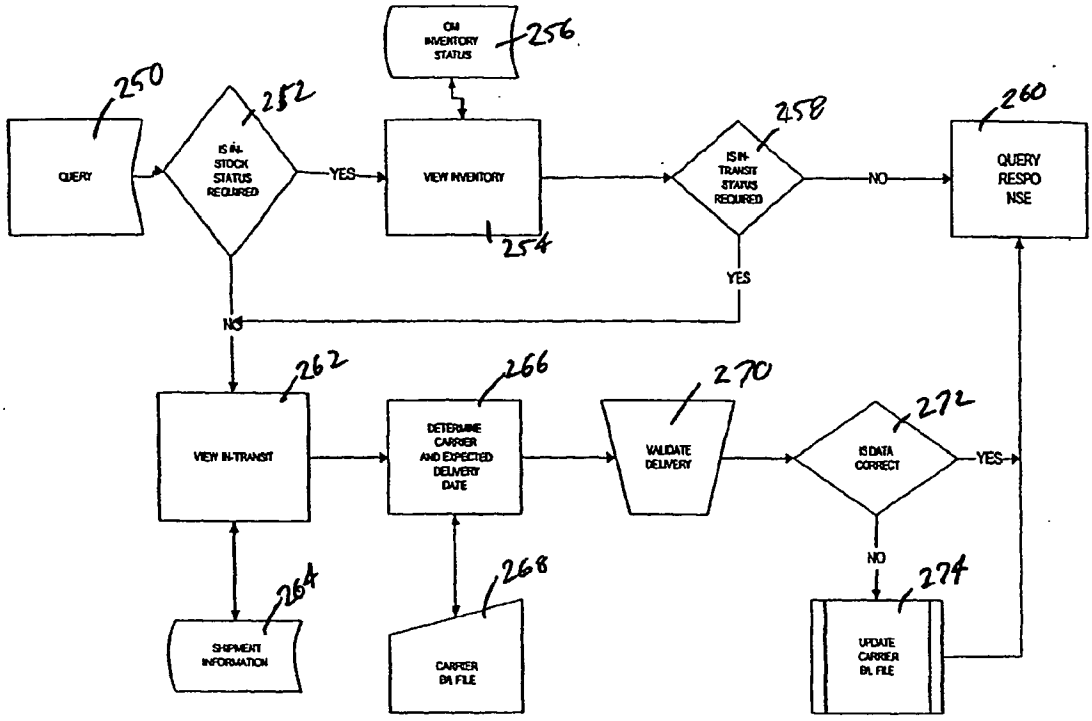
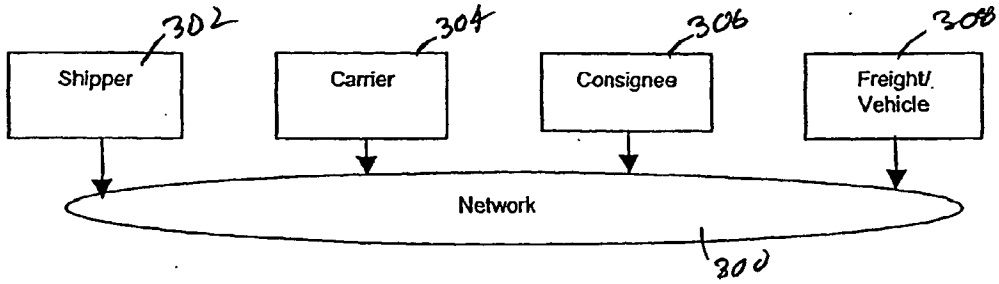


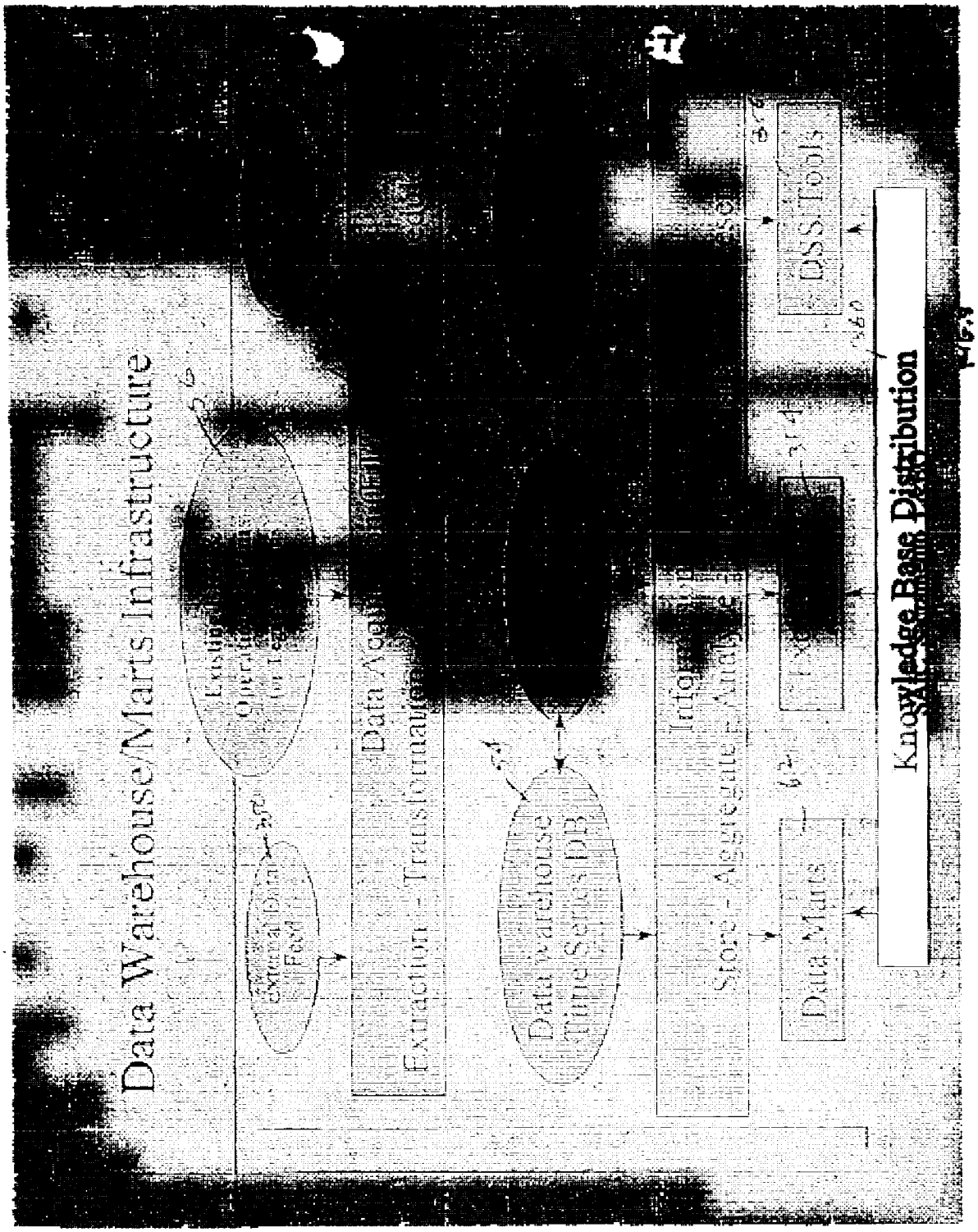
Figure 6. Product Monitoring Process Flow Diagram.



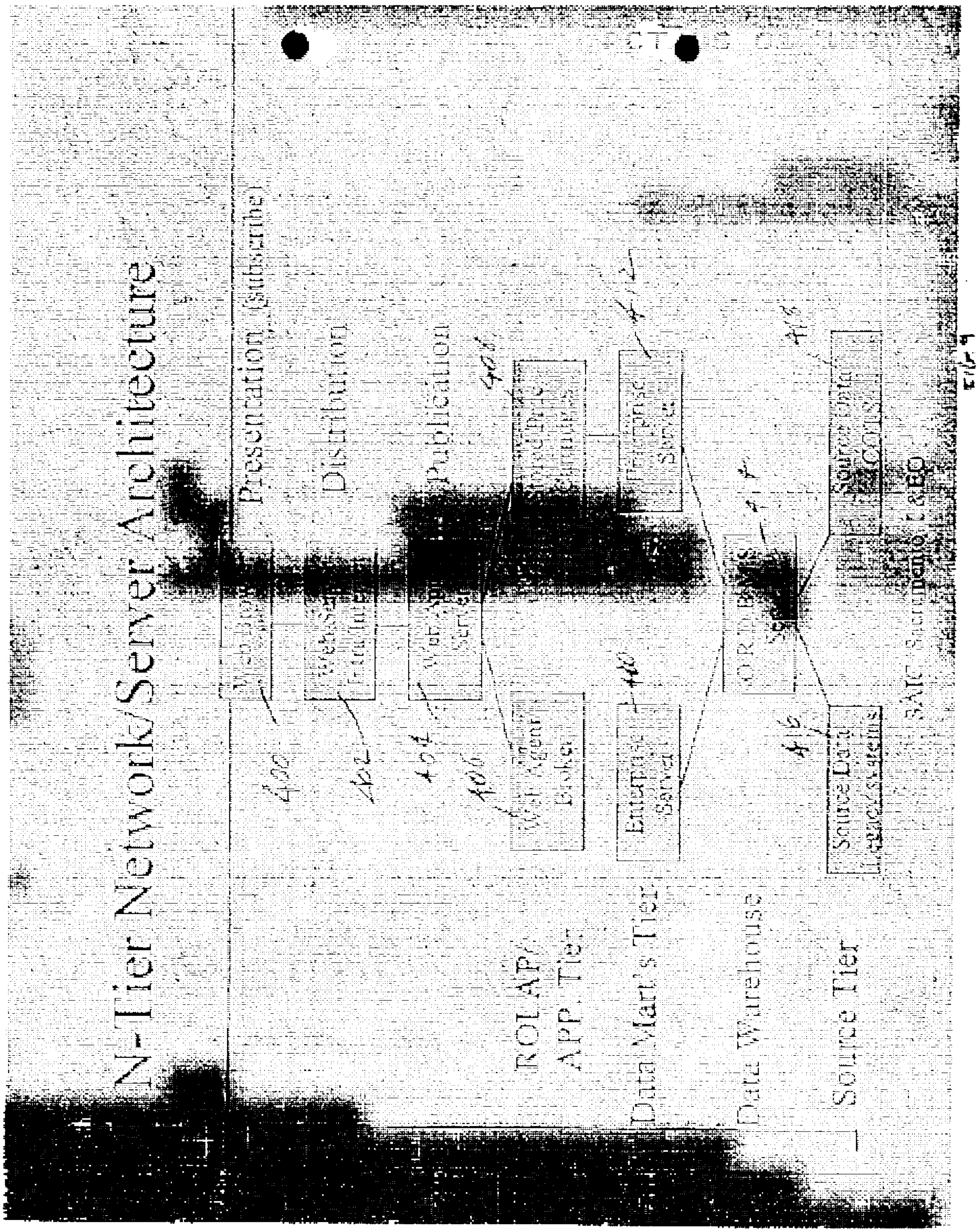
Ship Management	Carrier Operation	Mobile System	Decision Support
* Ship Plan	* Customer service	* Applications	* Carrier select
* Scheduling	* Load plan	* Middleware	* Load select
* Rate/Route	* Fleet management	* Integration	* Load console
* Tracking	* Personnel	* Network	* Clustering

Figure 7.

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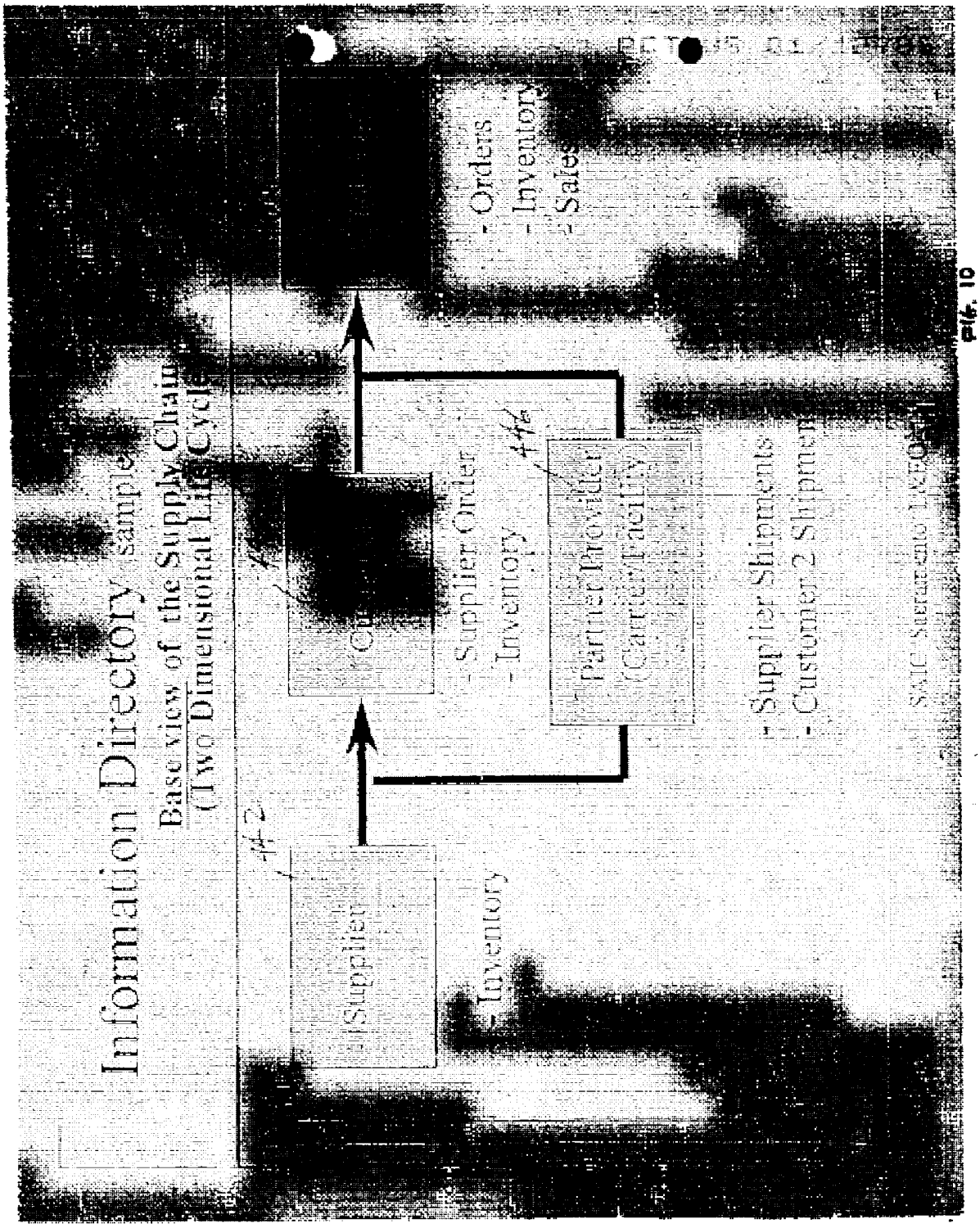


Fig. 10

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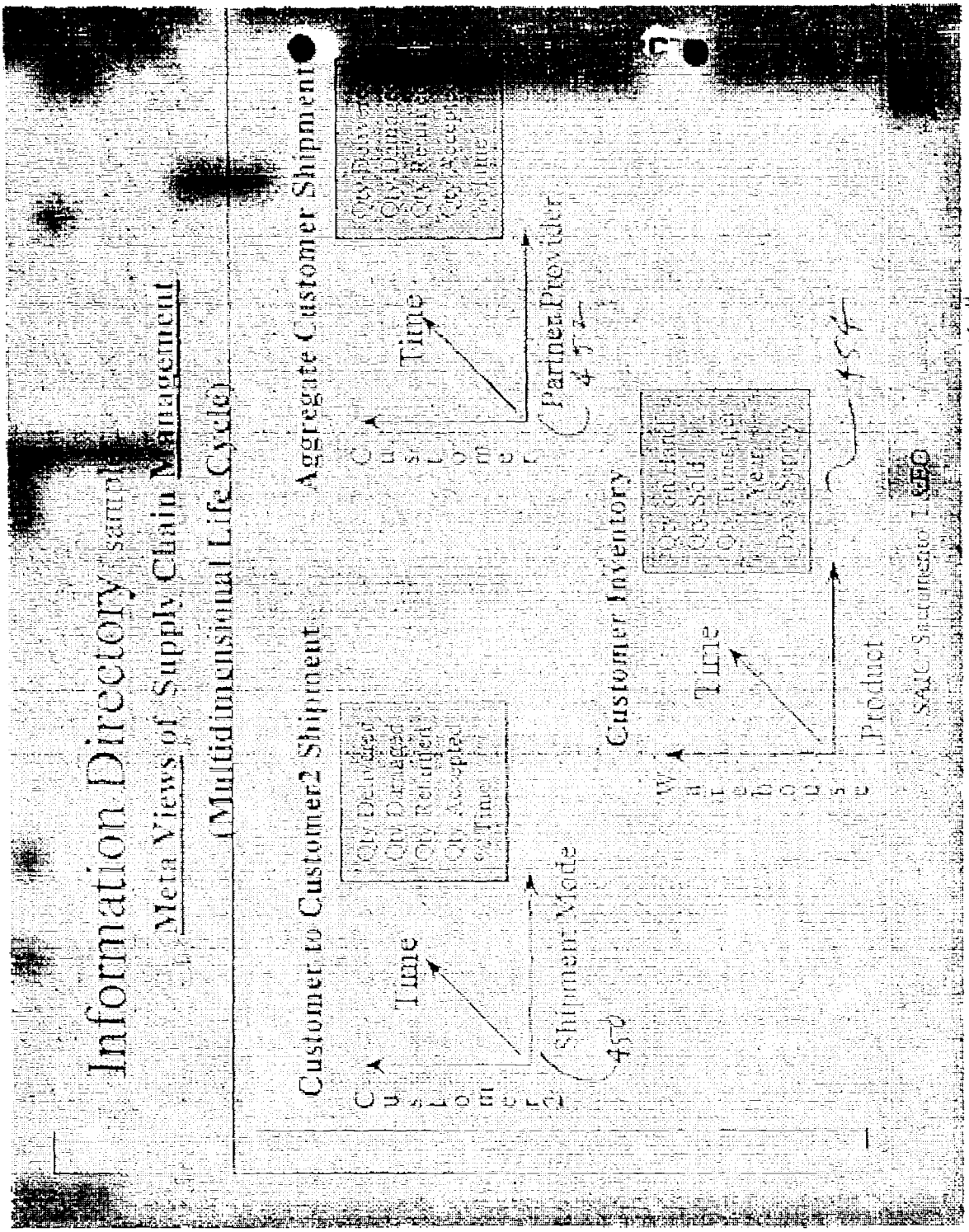


FIG. 11

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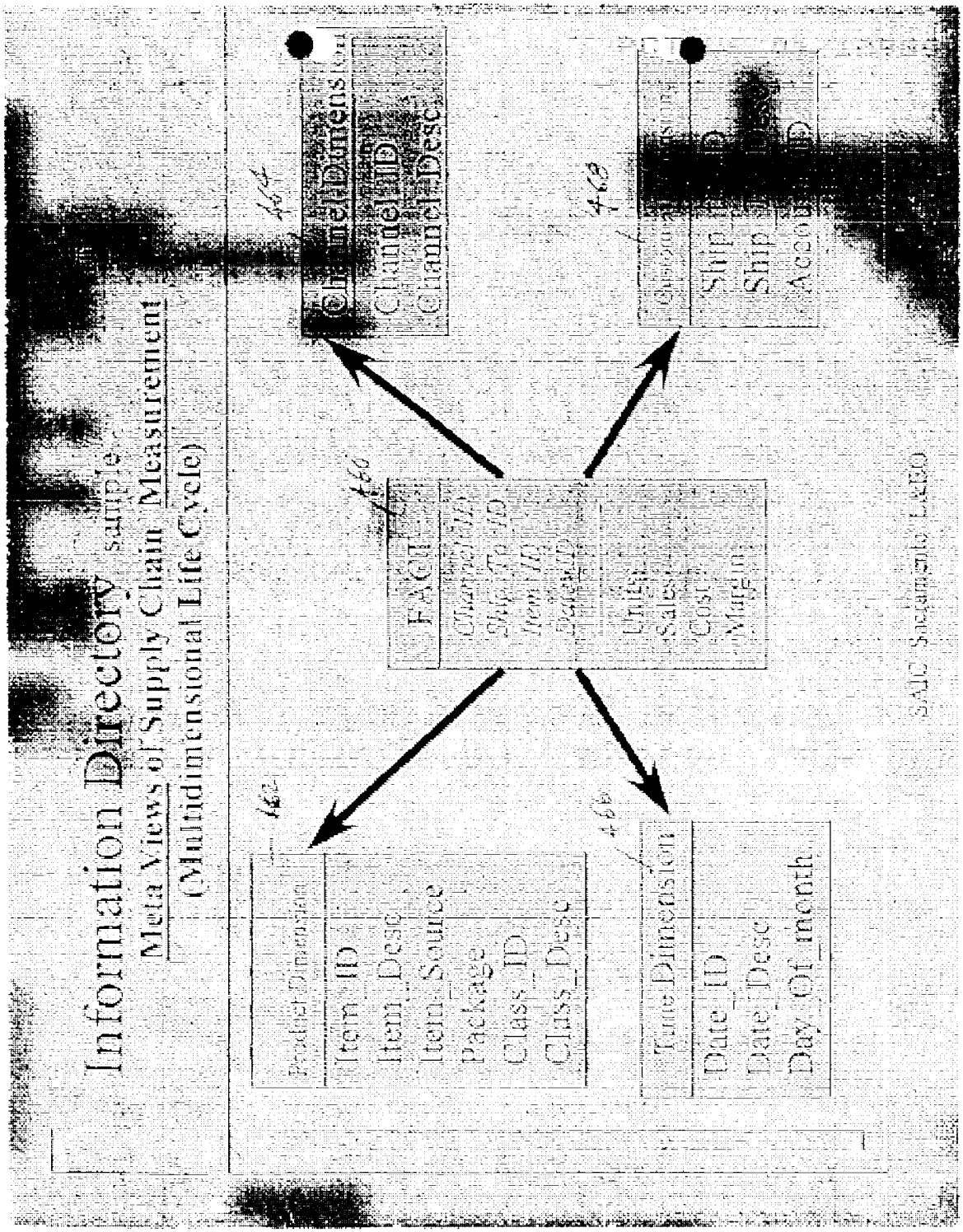


FIG. 12

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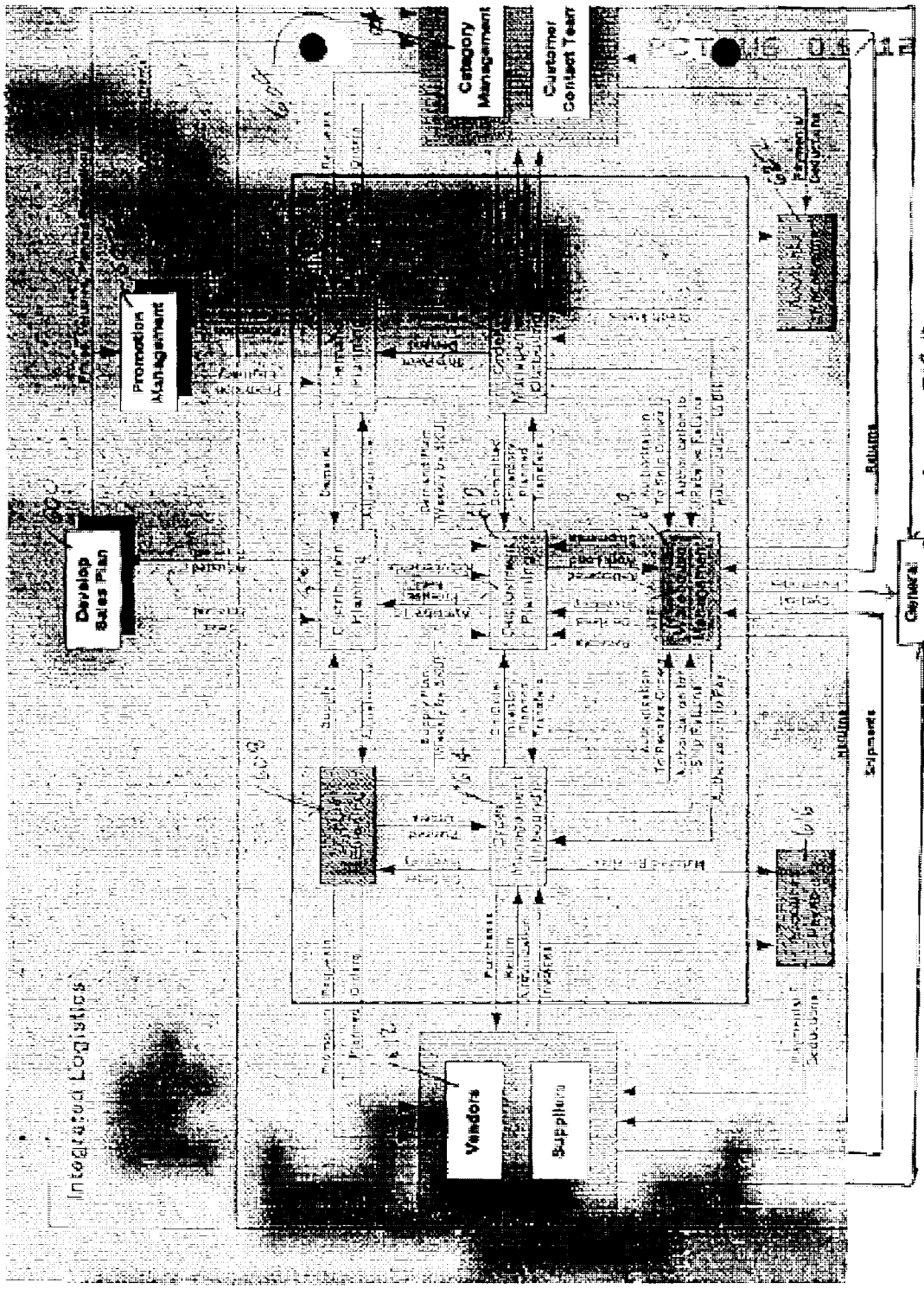


FIG 13

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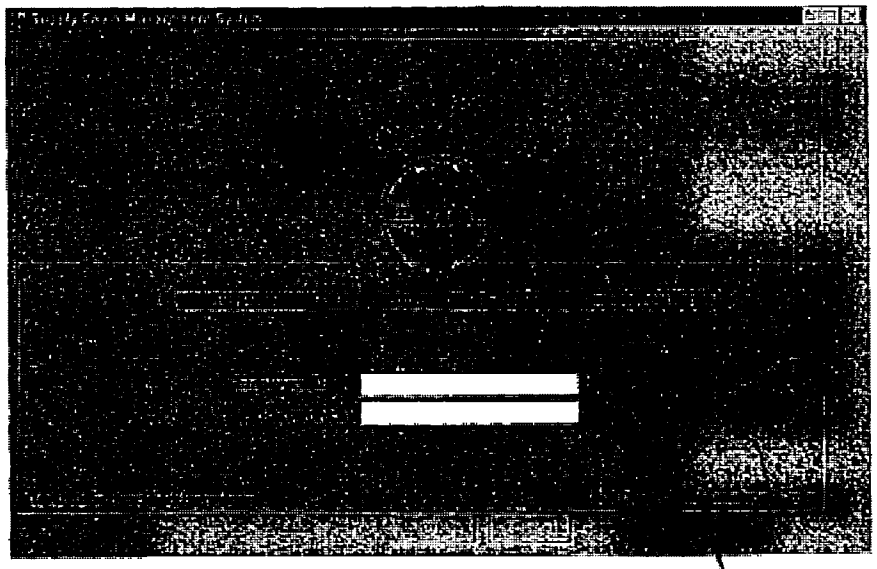


Fig. 14

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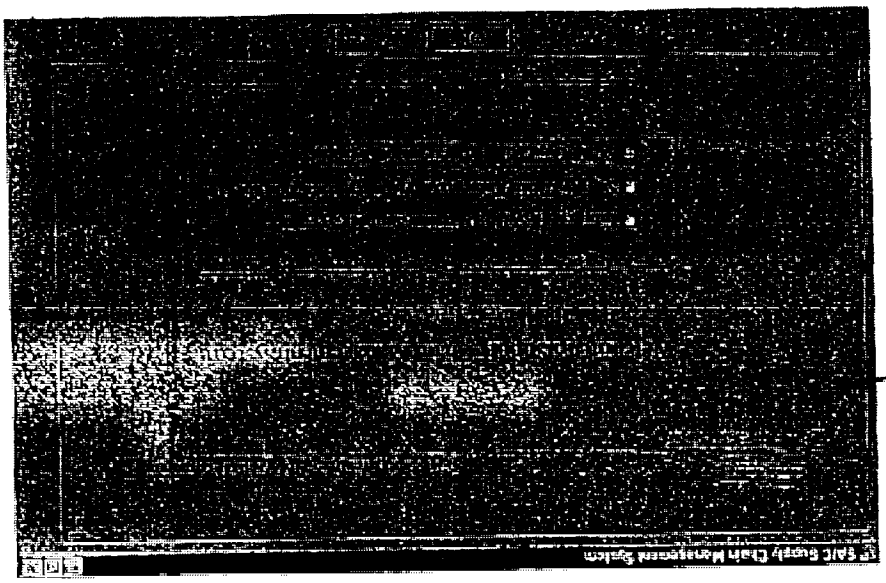


Fig. 15

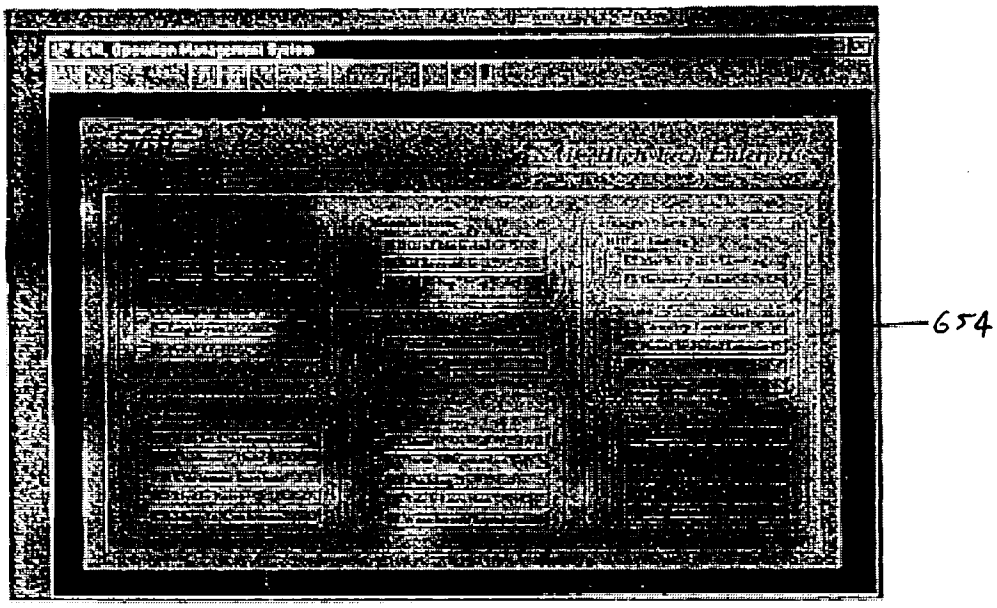


Fig. 16

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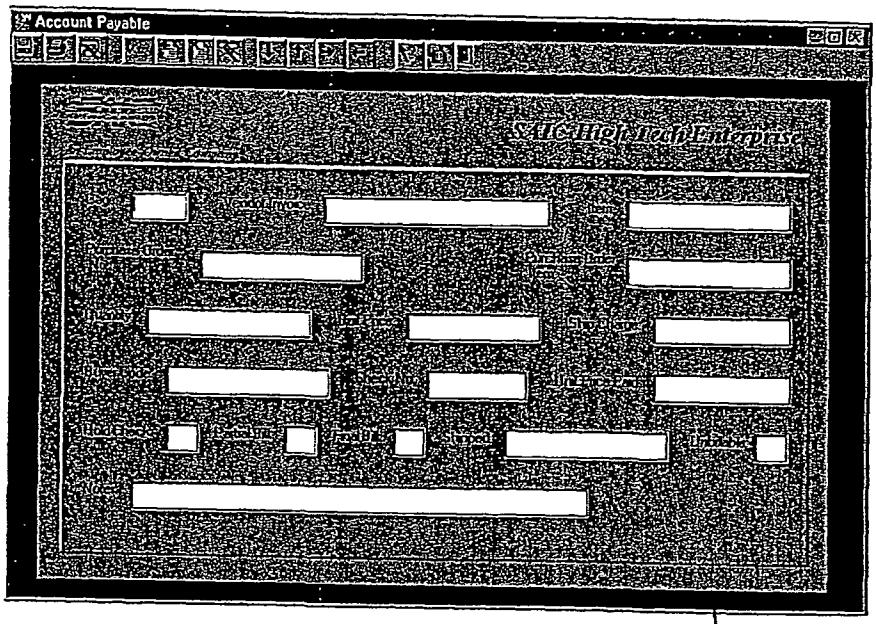
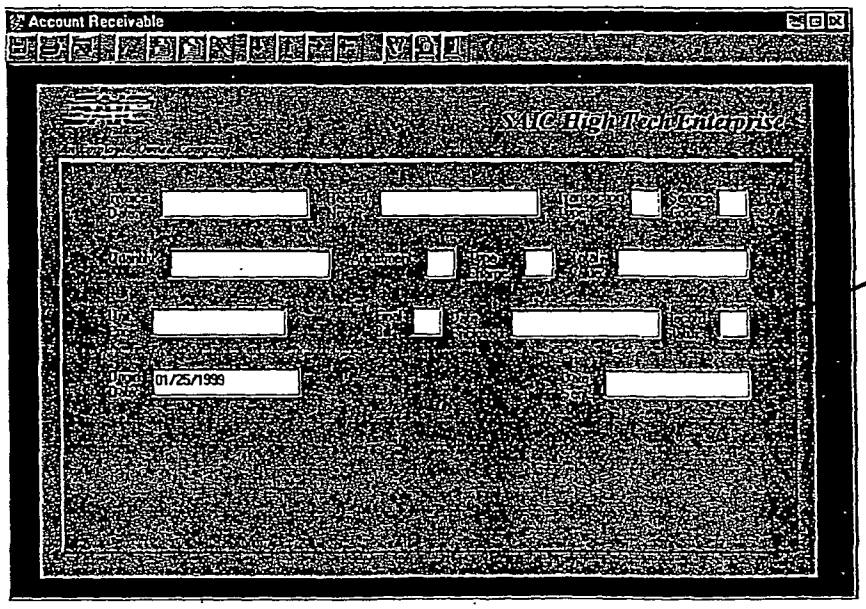


Fig. 17

656



658

Fig. 18

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/12986

A. CLASSIFICATION OF SUBJECT MATTER

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US CL : 705/7,8,10,26,35; 707/10,102

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 705/7,8,10,26,35; 707/10,102

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	US 6,151,582 A (HUANG et al) 21 November 2000 (21.11.2000), column 1 lines 45-65, column 4 lines 35-60.	1
Y,P	Fu et al, Multi-agent Enable Modeling and Simulation Towards Collaborative Inventory Management in Supply Chains, Simulations Conference, 2000. Proceedings December 2000, Pages 1763-1771, especially pages 1764-1766.	1
Y,P	Zang et al, The Modeling, Optimization, Planning and Execution of Supply Chain Management in Enterprises Integration Based on ARIS and SAP/R3, Proceedings of the 3rd Congress on Intelligent Control and Automation, June 2000, Pages 1935-1937.	1

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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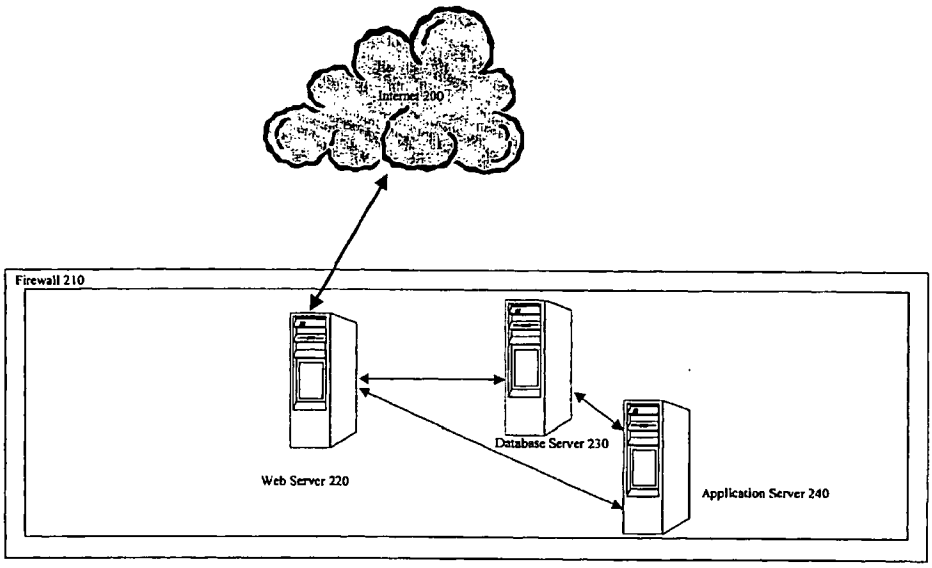
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(54) Title: INVENTORY CONTROL SYSTEM AND METHODS



(57) Abstract: A system and method which allows third-parties to monitor company inventory via the Internet and Worl Wide Web ("web") and automatically order needed items. The present invention also provides a forum through which resellers and customers may directly interact to resell surplus and used equipment. The present invention may also allow a third party to act as a broker, thereby assuring that both equipment purchased is actually delivered, and that the seller is properly compensated.

WO 01/67356 A1

INVENTORY CONTROL SYSTEM AND METHODS

PRIORITY AND COPYRIGHT CLAIMS

This application claims the benefit of U.S. Provisional Patent Application Serial No. 60/187,389 filed March 7, 2000, the entire disclosure of which is incorporated herein by reference.

This application includes material which is subject to copyright protection. The copyright owner has no objection to the facsimile reproduction by anyone of the patent disclosure, as it appears in the Patent and Trademark Office files or records, but otherwise reserves all copyright rights whatsoever.

FIELD OF THE INVENTION

The present invention relates to the field of electronic inventory control. In particular, the present invention relates to controlling healthcare supply inventories.

BACKGROUND OF THE INVENTION

Traditionally, inventory control has been done by the company or organization using the items in the inventory. In smaller offices, inventory control is typically not a high priority, and orders may be placed whenever items are out of stock.

As an office increases in size, inventory management becomes more of a challenge, and monitoring of frequently used or crucial items becomes very important. Typically a person is given the responsibility of monitoring inventory and ordering replacements as supply diminishes. As a company further increases in size, more advanced inventory management techniques may be used. For example, supply and usage trends may be analyzed to determine minimum quantities on hand, and seasonal or other peak usage may be determined.

Some larger offices have switched to automated or semi-automated inventory tracking systems. These automated systems utilize barcode scanners or other electronic identifiers to track outgoing and incoming inventory, and can prepare purchase requests as supplies diminish.

SUMMARY OF THE INVENTION

The present invention improves upon the prior art by shifting the burden of inventory tracking onto a third party; this concept is referred to as vendor managed inventory, or VMI. When a third party provides VMI services for multiple companies, it gains significant buying power which it can use to negotiate better deals, improve supplier responsiveness, and streamline the buying process.

The present invention allows third-parties to monitor company inventory via the Internet and World Wide Web ("web"). In addition, the present invention allows small to medium sized companies to take advantage of VMI by providing a cost-effective solution to their inventory tracking needs.

The present invention utilizes web-enabled technologies to revolutionize inventory management by tracking inventory and automatically contacting suppliers, manufacturers, or distributors when additional supplies are needed. This may result in a labor reduction as compared to the labor-intensive inventory maintenance systems currently deployed.

In addition to reducing labor costs, the present invention may help a company cut other costs. The present invention may help reduce delivery costs by regularly ordering supplies in anticipation of need, thus obviating the need for express shipments. The present invention may also allow third parties to take advantage of manufacturer or distributor specials when offered for the products its customers require, thus further reducing customer cost.

While purchasing is a large part of inventory maintenance, the present invention may also facilitate other transactions as well. For example, the present invention may allow customers to resell products or equipment to other businesses, thereby maximizing utility. Although some in the prior art, such as Neoforma.com and Medibuy.com, have attempted to provide business-to-business equipment resale through web-based auctions, auctions do not provide equipment availability assurances. The present invention provides a forum through which resellers and customers may interact, where the present invention acts as a broker, thereby assuring both that purchased equipment is delivered, and that a seller receives proper compensation.

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BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram illustrating the major hardware components of the present invention.

Figure 2 is a block diagram illustrating an overview of the software components of the present invention.

Figure 3 is a process flow diagram illustrating sample logic implemented when client software attempts to update data stored in a server.

Figure 4 is a process flow diagram illustrating sample logic implemented when client software polls a data connection.

Figure 5 illustrates a sample RFID portal and related computer equipment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention implements an Internet-based, vendor managed inventory ("VMI") system. A VMI system allows a customer to reduce costs by pushing inventory management responsibilities onto a third party, or manager. Managers may service multiple companies, thus allowing them to negotiate better deals, improve supplier responsiveness, and serve as an effective customer advocate.

The present invention allows managers to inexpensively monitor customer inventory via the Internet and World Wide Web ("web"). The present invention utilizes web-enabled technologies to revolutionize inventory management by tracking inventory and automatically contacting suppliers, manufacturers, or distributors when products are needed. This may result in a labor reduction as compared to the labor-intensive inventory maintenance systems currently deployed.

Figure 1 is a block diagram illustrating the major hardware components of the present invention. As illustrated in Figure 1, the present invention utilizes a client/server architecture to facilitate communication between customer inventory systems and managers. A client running on a Customer Inventory System 130 may be used to track inventory, place special orders, and interact with other customers.

A client may include custom software, such as an application written in Visual Basic, JAVA, or C; commercial software, such as a web page accessible through a web browser; or a combination of custom and commercial software, such as a "plug-in" which operates in a web browser. Examples of common web browsers include

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Internet Explorer, developed by Microsoft Corporation of Redmond, Washington, and Navigator, developed by Netscape Corporation of Mountain View, California.

Customer Inventory Systems 130 may allow manual inventory tracking, semi-automated inventory tracking, or inventory may be dispensed using automated systems. By way of example, without intending to limit the present invention, a preferred embodiment of the present invention includes a handheld device, such as a Palm VII device by Palm Computing, Inc., to be outfitted with a barcode scanner. Such a device can allow barcodes or other identifiers associated with each inventory item to be scanned or otherwise entered into the system prior to or at the time of item distribution. As each item is scanned, a count maintained by the present invention may be adjusted to properly track inventory levels. Recipient-specific labels, including product warnings and other information, can then be printed for each scanned item.

Other inventory distribution methods contemplated include, but are not limited to, interfacing the present invention with vending machines. Vending machines may allow accurate inventory tracking without requiring human interaction, except to periodically restock a particular supply or group of supplies. In a preferred embodiment, vending machines may include security measures to prevent unauthorized supply distribution. Such security measures may include, but are not limited to, the use of an identification card and personal identification number ("PIN"), and biometric systems. Vending machines equipped with security systems may restrict access to specific supplies on an individual-by-individual level, or group-by-group basis. Vending machines may also be equipped with label printers that allow warnings and other information to be attached to a dispensed item's packaging.

Alternatively, supply closets or other storage areas can be outfitted with a Radio Frequency Identification (RFID) portal, as illustrated in Figure 5. An RFID portal (Block 500) is similar in structure to airport security metal detectors, except that RFID portals can detect or scan RFID tags as such tags pass through a portal. The present invention can monitor RFID tag identifiers, including identifiers assigned to individuals, such that access to a storage area can be monitored, and items removed by an individual can be tracked without any direct user interaction.

A preferred embodiment of the present invention can also track individual product dispensation, and may require additional information as products are dispensed. By way of example, without intending to limit the present invention, if a

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doctor dispenses sample medication to a patient, the present invention may also request a patient identifier, whereas if a package of gauze bandages was removed from inventory to restock an examination room, the present invention may not request a patient identifier. Patient identifiers can be used by the present invention to generate dispensation history reports for various products which may help suppliers and manufacturers to better understand income, race, ethnicity, or other demographic characteristics of typical recipients. The present invention may restrict such reports to only demographic information, and may not include individual-specific information in such reports.

An alternative embodiment of the present invention allows physicians or others to carry a handheld device through which prescriptions can be written while talking with a patient. Such a handheld device can connect to a local inventory management system through a wireless or wired means, and, when appropriate, a prescribed item sample may be automatically dispensed by a vending machine. Alternatively, a message may be displayed at a nurse's station indicating the items to be pulled from inventory. When items are dispensed by a vending machine or pulled from inventory, inventory counts can be decremented as appropriate, and new orders can be placed as necessary.

As inventory is distributed, Customer Inventory System 130 may track supply usage habits to determine minimum acceptable quantities on-hand. Usage information may be studied for various periods of time, and the present invention may create an inventory usage model based on collected data. As models are created and refined, the present invention may modify minimum in-stock thresholds to reflect anticipated usage. As quantity in-stock approaches a calculated or specified threshold, Customer Inventory System 130 may automatically request new supplies from Server 100. Supply requests may include various information, including, but not limited to, urgency of request, customer willingness to accept alternative brands or sizes, billing information, and shipping information.

As Server 100 receives supply requests, Server 100 may request price quotes from several Manufacturer, Supplier, or Distributor 120's ("Distributor 120"). Distributor 120 may respond with quantity available, price, estimated delivery time, and other such information. Server 100 may then automatically evaluate each Distributor 120 response to find the best value given various factors associated with each customer request. When an appropriate Distributor 120 response is chosen,

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Server 100 may automatically arrange payment and shipping of requested supplies for Customer Inventory System 130.

Communication between Customer Inventory System 130, Server 100, and Distributor 120 may be achieved through various methods, including, but not limited to, hypertext transfer protocol ("HTTP"), file transfer protocol ("FTP"), simple mail transfer protocol ("SMTP"), or other such related methods.

Although purchasing is a large part of inventory maintenance, a preferred embodiment of the present invention may also facilitate communication between customers, provide a source of information dissemination, and encourage customer interaction. The present invention may facilitate customer communication by allowing customers to resell products, equipment, or excess inventory to other businesses. The present invention may allow information dissemination by providing an up to date catalog of available equipment and other inventory from which a customer may order. The present invention may facilitate customer communication by allowing managers and customers to author and distribute articles describing new rules, regulations, procedures, revenue generation prospects, or other information of interest to other customers.

Customer Inventory System 130 may serve as the primary source of customer interaction with the present invention. Articles, catalogs, inventory information, and other such information may be stored on Server 100, and Customer Inventory System 130 may communicate with Server 100 to obtain requested information.

Figure 2 illustrates a preferred embodiment of Server 100, in which relationships between data storage, web server, and application services provided by Server 100 are illustrated. All client communications may first pass through Firewall 210. Firewall 210 represents a combination of software and hardware which is used to protect the data stored in Web Server 220, Database Server 230, and Application Server 240 from unauthorized access.

As previously described, clients may communicate with the present invention through various protocols, including HTTP. Web Server 220 represents software capable of transmitting and receiving information via HTTP or other protocols. Examples of such software include Internet Information Server, developed by Microsoft Corporation of Redmond, Washington; Enterprise Server, developed by Netscape Corporation of Mountain View, California; and Apache Server, developed by the Apache Software Foundation of Forest Hill, Maryland.

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When a client requests information, Web Server 220 may determine whether a client request requires pre-processing, in which case a request is transferred to Application Server 240, or if a request simply requires data to fulfill the request, in which case Web Server 220 may communicate directly with Database Server 230.

Database Server 230 represents commercially available database software, such as Microsoft SQL Server, developed by Microsoft Corporation of Redmond, Washington, Oracle 8i, developed by Oracle Corporation, of Redwood Shores, California, or other, similar software. Database Server 230 may store raw data, such as customer inventory information, customer addresses, vendor names, vendor product classes, and other such similar information. Such information may be transmitted to a client by Web Server 220, or Application Server 240 may interpret information stored in Database Server 230 prior to transmission.

Application Server 240 may contain business rules associated with the present invention, which can be used to interpret Database Server 230 data prior to transmission of that data to a client. In addition to interpreting information stored in Database Server 230 for client use, Application Server 240 may also monitor inventory levels reflected in Database Server 230, contact vendors based on information from Database Server 230, adjust inventory information as new inventory is received, and provide the services necessary to facilitate business-to-business resale of equipment or products stored in Database Server 230.

Web Server 220, Database Server 230, and Application Server 240 each represent software which may run on the same computer, or on multiple computers. In addition, Application Server 240 may be implemented within Database Server 230 as a set of business rules.

An alternative description of the present invention follows, in which the present invention is described through a series of functional specifications. This information is included for enablement purposes, and describes the best mode contemplated at the time the present specification was filed. While the following functional specification describes a preferred embodiment of the present invention, descriptions within the functional specification should not be construed as limiting the present invention.

To avoid confusion, the following terms are used in this functional specification:

Customer – Refers to a buyer of products via the present invention.

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Customers can have "open account" relationships to avoid credit card and COD shipment problems.

Linked Supplier – A distinction is made to avoid confusion with other vendors doing business with the present invention, given that payables may be in a common accounts payable system. Distributors, manufacturers, or other vendors (collectively "suppliers"), are distinguished by whether they are using the present invention's inventory tracking and accounting software, and therefore have live Internet linkages into their databases for queries, order processing, and billing.

Manual Supplier - If a supplier provides goods or services through the present invention, but tracks inventory through a manual interface, such a supplier may be termed a "Manual Supplier". Open account relationships may be maintained between Linked or Manual Suppliers avoid payment complexities.

Non-linked Supplier - Suppliers not linked to the present invention.

Products – Items for sale via the present invention.

Customer Inventory – A list of products to be maintained at a given customer site.

In addition to the general definitions set forth above, this functions specification also defines a set of system functions. System functions may fall into one of the following general sub-system categories:

Interactive – human interface and related functions for tracking inventory counts, inventory consumption rates, ordering critical products, and the like. Interactive processes may be web-based or PC-based (client-server).

Nightly Processes – periodic processes through which orders can be generated and invoicing and related processes can be performed, including interaction with Distribution system at distributor warehouses.

Corporate – processes performed within corporate offices, but which update a database. Includes accounting, client data management, and other such processes.

Distribution – Linked Suppliers integrated with the present invention. Industry standard Enterprise Resource Planning (ERP) software may be bundled with commercial financial software to provide a complete business system to Linked Suppliers.

Database Design – A database schema which may be utilized in a preferred embodiment of the present invention.

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The present invention in general, and this functional specification specifically, defines styles and functions included in detailed web pages and other user interface elements that are intended to be available system wide. Web pages, application windows, program screens, and transactions within the present invention should observe common rules. These rules include, but are not limited to:

- No customer can view, inquiry into, update or in any way alter another customers data. Transactions can use an IP address or other unique identifier as a cross-check against a customer ID coming in with transmitted pages to insure rule enforcement. For such security procedures, customer IP addresses or other unique identifiers may only be changed through a function accessible only to Corporate staff.
- No Linked Supplier can see data belonging to another linked supplier.
- System parameters controlling customer options can be set through an account setup and editing process. Such a process may be accessed by only someone with an authorized identifier. Initially, such identifiers may only be given to Corporate Staff.
- Data changes will generally be reflected by a transaction log or transaction history, which may be accessible to customers or distributors, and to which Corporate Staff with appropriate security levels may have access.

Functions involving data changes may be performed as server-side scripts, rather than through client-side logic. In general, such server-side scripts can utilize a logical flow similar to Figure 3. As Figure 3 illustrates, client software running on a customer machine may generate a page containing data to be updated by a web server and transmit said page to said web server (Block 300).

When a web server receives a page from a customer machine, the present invention may attempt to process any changes requested by said page. If such changes are successful (Block 320), the present invention may return a confirmation page or cause a confirmation message to be displayed to a customer machine, and appropriate transaction logging may occur.

If changes are not successful, the present invention may increment a retry count by one (Block 340). If the retry count is less than or equal to three, the present invention may retransmit customer changes (Block 370) to Block 310 in an effort to make any appropriate changes. If the retry count exceeds three (Block 350), the

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present invention may cause a page containing any error codes or other feedback information to be displayed on a client machine. Such a page may also contain original client data changes as well as a means for resubmitting said changes (Block 360).

Client software may also periodically verify that a data connection exists between said client software and a server acting as part of the present invention. Such software may follow the logic illustrated in Figure 4 to achieve accurate data connection monitoring. As Block 400 illustrates, client software may send one or more TCP/IP Ping commands or other network test commands to verify that a high-speed connection is still available to a server acting as part of the present invention.

If a high-speed network connection is detected, the present invention can continue normal operations (Block 410). If a high-speed network connection is not detected, the present invention may attempt to reestablish such a connection (Block 420). If a high-speed network connection can be reestablished (Block 430), the present invention may continue normal operations (Block 410). If a high-speed network connection cannot be established, a lower speed network connection, such as a dial-up network connection, may be established by the present invention (Block 440). If a lower speed network connection can be established, the present invention may continue normal operations, including periodically attempting to reestablish a high-speed network connection (Block 410).

If a lower speed network connection cannot be established, client software may display an application or page with alternative user interface and alternative functionality (Block 460). Such alternative functionality can include local storage of product usage information, local inventory tracking, and limited reordering via a dial-up or other temporary connection with a known supplier (Block 470). A client functioning without a data connection may periodically attempt to reestablish high or low speed network connections (Block 480). When a connection is reestablished (Block 490), a client may transmit product usage scan information to a server acting as part of the present invention.

In addition to an inventory tracking application, the present invention may also utilize a high speed network connection to transmit new product offerings or special promotions to a client for display to a customer. As new products are entered into a Products table or similar data structure, the present invention may cause such a product to appear on a client. In a preferred embodiment, the present invention may

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allow customers to select products in which a customer is interested, and the present invention may only display new products or special deals meeting a customer's prior specifications. Such specifications can include, but are not limited to, categories by manufacturer, product trade name, specific product type, general product classification, and quantity available or quantity per shipping unit.

A client displaying such information may allow a customer to indicate an interest in a product by typing a command, clicking a button or other graphical interface element, or otherwise interacting with said client. If a customer expresses an interest in a featured product, a client may allow a customer to create a one-time order, or to configure recurring orders.

In addition to allowing customers to record product usage and order new inventory or new products, client software may also display advertisements on a rotating basis, and may be used for other purposes. A typical client software screen may also contain additional information and fields, including, but not limited to, a Product SKU field, a User-ID field, a Doctor-ID field, and a Sales Consultant Contact field.

When customers are not directly interacting with client software, client software may place a cursor in a Product SKU field by default. Placing a cursor in a Product SKU field can allow client software to ready accept an automatically or manually entered product identifier, such as a barcode label scanned via a wedge-style bar-code scanner.

As product identifiers are entered, client software may request a User-ID for each product identifier or set of product identifiers. A User-ID is a unique identifier created for each employee or set of employees within an organization. Such identifiers may be entered manually through an active user interface, such as, but not limited to, a keyboard, touch screen, or number pad, or through a passive user interface, such as, but not limited to, biometric recognition equipment, barcode identifiers worn by or associated with an employee, or through RFID tags worn by or associated with an employee. User-ID's may be combined with passwords to create a more secure inventory tracking system.

User-ID's may be used to track persons removing items from an inventory, but additional tracking or other controls may also be desirable. For example additional authorization may be required when employees remove expensive items or controlled substances from an inventory. The present invention may recognize when such an

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inventory item is removed, and client software may request an additional identifier, called a Doctor-ID, as authorization. Client software may even allow any user to enter a Doctor-ID for some inventory items, while for other inventory items a Doctor-ID and related password may be required. A biometric or other positive identifier may be used in place of a Doctor-ID or Doctor-ID and password in some applications.

When appropriate inventory tracking data has been entered into client software, the present invention may transmit such data to a server. A server may send a confirmation message to a client upon receipt of such data. If a confirmation message is not received within a predetermined period of time, the present invention may resend inventory tracking data. If successive resend attempts are unsuccessful, the present invention may follow a process similar to that illustrated by Figure 3. Client software may allow additional inventory scans to occur while waiting for confirmation from a server.

In addition to recording inventory tracking information, client software may also allow a customer to access various options. Such options may include, but are not limited to, an administrative page, an inventory status inquiry page, and an inventory receipt page. An administrative page can allow authorized customers to create, edit, or remove User-ID's, Doctor-ID's, groups of such accounts, and account-specific information. An inventory status inquiry page can retrieve and display a page containing customer inventory records, order status, and other such information.

An inventory status inquiry may be initiated through client software, which can send a page containing customer-specific information, as well as site-specific identification information stored on a client machine. In a preferred embodiment, a server receiving such a request may select records with appropriate site- and user-specific information from a table of customer inventory records. A server may generate a page or screen containing customer inventory information, including information from several tables. Table 1 below provides an example of columns displayed on a typical inventory request screen, as well as sample table and field names from which such data can be drawn.

Column Heading	Source Table	Source Field
Description	PRODUCTS	DESCRIPTION
Product	CUSTOMER_INVENTORY	PRODUCT
Quantity In Stock	CUSTOMER_INVENTORY	ON_HAND_QTY
Order Point	CUSTOMER_INVENTORY	ROP
ReOrder Quantity	CUSTOMER_INVENTORY	ROQ

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Activity Status	CUSTOMER_INVENTORY	STATUS

Table 1

An advantage of the present invention over the prior art is the ability to simplify adding new items or restocking items into an inventory. Linked Suppliers shipping goods to a customer can provide a specially coded packing list, and a customer can automatically or manually enter such a code into client software. Client software can validate a packing list number as belonging to a customer and ensure a packing list is not credited to a customer system more than once. Entry of an invalid or previously validated packing slip can cause client software to display an error message.

If a valid packing slip is entered, client software may retrieve shipment contents from a centralized database or from a supplier database, and automatically update customer inventory information to reflect inventory received. Client software may then display a message confirming successful inventory changes, and return a customer to a main page.

A product search page may also be accessible through client software. A product search page can allow a user to select a search type and, if appropriate, search parameters and search parameter values (collectively "search criteria"). By way of example, without intending to limit the present invention, a product search page may allow a customer to search by specific manufacturer and products of a certain classification.

When a customer has selected appropriate search criteria, client software may pass such search criteria to a server. A server may query a database of products and product descriptions and return products matching or approximating customer search criteria.

If a user has selected a descriptive search, a server may select records from a Products table, or other similar table, whose data matches or approximates descriptive text entered by a user. If a user has selected a parameter search, a server may select Product table records whose fields match or approximate user search requests. To expedite such selections, a server may index descriptions, manufacturers, product classes, product names, and other frequently searched fields.

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When appropriate records are selected, a server may transmit such records to client software for display. Client software may present such records in a variety of formats, including, but not limited to, a columnar or tabular format. Table 2 lists sample column names, sample source table names, source field names, and additional functionality client software may present when displaying such records.

Column Heading	Source Table	Source Field
Description	PRODUCTS	SHORT_DESCRIPTION
Product ID	PRODUCTS	PRODUCT_ID
Manufacturer	PRODUCTS	MANUFACTURER
Mfg Item No.	PRODUCTS	MANUFACTURER_ITEM_NUMBER
Prod. Type	PRODUCTS	PRODUCT_TYPE
Prod. Class	PRODUCTIONS	PRODUCT_CLASS
Check Availability	None	Window action field
Add to Stock Plan	None	Window action field

Table 2

As Table 2 indicates, client software can allow a customer to check product availability and add products to a stock plan. In a preferred embodiment, client software may make such functionality available for each record displayed. In an alternative embodiment, records may have check boxes or other selection controls, thereby allowing customers to check the availability of multiple items, and add multiple items to a stock plan.

When a customer checks availability of a product or products, the present invention may search Linked Supplier inventories to determine quantities available, physical location, anticipated delivery times, and the like. When inventory is available, client software may allow a customer to order a product.

When a customer chooses to add a product to an inventory or stocking plan, client software may request restocking and other parameters from a customer, then send appropriate information to a server. A server may add an appropriate entry to a Customer_Inventory or other similar table, thereby enabling inventory tracking through the present invention.

Client software can also allow a customer to request a telephone call, an E-mail, or other contact from a sales consultant. In a preferred embodiment, a customer may select a product or supplier, and client software can query a server to determine an appropriate sales consultant for the selected product or supplier. A user can then

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be presented with a dialog box or other interactive interface which asks a customer to confirm a contact request. Once a contact request has been confirmed, client software may cause a server to store a request message in a Contact_Log table or other similar table.

In a preferred embodiment, a server may periodically scan Contact_Log table entries. When new or unanswered requests are found, a server may send a notification to a supplier alerting said supplier of such a request, where such a notification can include a customer E-mail address, telephone number, fax number, or other contact information, as well as other relevant customer and product information.

While the present invention can monitor inventory use and automatically order new inventory when necessary, a customer may anticipate a need for additional inventory based on parameters outside the scope of the present invention. By way of example, without intending to limit the present invention, if the present invention is used in a hospital, and the Olympics was held in or near the city in which the hospital is located, a hospital administrator may foresee the need to order additional quantities of frequently used supplies. Client software can provide a customer with the ability to quickly place such orders.

Customers can initiate such an order by clicking a button or otherwise interacting with a graphical or physical interface. In a preferred embodiment, a customer may select from products or groups of products already included in an inventory or stocking plan, or a customer may search for products through an interface similar to that described earlier. As previously described, customers can designate standard restocking quantities, and client software may use such quantities as defaults when clients are requesting additional inventory. Client software may also present quantities on hand to help customers make smarter purchasing decisions. Based on such information, customers can modify order quantities before submitting an order.

Client software can transmit customer orders to a server. Upon receipt of a customer order, a server can initiate an order fulfillment process.

A server may also automatically place an order based on customer demand. A server may periodically scan a customer inventory table and monitor inventory usage. As inventory is depleted, a server can predict frequently used items, and order appropriate quantities. Initially, a server may order limited quantities, to limit customer costs. A server may increase order quantities for frequently ordered

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products as customer usage habits dictate. A server may also construct an historical usage characterization, so that seasonal or other periodic usage patterns can be automatically taken into account.

As orders are placed, a server can query Linked Supplier inventories to determine each supplier's ability to fulfill an order. A server can calculate shipping costs as each order is processed, and a server can select one or more suppliers who can most cost effectively meet customer needs. As qualified suppliers are identified, orders are placed which can include expedited delivery and other options as specified by a customer or as determined by a server.

A server can also post supplier invoices to an accounts payable system, generate customer invoices based on supplier invoices, post customer invoices to an accounts receivable system. A server may further integrate with an automated payment system, thereby limiting invoicing and other such expenses.

In addition to customer and order related functions, a server can also provide administrative functions. By way of example, without intending to limit the present invention, a user who is not a customer can register to be a customer through a server-provided interface. Such an interface may allow a user to specify a business name, business type, executive director or general manager, physical address, mailing address, shipping address, one or more telephone numbers, employee names, employee licensing and accreditation information, and the like.

As users submit such information, a server may validate that an address, telephone number, and zip code are all valid with respect to each other, and that all necessary fields have been filled. If any validations fail, a server may present a data entry page along with any invalid data, thus simplifying data correction.

A server and client software may also allow customers and suppliers to change various information. By way of example, without intending to limit the present invention, suppliers can change pricing; add or remove vendors and products; add, edit, or remove contacts; view account status and open invoices; and perform other such functions. Customers can adjust inventory counts to reflect audit results; add, edit, or remove employees and employee information; update payment and contact information; view account balances and make payments; and perform other such functions.

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Linked Suppliers can also take advantage of many of these same features. Linked Suppliers implementing the present invention can track inventory; provide real-time inventory information to prospective customers; accept electronic orders; generate pick/pack lists; track order fulfillment process, including tracking into which containers each item in an order has been placed; generate bar-coded packing lists and shipping labels for each container; and generate invoices.

The present invention also provides Linked Suppliers with other advantages over the prior art. By way of example, without intending to limit the present invention, Linked Supplier inventory needs can be forecast based on prior order history, prior lead times, safety stock quantities, and the like, thereby reducing overall inventory investment. The present invention can also allow enable a Linked Supplier to track processing and shipping status for various products within an order, thereby providing a higher level of customer service. The present invention may also allow managers or other authorized individuals to electronically sign a purchase order, invoice, or other billing or order document and electronically transmit such a document to an appropriate recipient.

To achieve the functionality set forth above, a preferred embodiment of the present invention includes the following table structure. The table structure described below is included for enablement and best mode purposes, and should not be construed as limiting the present invention.

Table Name –

CLIENT_CONTROL

Table Description and function – This table can reside locally on a customer computer. It can store one or more records containing control data needed to manage on and off-line functions remotely. These records can be updated via an update applet transferring data from the Web Server's SQL database to this control. Its purpose is to provide control over the processes running on the local machine even if it is off-line, and to enable it to reconnect automatically.

Column (field) Name	Description
CUSTOMER_ID	Customer ID – matches Customer ID in CUSTOMERS data in the Web Server SQL Database

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IP_ADDRESS	This is the IP address for this machine
DSL_PORT	Connection path or port (e.g., COM2) where DSL connection exists; null if there is no DSL line for this machine
DIAL_PORT	Connection path ro port (e.g., COM3) where dial-up connection exists; null if there is no dial-up connection for this machine
DIAL_CONNECTION_PHONE	Phone number the software dials to establish a dial-up connection to the Web server system. Null if there is no dial-up connection
DIAL_CALL_BACK	Phone number of the dial-up line; to allow call-back from the web server.

Table Name –

CLIENT_ERROR_LOG

Table Description and function – This table contains an error generation history for processes originating on a customer machine. It can provide an audit trail and view of how well processes are functioning, and a place to record both fatal-error conditions and those that may not need to be displayed to customers. Its data may not be processed, but can be stored for review by system administrators and managers.

Column (field) Name	Description	Field Characteristics & Indexing
ERROR_DATE	Date of error log entry	Index – concatenated with ERROR_TIME
ERROR_TIME	Time of error log entry	Index – with ERROR_DATE
CALLER	Program name generating the error log entry	
ERROR_MESSAGE	Error message generated by the caller program	
USER_VIEWABLE	Yes – if message also displayed on user seen page; No if internal only message	
DATA_DUMP	Data (if any) causing the error	

Table Name –

SYSTEM_ERROR_LOG

Table Description and function – This table can contain a history of errors generated by processes originating from outside a customer machine. The table can provide an audit trail and view of how well processes are functioning, and provide a

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place to record both fatal and non-fatal errors. Such data can allow system administrators, programmers, and managers to monitor automated, unattended processes. SYSTEM_ERROR_LOG can use a data dictionary/field structure similar to a Client_Error_Log table.

Column (field) Name	Description	Field Characteristics & Indexing
ERROR_DATE	Date of error log entry	Index – concatenated with ERROR_TIME
ERROR_TIME	Time of error log entry	Index – with ERROR_DATE
CALLER	Program name generating the error log entry	
ERROR_MESSAGE	Error message generated by the caller program	
USER_VIEWABLE	Yes – if message also displayed on user seen page; No if internal only message	
DATA_DUMP	Data (if any) causing the error	

Table Name –

SYS_PARAMETERS

Table Description and function – Stores system-wide parameters in a common table.

Column (field) Name	Description	Field Characteristics & Indexing
PARAM_ID	Identifies parameter	Primary Index
VAR1	First variable	
VAR2	Second variable	
VAR3	Third variable	

Table Name –

CUSTOMER_APPLICATION

Table Description and function – this table can have a data dictionary similar to the CUSTOMERS table, and can be used to temporarily store unapproved, unprocessed customer application data submitted by a Customer/Client Application page. When an application is processed, appropriate records can be deleted from this table.

Column (field) Name	Description	Field Characteristics & Indexing

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See CUSTOMERS		

Table Name –

MEMBERS_APPLICATION

Table Description and function – this table has may use a data dictionary similar to PRACTICE_MEMBERS, and can temporarily store unapproved, unprocessed customer application data submitted by a Customer/Client Application page. When an application is processed, appropriate records can be deleted from this table.

Column (field) Name	Description	Field Characteristics & Indexing
See PRACTICE_MEMBERS		

Table Name –

CUSTOMERS

Table Description and function – Can store a unique identifier for each customer in a permanent table. Activity logged in CUSTOMER_MAINT_HISTORY table. Can be linked to third-party applications for credit terms, bill to, ship to addresses, phones and other financial data.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
CUSTOMER	Identifies customer	Unique identifier (account number); matches CUSTOMER in A/R system	Primary Index
NAME	Practice Business Name	See Practice Members for doctor data.	Index
SALES_CONSULTANT	Identifies sales consultant assigned to account		Index
IPADDRESS1	Internet address used to link, identify computers in customers office	Can have multiple computers in larger offices.	
IPADDRESS2	Internet address used to link,	Can have multiple computers in larger	

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	identify computers in customers office	offices.	
IPADDRESS3	Internet address used to link, identify computers in customers office	Can have multiple computers in larger offices.	
IPADDRESS4	Internet address used to link, identify computers in customers office	Can have multiple computers in larger offices.	
DISCOUNT_CODE	Identifies which discount code is used to calculate prices charged for this customer	Code must be in DISCOUNT_CODES table.	Index
PHYSICAL_ADDRESS	Street address of practice		
PHYSICAL_STATE	State in which the practice is located		
PHYSICAL_ZIP	Zip code of physical location of practice		
SHIP_TO_ADDRESS	Address to which shipments go		
SHIP_TO_STATE	State for ship to address		
SHIP_TO_ZIP	Zip code for ship to address		
MAIL_ADDRESS	Mailing address (for other than shipments)	Literature, documents only (may be a PO Box to which UPS & FedEx cannot ship)	
MAIL_STATE	Mail address state		
MAIL_ZIP	Zip code for mail address		
ADMINISTRATOR	Administrator, manager, etc. of Customer		

Table Name –

PRACTICE_MEMBERS

Table Description and function – This table can be linked to records in a CUSTOMERS table, and can store data pertaining to individual physicians or other health-care professionals working at or with a practice.

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Column (field) Name	Description	Comment	Field Characteristics & Indexing
CUSTOMER	Customer to whom the Practice Member is associated	Must be in CUSTOMERS table already	Index – concatenated with MEMBER_NAME
MEMBER_NAME	Name of health-care professional or physician linked to CUSTOMER	Together with CUSTOMER, forms unique record key	With CUSTOMER
MEMBER_TITLE	Title (e.g., Exec. Director) of member		
MEMBER_MAIL_ADDRESS	Separate mailing address for member		
MEMBER_MAIL_STATE	Member mail address state		
MEMBER_MAIL_ZIP	Member mail address zip		
MEMBER_LICENSE_NO	Professional license for member		
MEMBER_LICENSE_EXPIRE	Expiration Date of member's professional license		
MEMBER_DEGREE1	First degree of member		
MEMBER_DEGREE2	Second degree of member		
MEMBER_DEGREE3	Third degree of member		
MEMBER_DEGREE4	Fourth degree of member		
MEMBER_NOTES	Text/comment field		
DATE_NEW	Date this member was added to table		
DATE_LAST	Last activity date		

Table Name –

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DISCOUNT_CODES

Table Description and function – can contain decimal values representing a unique price to be charged or discount to be granted to each customer. Any number of customers may use a discount code. When a decimal value associated with a given code is changed, the result is that all prices for all customers using that code are changed. If a customer's discount code specifies a discount value greater than allowed for a given product, the present invention may limit a price to the maximum discount .

Column (field) Name	Description	Comment	Field Characteristics & Indexing
DISC_CODE	Discount code	Identifies specific discount; numbering should be 10,20,30, etc. to allow for insertions in future, e.g, 14	Primary Index
DISC_VALUE	Decimal value for the discount to be given.		
NOTES	Notes; text field for commentary about a particular discount code		

Table Name –

CUSTOMER_INVENTORY

Table Description and function – stores inventory at customer office. One record for each customer/SKU combination, including all that have been used in past, or which are to be used for next ordering cycle. Permanent table. Activity logged in CUSTOMER_INVENTORY_TX table.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
CUSTOMER	Identifies customer		Index – concatenated with PRODUCT
PRODUCT	Identifies product at customer's site		Indexed with CUSTOMER
ON_HAND_QTY	Quantity of an item on hand at this customer		
ROP	Reorder point	When on_hand_qty	

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	quantity	falls to or below this quantity, a new order is triggered for the product.	
ROQ	Quantity to be ordered	Ordering process uses this quantity when a product is "triggered"	
STATUS	Activity status of item	Values: Active (default, normal setting) NoOrder (continue to use up inventory, but no more orders) NoUse (do not accept scanned usage of product)	Index

Table Name –

PRODUCTS

Table Description and function – identifies products available for sale at any point in time. Includes products no longer active. One record for each product/SKU/Item Number.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
PRODUCT_ID	Identifies product; SKU; also is"item number"		Primary Index
SHORT_DESCRIPTION	Short description appearing on most printed outputs & screens		Index
LONG_DESCRIPION	Long description for additional description		Index, built so each word is indexed separately.
MANUFACTURER	Company making product; Must be in MANUFACTURERS table		Index
MANUFACTURER_ITEM_NUMBER	Manufacturer's product identifier		Index
STATUS	Item status	Values: Active (default,	

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		normal usage) NoOrder (accept usage scans, no orders) NoUse (do not accept usage scans; no activity; obsolete or discontinued)	
PRODUCT_CLASS	Marketing/sales classification of product		Index
PRODUCT_GROUP	Commodity classification of product		Index
PRODUCT_LINE	Financial reporting classification of product		Index
SELL_START_DATE	Date that new orders for this product can be processed	Prior to this date orders will not be processed (new product so not available yet)	
SELL_END_DATE	Date after which new orders for this product cannot be processed	After or on this date, orders will not be processed (discontinued product)	
PRODUCT_PICTURE	Product Picture bit map image	JPEG or GIF	

Table Name –

MANUFACTURERS

Table Description and function – This table stores all manufacturers whose products may be carried in the PRODUCTS table. It serves as a reference and validation table for products.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
MANUFACTURER_ID	Short abbreviation for manufacturer		Primary Index
MANUFACTURER_NAME	Normal business name for manufacturer		Indexed
DATE_ADDED	Date this Manufacturer was		

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	added to the table		

Table Name –

ORDERS

Table Description and function – stores orders generated by nightly process and/or by critical ordering process, which are then downloaded to distributor. Serves as order "header" record. Linked to ORDER_DETAIL table where line items are stored. No maintenance history log table. One record for each order generated and downloaded.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
ORDER_NO	Order Number; unique identifier for the order	Generated by ordering processes; increments SYSTEM_PARAMTER for order number	Primary Index
ORDER_DATE	Date order generated		Index
ORDER_TIME	Time order generated		
ORDER_SOURCE	How order was generated	Sources are: AUTO – nightly process MANUAL – manual order entered on terminal in customer's office.	
CUSTOMER	Customer on the order		Index
LINKED_SUPPLIER	Linked Supplier to whom the order was downloaded		Index
ORDER_STATUS	Status of the order; shows latest status only, sequence is presumed	Values: GEN – generated PLACED – downloaded to supplier S_BILLED – supplier has invoiced Med-e-Track C_BILLED – system has	Index

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		converted supplier invoice to customer invoices	
STATUS_DATE	Date which status changed		
SHIP_TO_ADDRESS	Address to which orders is to be shipped; appears on downloaded order data		
ORDER_PRODUCT_TOTAL	Total value of order for product only; not including tax, shipping, other charges		

Table Name –

ORDER_DETAIL

Table Description and function – stores line item detail on ORDERS. One record for each line item on an order.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
ORDER_DTL_ORDER_NO	Order number to which this detail record belongs		Index – concatenated with ORDER_LINE_NUMBER
ORDER_LINE_NUMBER	Line number for order.	With Order_Dtl_Order_no, forms a unique identifier	
PRODUCT	Product identifier for item ordered		Index
ORDER_QUANTITY	Quantity of the product that is being ordered.		
SHIP_QUANTITY	Quantity of the item shipped; as reflected on an uploaded, processed supplier invoice/packlist		
CUSTOMER_UNIT_PRICE	Price to be charged to		

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	customer		
CUSTOMER_UNI_SALES_TAX	Sales tax, if any to be charged customer		
PRODUCT_ORDERED_SUBTOTAL	Value = Order_Quantity * Customer_Unit_price		
PRODUCT_SHIP_SUBTOTAL	Value = Ship_Quantity * Customer Unit_Price		
LINKED_SUPPLIER_UNIT_COST	Price to be paid Linked Supplier for this item		
LINKED_SUPPLIER_PRODUCT_SHIP_SUBTOTAL	Value = Ship_Quantity * Linked_Supplier_Unit_cost		

Table Name –

LINKED_SUPPLIER

Table Description and function – Stores and sets up each linked supplier, i.e., distributor that is linked into the web site. One record for each supplier that will be, is now, or has been linked at one time into Med-e-Track. Activity logged in LINKED_SUPPLIER MAINT_HISTORY. Account is linked to Supplier table in the SOLOMAN Accounts Payable subsystem.

Column (field) Name	Description	Comment
SUPPLIER	Supplier's ID	Unique identifier
SUPPLIER_IP_ADDRESS	IP Address where linking process occurs	
OPEN_DATE	Date the relationship was setup/started	

Table Name –

SUPPLIER_INVOICE

Table Description and function – stores uploaded invoice/pack lists from linked suppliers. Serves as "header" record for invoices. A given Order can have multiple invoices. Linked to SUPPLIER_INVOICE_DETAIL records which carry line item detail. Invoices uploaded from distributor reflect orders they have shipped and are then used to generate Customer invoices. The uploaded invoice data is also

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transferred to the Accounts Payable module of the Solomon IV software for corporate accounting/tracking. Customer invoices generated and recorded in this table are also transferred to the Accounts Receivable module.

Column (field) Name	Description	Comment	Field Characteristics & Indexing
INTERNAL_INVOICE_ID	Internal, system generated invoice identifier	Insures unique invoice identification in case of similar supplier invoicing schemes/numbers	
ORDER	Order number which the invoice is a shipment/bill for.		
SUPPLIER_INVOICE	Invoice identifier from supplier	Uploaded invoice data	
SUPPLIER_INVOICE_DATE	Date of/on supplier invoice that was uploaded		
SUPPLIER_INVOICE_TIME	Time that supplier invoice was uploaded	Invoice time may not appear in supplier database.	
AP_DATE	Date supplier invoice data posted to AP tables		
AP_TIME	Time supplier invoice data was posted to AP tables		
CUSTOMER_INVOICE	Invoice ID generated by nightly process to bill customer for shipment	Presence indicates that nightly process has run, generating this separate invoice number.	
CUSTOMER_INVOICE_DATE	Date customer invoice generated by nightly process		
CUSTOMER_INVOICE_TIME	Time of customer invoice generation process.		
AR_DATE	Time		
SHIPMENT	Shipment document number	May be separate ID from invoice no.	Index on this field for packing slip data retrieval.
SHIP_VIA	Shipping method; e.g., UPS Ground		

Table Name –

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INTERNAL_INVOICE_SHIP_DETAIL

Table Description and function – This table contains shipment information for the shipment covered by the Internal Invoice. There is one record for each carton comprising the shipment covered by the Invoice. It is linked to the Internal_Invoice table.

Column (field) Name	Comment
INTERNAL_INVOICE_ID	
SHIP_CARTON_ID	Together with invoice id, comprises unique record ID
TRACKER_NO	

Table Name –

SUPPLIER_INVOICE_DETAIL

Table Description and function – this table carries the line item level detail for invoices uploaded from the linked supplier/distributor. Some line item level detail is used to update Order data to support quick order status inquiries and track back-ordered items.

Column (field) Name	Description	Comment
INTERNAL_INVOICE_ID	Identifier for internal invoice no	
INTERNAL_INVOICE_LINE_NUMBER	Line number for internal invoice	Together with Internal Invoice identifier, forms unique key
SHIPPED_PRODUCT	Product shipped	
SHIP_QUANTITY	Quantity shipped	
UNIT_PRICE	Supplier's Unit price	
UNIT_TAX	Sales Tax (if any)	
EXTENDED_PRICE	Value = Ship_qty * Unit_Price	Product only subtotal
LINE_TAX_TOTAL	Value = Ship_Qty * Unit_Tax	
LINE_TOTAL_AMOUNT	EXTENDED_PRICE + Line_Tax_total	

Table Name –

SUPPLIER_COST

Table Description and function – Stores prices to be paid to each Linked Supplier in the system. One record for each linked supplier and SKU. Permanent table. Activity logged in SUPPLIER_COST_MAINT_HISTORY table.

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Column (field) Name	Description	Comment	Field Characteristics & Indexing

Table Name –

SUPPLIER_COST_MAINT_HISTORY

Table Description and function – records changes made to SUPPLIER_COST records. One record for each field changed during an update of a given record.

Column (field) Name	Description	Comment	Field Characteristics & Indexing

Table Name –

PRODUCT_MAINT_HISTORY

Table Description and function – records changes made to PRODUCTS table. One record for each field changed during an update of a given record.

Column (field) Name	Description	Comment	Field Characteristics & Indexing

Table Name –

PRODUCT_CLASS

Table Description and function – Identifies valid product classes; serves as a reference table.

Column (field) Name	Description
PROD_CLASS_CODE	Code for product class description
DESCRIPTION	Text/descriptive name for product_class code

Table Name –

PRODUCT_GROUP

Table Description and function – Identifies valid product groups; serves as a reference table.

Column (field) Name	Description
PRODUCT_GROUP_CODE	Code for product group description
DESCRIPTION	Text/descriptive name for Product Group Code.

Table Name –

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PRODUCT_LINE

Table Description and function – Identifies valid product lines; serves as a reference table.

Column (field) Name	Description
PRODUCT_LINE_CODE	Code for product line description
DESCRIPION	Text/descriptive name for product line code

Table Name –

CUSTOMER_INVENTORY_TRANSACTIONS

Table Description and function – transaction history table for activity altering data in Customer_Inventory table; one record for each change recorded; main use will be recording inventory activity, although transactions will be generated for changes to status, ROP, ROQ and Notes values, i.e., non-on-hand quantity values. Each transaction affects only one data field. Transaction code indicates what update/change activity was performed, and therefore which data field was updated.

Column (field) Name	Description	Comment
TRAN_NO	Unique identifier for each transaction; non significant	Functions like a check number.
TRAN_DATE	Date transaction processed	
TRAN_TIME	Time transaction processed	
TRAN_ID	Code identifying transaction	Values: TBD
PRODUCT	Product identifier of item affected	
QTY		
CUSTOMER	Customer whose inventory data was updated/changed	
USER_ID	User performing transaction	
BEFORE_VALUE	Value of data field prior to update action	
AFTER_VALUE	Value of data field after update action	

Table Name –

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CONTACT_LOG

Table Description and function – this table accepts transactions from the consultant request function, enters and tracks them for followup and management purposes.

Column (field) Name	Description
SALES_CONSULTANT_ID	ID in Sales_Consultants table.
REQUEST_DATE	Date customer initiated request
REQUEST_TIME	Time customer initiated request

Table Name –

CUSTOMER_USERS

Table Description and function – This table stores information about each user at a customer's site. There are two classes of users, supervisor and staff. Only a user with supervisor rights can add new users. The web page "hard-wires" who the customer is so customer users are kept associated with the correct customer.

Column (field) Name	Description	Comment	Field Characteristics & Indexing

Table Name – SALES_CONSULTANTS

Table Description and function – This table stores data about each Sales Consultant. It is essentialy a reference table.

Column (field) Name	Description
SALES_CONSULTANT_ID	Unique identifier * record key
CONSULANT_SHORT_NAME	Short name, nicknemame, initials to be used on screens, reports
CONSULTANT_FULL_FIRST_NAME	First name of consultant
CONSULTANT_LAST_NAME	Last name of consultant

It should be obvious to one skilled in the art that the present invention allows inventory tracking and management through a combination of manual, semi-automated, and automated means. The present invention also allows a manager to purchase in bulk and take advantage of promotions and other special offerings, thus reducing inventory costs. In addition, the present invention reduces the amount of inventory which must be kept on-hand by accurately modeling and predicting inventory needs. The present invention further provides customers with the ability to review new equipment, communicate with each other, and buy and sell excess inventory, refurbished equipment, and the like.

While the preferred embodiment and various alternative embodiments of the

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present invention have been disclosed and described in detail herein, it may be apparent to those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope thereof, including applying the present invention to fields other than healthcare.

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CLAIMS

I claim as my invention:

1) An inventory management system comprising:
   one or more computers;
   one or more databases residing on said computers, in which inventory and customer information is stored;
   client software providing an interface to said database and performing administrative functions;
   a user identification subsystem;
   a subsystem through which new products can be added to said inventory database, and which enables proper accounting of restocked products within said inventory database; and
   a subsystem which accounts for a product or products within said database as such products are removed from inventory.
2) The inventory management system of Claim 1, in which one or more of said subsystems are comprised of an optical reader which can read specially coded information on an object or person.
3) The inventory management system of Claim 1, in which one or more of said subsystems are comprised of an electronic device for scanning wirelessly accessible identifiers associated with objects or persons.
4) The inventory management system of Claim 1, in which said user identification subsystem is comprised of a biometric identification device.
5) The inventory management system of Claim 1, in which said client software permits registration and removal of individual users, and modification of user information.
6) The inventory management system of Claim 1, in which said client software allows users to be classified into groups, and where permissions or roles are assigned to such groups.

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7) The inventory management system of Claim 1, in which said client software allows products to be grouped into classifications, allows restrictions to be placed on distribution of such products, permits recording of patient information when individual products or products belonging to a particular group or set of groups are dispensed, and allows printing of product specific or group specific labels or information to be included with each product removed from inventory.

8) The inventory management system of Claim 1, in which said client software monitors inventory levels and reports anticipated shortages.

9) The inventory management system of Claim 1, in which said client software monitors inventory levels and generates orders to cover anticipated shortages.

10) The inventory management system of Claim 1, in which said client software allows users to order new products or to supplement inventory when desired.

11) The inventory management system of Claim 1, in which said client software allows users to specify a price for goods for sale within an inventory.

12) A vendor managed inventory system, comprising:

one or more suppliers maintaining inventory utilizing an inventory management system;

one or more customers maintaining inventory utilizing an inventory management system;

a central server, which facilitates communications and inventory management between said customers and said suppliers; and,

a redundant data connection between said suppliers, said customers, and said central server.

13) The vendor managed inventory management system of Claim 12, in which said central server receives inventory information from customers and suppliers, anticipates inventory shortages, generates orders to cover such shortages, selects suppliers and products for such orders, places orders with selected suppliers, and monitors order status.

14) An inventory distribution system comprising:

a vending machine;

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a computer connected to said vending machine;

software running on said computer;

a printer;

a user identification subsystem; and

a data entry subsystem.

15) The inventory distribution system of Claim 14, in which said user identification subsystem is comprised of a biometric scanner, RFID reader, barcode scanner, keyboard, touch sensitive display, or combinations thereof, and through which users can positively identify themselves to said computer via said software.

16) The inventory distribution system of Claim 14, in which said data entry subsystem is comprised of an active or passive user interface, and through which users can request dispensation of certain products.

17) The inventory distribution system of Claim 14, in which said printer prints product information when requested and as necessary to satisfy applicable regulations.

18) The inventory distribution system of Claim 14, further comprising a central server and a redundant data connection between said vending machine and said server.

19) The inventory distribution system of Claim 18, in which said computer monitors distribution of products contained within said vending machine, transmits such distributions to said server via said redundant data connection, and through which said server can notify a vending machine service provider of any inventory shortages.

20) A automated method of inventory management involving the steps of:

accounting for received products in an inventory;

monitoring products as such products are removed from an inventory;

calculating trends based on the frequency with which products are used;

determining optimal product quantities for each order, such that shipping costs are reduced and price points for different quantities are taken into account while also reducing expenditures.

ordering additional stock as needed;

tracking said orders;

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calculating order fulfillment trends based on delivery times from each supplier and for each product; and,

determining preferred suppliers based on such order fulfillment trends.

21) The automated inventory management method of Claim 20, in which the step of accounting for received products in an inventory involves electronically reading documentation supplied with each package and automatically updating inventory information to reflect package contents.

22) The automated inventory management method of Claim 20, in which the step of monitoring products as such products are removed from an inventory involves electronically reading a product identifier associated with a product or group of products.

23) The automated inventory management method of Claim 20, further including the step of identifying a user removing products from an inventory by electronically retrieving an identifier from said user.

24) An automated order fulfillment method, comprising the steps of:

receiving an availability and pricing request from a customer for one or more products;

determining acceptable alternatives for said products based on customer preferences;

determining quantities available, pricing, quantities necessary for a price break, and anticipated delivery times from one or more suppliers to meet said request, including any acceptable alternatives;

selecting products, product quantities, and suppliers that provide the most value while still meeting customer inventory needs;

generating product pick and pack slips for each supplier;

recording products as they are "picked" from a supplier inventory;

recording products as they are packed into shipping packages;

generating package packing slips and shipping labels;

correlating shipping and packing information;

shipping said packages; and

tracking said shipments.

25) The automated order fulfillment method of Claim 24, in which picked products are recorded by electronically scanning identifiers associated with such products.

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26) The automated order fulfillment method of Claim 25, in which picked products are recorded by electronically scanning identifiers associated with such products using a handheld computing device, to which a barcode scanner is attached.

27) The automated order fulfillment method of Claim 24, in which the step of recording products as they are packed further includes the step of scanning an identifier associated with a shipping package prior to scanning individual items packed into a shipping package.

28) The automated order fulfillment method of Claim 24, in which the packing and shipping labels include a machine readable identifier.

29) A vendor managed inventory and group purchasing system, comprising:

one or more servers;
one or more databases running on said servers;
client software running on one or more computers at a customer site, which is capable of monitoring customer inventories and reporting such information to said server via a redundant data communications connection;
client software running on one or more computers at a supplier site, which is capable of monitoring product quantities on hand and supports multiple product prices depending on order quantities, and which is capable of transmitting such information to said server via a redundant data communications connection; and
software running on said server that consolidates customer orders such that customer costs may be decreased by leveraging the consolidated order quantities.

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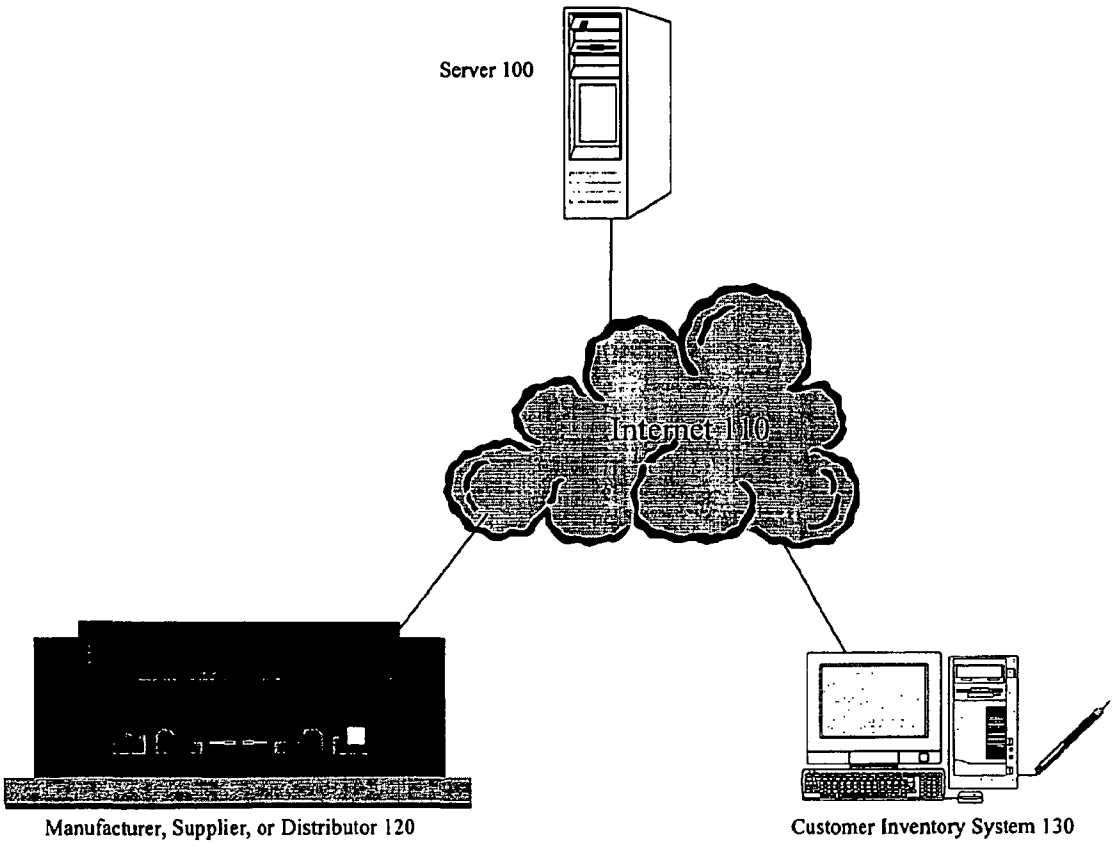


Figure 1

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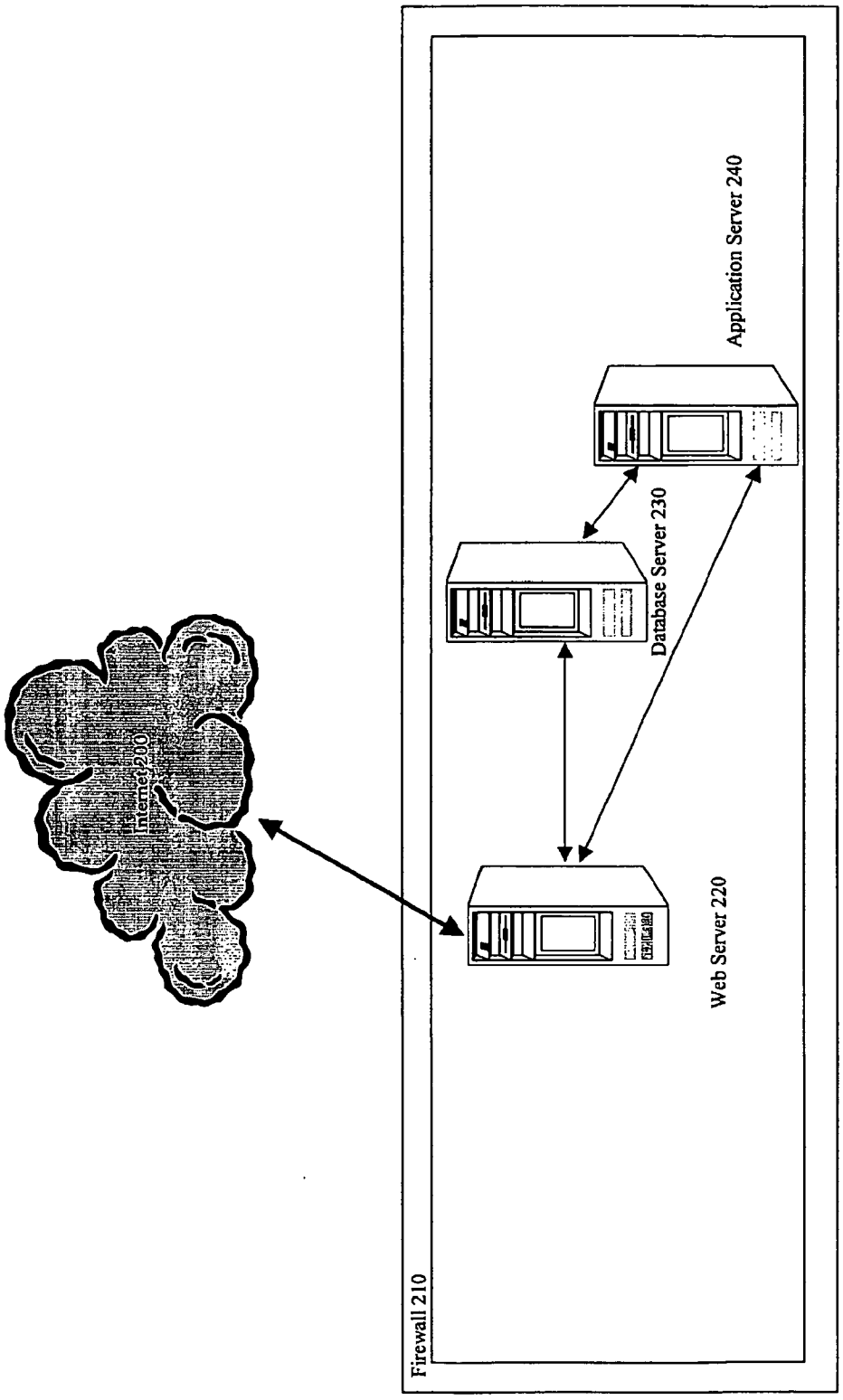


Figure 2

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Uber Technologies, Inc. v. SurgeTech, LLC

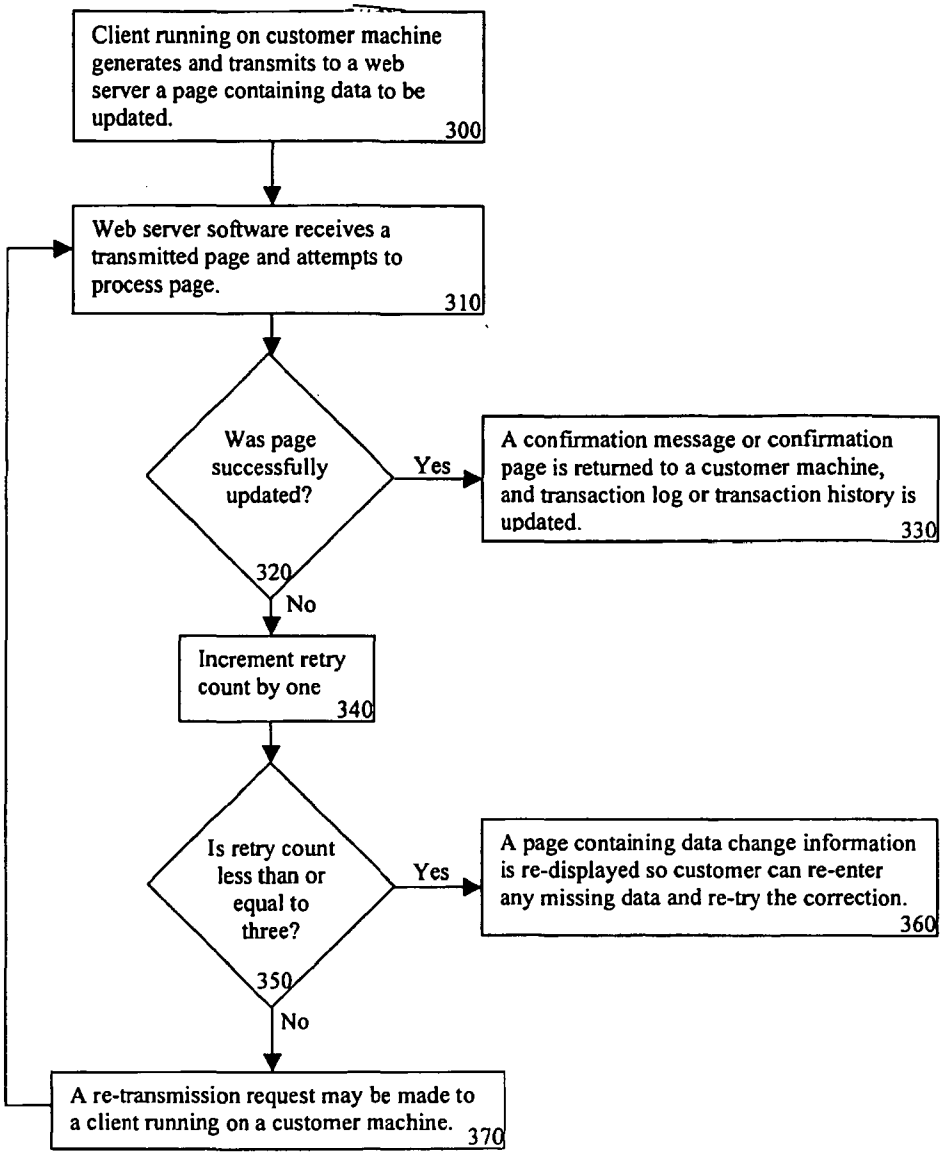


Figure 3

3/5

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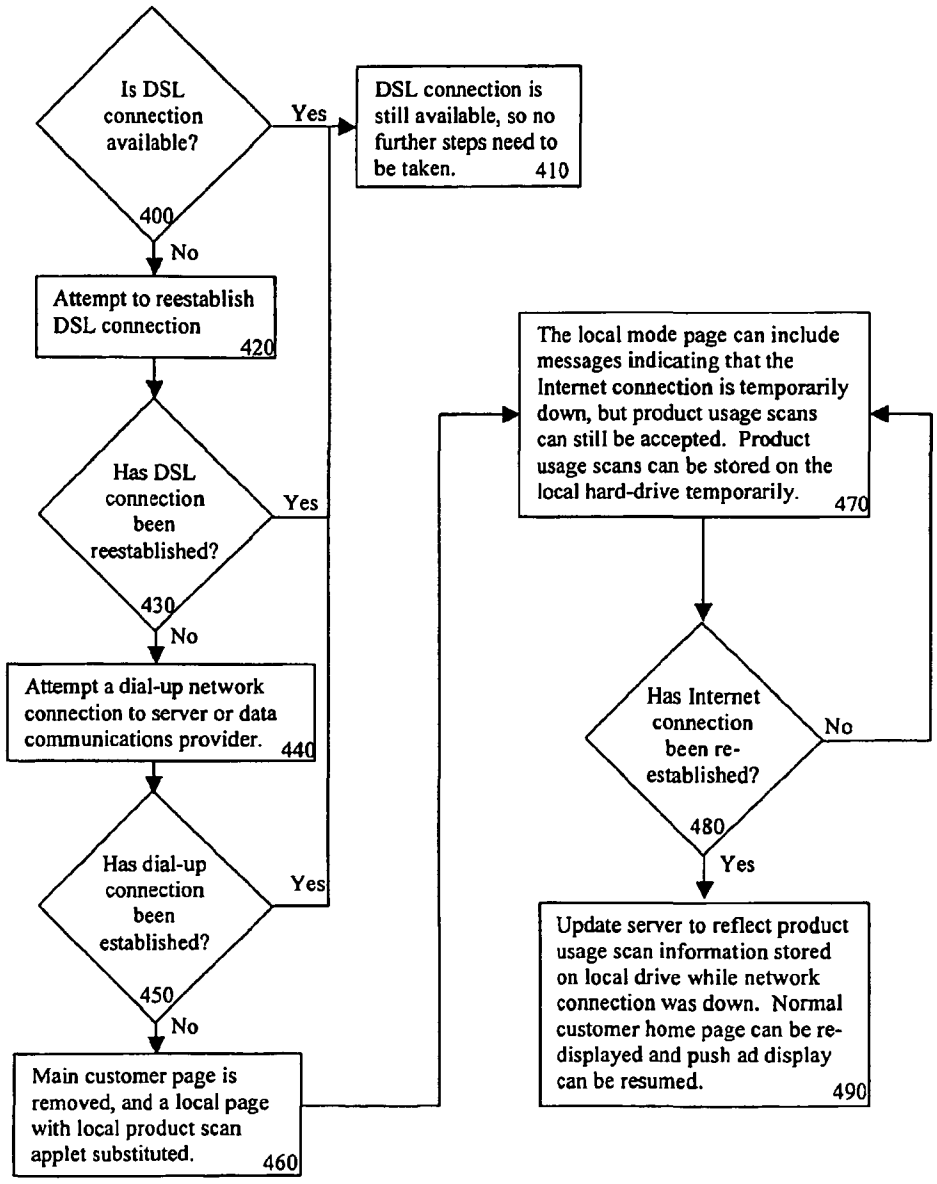


Figure 4

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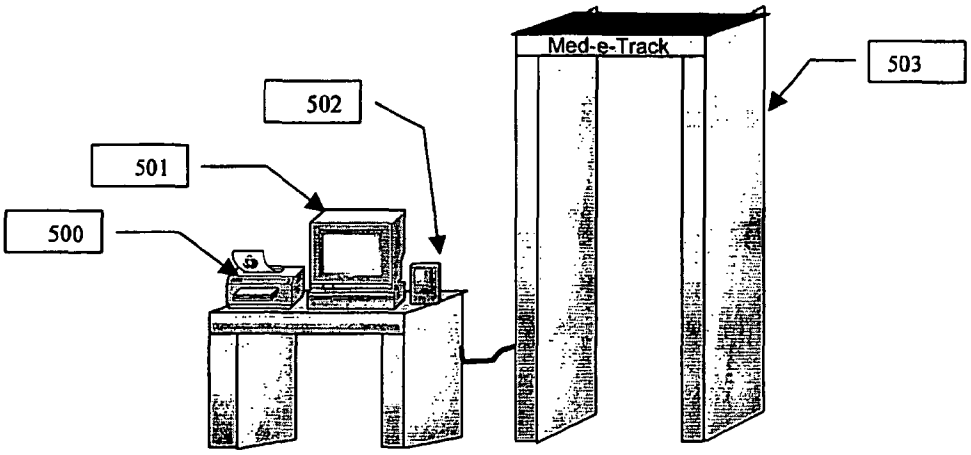


Figure 5

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US01/07253

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 17/60; G06G 1/14

US CL : 705/22,28

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/22,28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,E	US 6,247,774 B1 (RODEN et al) 19 June 2001, see entire document.	1-29
A	US 5,983,198 A (MOWERY et al) 09 November 1999, see entire document.	1-29
A	US 5,920,317 A (McDONALD) 06 July 1999, see entire document.	1-29
A	US 5,893,076 A (HAFNER et al) 06 April 1999, see entire document.	1-29
A	US 5,638,519 A (HALUSKA) 10 June 1997, see entire document.	1-29
A	US 5,608,621 A (CAVENEY et al) 04 March 1997, see entire document.	1-29
A	US 5,638,516 A (DUZETT et al) 10 June 1997, see entire document.	1-29

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
01 July 2001 (01.07.2001)	02 AUG 2001
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Olszewski Robert Telephone No. (703) 306-5484

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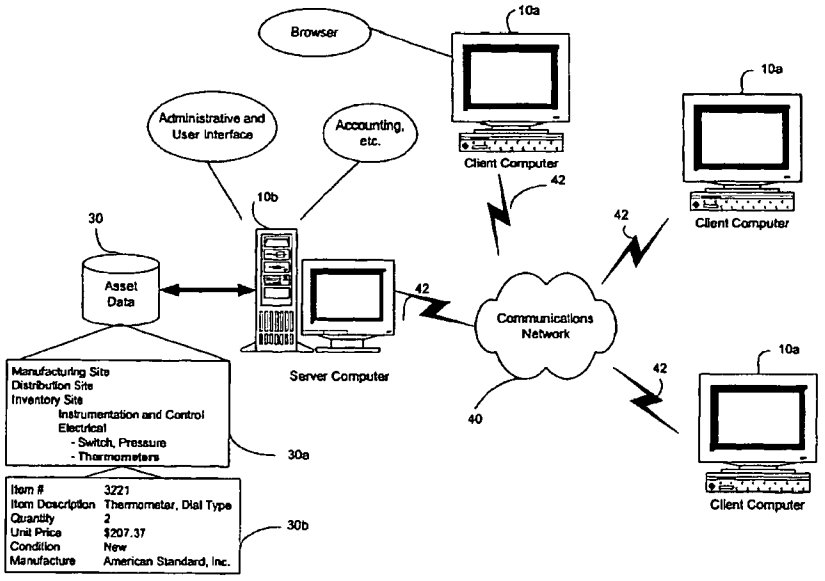
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(54) Title: INTERNET-BASED SYSTEMS AND METHODS OR REALLOCATING AND SELLING USED INDUSTRIAL EQUIPMENT AND MACHINERY



(57) Abstract: A service accessible via a network, such as the Internet, provides a fully integrated asset management system for used industrial equipment and machinery. The service provides redeployment methods and systems linking groups and divisions locally or globally so as to provide for the internal reallocation of such equipment and machinery. The service also provides redistribution methods and systems for the external reallocation via direct sales and auctions.

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INTERNET-BASED SYSTEMS AND METHODS FOR REALLOCATING AND SELLING USED INDUSTRIAL EQUIPMENT AND MACHINERY

Cross Reference to Related Application

This application is entitled to the benefit of the filing date of U.S. Provisional Application Serial No. 60/201,191, filed on May 2, 2000.

Field of the Invention

The present invention relates generally to the field of e-commerce, and more particularly to a system and method for reallocating and selling used industrial machinery and equipment over a network, such as the Internet.

Background of the Invention

E-commerce has rapidly become one of the most revolutionary activities to ever influence national and international economies. While e-commerce has presented itself in a variety of forms, business to business e-commerce has become especially important. The growth in the number of businesses using computers connected to the Internet has been tremendous, dramatically changing the way traditional business activities are conducted. Businesses are now able to sell their goods and services as well as purchase their own supplies and inventory on-line. Businesses can perform real-time market research, administer retirement plans and even hire employees on-line. As a result, business to business e-commerce is projected to soar from $43 billion in 1998 to over $1 trillion by 2003.

The buying and selling of used industrial equipment and machinery has rapidly become an important on-line activity. Although this market has huge potential, manufacturing firms have found it extremely difficult to buy and sell used equipment and machinery over the Internet. The used equipment and machinery marketplace is a large, fragmented market characterized by large margins and poor information flow, and thus is extremely inefficient. Large capital and infrastructure requirements have prevented existing market participants from broadening their participation in the market, as well as the entry of new participants. Market participants have thus been unable to gain significant market share. As a result, the market has been characterized by many small

market participants, each with specific expertise in a particular asset class or industrial application. Mistrust has developed between these market participants as well as between buyers and sellers of used industrial equipment and machinery. Additionally, the small market participants typically have limited professional management skills, and thus are typically unable to implement efficient business processes. As a result of inefficiencies in the market, many intermediate middlemen and transactions have developed between sellers and buyers.

Such markets, however, are ideally suited to benefit from the advantages provided by the Internet. Indeed, the growth of business to business e-commerce can be at least partially explained by the tremendous efficiencies brought to such markets. It is expected that by dramatically increasing information flow, the introduction of the Internet can have dramatic effects for both buyers and sellers in the used industrial equipment and machinery market. While this will be especially threatening to those market participants whose only value is their local or unique information, market participants that embrace this technology can quickly benefit. For example, the Internet can provide a platform for sellers to quickly build scale cost effectively, a major cause of market fragmentation. A market participant's access to capital can increase as a result of the Internet's ability to facilitate quick growth. In sum, the Internet's ability to increase access to information, capital and infrastructure and provide for improved business processes can allow a market participant to become the primary means of servicing the used industrial equipment and machinery marketplace.

Several businesses, including Internet-based businesses, have identified this market and its poor flow of information. Most have attempted to address the inefficiencies of this market by offering Internet exchanges or buyer/seller listing services similar to an on-line auction house (ebay.com, for example). Some businesses (e.g., Dovebid.com) have attempted to combine their existing asset recovery and auction experience with an Internet presence. Other Web-only auction firms (e.g., Tradeout.com, iMark.com and BizSurplus.com) have attempted to provide buyer and seller matching services. Industry specific auction sites have also appeared (including MedMarketAuction.com and LabX.com), as well as firm specific sites (e.g., Campbell Soup's campbells-equipment.com). Retail/consumer sites and industry market makers include ebay, ubid and auctionnet.com. Other Internet firms such as Freemarket and I2I

focus on the auction of technology. While most of these Internet business models simply list surplus assets for sale, assuming buyers will come to transact business, others business models have attempted to attract sellers by listing buyers.

Although these types of exchanges have worked well in commodity type markets where the products are standard and well known, they have not worked well in the used industrial equipment and machinery market. This can be explained by the failure of existing business models to address the issues that are key for successful transactions to occur in this market. While the primary advantage of most existing business models are lower prices for buyers and increased access to buyers for sellers, in most business to business markets, price is usually not the most critical factor. In the used industrial equipment and machinery market, both buyers and sellers are concerned primarily with certain assurances rather than pricing. Because the condition of used assets may range from brand new to almost scrap, buyers need assurances that the asset being purchased exists in the condition specified. Such assurances can take many forms, including asset inspections, appraisals and warranties. Sellers also need assurances that buyers are qualified and capable of closing transactions due to the large amounts of capital involved. Existing business models do not considered these issues.

Existing business models also fail to consider that mainstream markets are reluctant to embrace online technology and typically look to current relationships to assist in the transition to new technology models. Thus, although existing Internet exchanges have attracted some early technology adopters, they have not been able to significantly penetrate the mainstream market. This can be attributed to several factors. Participants in the used industrial equipment and machinery marketplace, for example, are comfortable with their current relationships and are not trusting of newcomers. Customers in this market are extremely loyal and thus managing customer relationships is critical in repelling aggressive customer acquisition strategies by new entries. Existing Internet business models have been unable to address such concerns, and so there has been a limited use of existing Internet exchanges for buying and selling used industrial equipment and machinery. Indeed, the majority of these exchanges have been returning to handling commodity items and surplus inventory. However, the characteristics of this market still suggest that firms with traditional off-line services and existing relationships can leverage these capabilities to more easily take advantage of on-line business models.

Existing on-line and Internet-based business models have also failed to take advantage of those internal opportunities presented by participants in the used industrial equipment and machinery marketplace. For instance, many of the participants in this market are large industrial concerns having many divisions or corporate sites (e.g., manufacturing, inventory and distribution) with large numbers and types of assets and inventory. A particular division or corporate site may no longer be able to utilize a particular asset, while another division or corporate site may have a current use for that asset. For example, while consumers may no longer be interested in an electrical motor currently part of inventory, manufacturing may be able to utilize the motor in their own operations. Internal redeployment (the transfer of assets between divisions or corporate sites of the industrial concern) can be greatly facilitated through the use of on-line, or networking, technology. Moreover, by using on-line technology to integrate an internal redeployment capability with external buyers, the inefficiencies of the used industrial equipment and machinery marketplace can be further reduced. No existing business model presents such an opportunity.

The foregoing discussion makes it clear that there is a need for a network-based, on-line, business to business service that can act as a market maker between buyers and sellers of used industrial equipment and machinery. In addition, there is a need for an on-line service that not only provides price value but also both transaction value and transaction volume. Further, there is a need for an on-line service that provides for the internal reallocation of assets.

Summary of the Invention

The present invention is generally directed to a service accessible via a network, such as the Internet, for providing a fully integrated asset management system for used industrial equipment and machinery. The service provides redeployment methods and systems linking groups and divisions locally or globally so as to provide for the internal reallocation of used industrial equipment and machinery. The service also provides redistribution methods and systems for the external reallocation via direct sales and auctions of used industrial equipment and machinery. In sum, the methods and systems of the present invention provide for a comprehensive asset and database management

system for participants in the used industrial equipment and machinery marketplace. Other aspects of the present invention are described below.

Brief Description of the Drawings

The foregoing summary as well as the following detailed description of preferred embodiments are better understood when read in conjunction with the appended drawings. In the drawings:

Figure 1 is a schematic diagram of a computer network in which aspects of the present invention may be incorporated.

Figure 2 is another schematic diagram of a computer network in which aspects of the present invention may be incorporated.

Figure 3 is a diagram representing an overview of the present invention in accordance with preferred embodiments of the invention.

Figure 4 is a diagram representing assets and inventory in accordance with preferred embodiments of the invention.

Figure 5 is a diagram representing data and information regarding assets and inventory in accordance with preferred embodiments of the invention.

Figure 6 is a diagram listing asset disposition methods in accordance with preferred embodiments of the invention.

Figure 7 is a diagram representing the business flow (e.g., flow of assets) in accordance with a preferred embodiment of the present invention.

Figure 8 is a diagram providing an operational overview of a preferred embodiment of the present invention.

Figure 9 is a diagram providing an operational overview regarding buyers in accordance with a preferred embodiment of the present invention.

Figure 10 is a diagram providing an operational overview regarding sellers in accordance with a preferred embodiment of the present invention.

Figure 11 is another diagram providing an overview of various transactions in accordance with preferred embodiments of the present invention.

Figure 12 is a diagram providing an overview of a marketplace in accordance with preferred embodiments of the present invention.

Figure 13 is a diagram providing an overview of internal redeployment in accordance with preferred embodiments of the present invention.

Figure 14 is a diagram providing an overview of internal redeployment and industry redeployment in accordance with preferred embodiments of the invention.

Figure 15 is another diagram providing an overview of internal redeployment, industry redeployment and external redistribution in accordance with preferred embodiments of the invention.

Detailed Description of Preferred Embodiments

Overview

Traditionally, it has been extremely difficult for manufacturing firms to buy and sell used industrial equipment and machinery. Due to the inefficiencies of the market, large manufacturing firms have found that it is much easier to buy new rather than used industrial equipment and machinery. The primary buyers of used equipment and machinery have thus been second and third tier manufacturing firms that buy used equipment from first tier firms. However, the purchase of new equipment and machinery is expensive and typically involves long lead times. This is in contrast to the purchase of used equipment and machinery, which can be purchased immediately. Many large firms are thus evaluating new business models for the purchase of used industrial equipment and machinery. Due to the tremendous growth in the number of businesses using computers connected to the Internet, firms are particularly interested in on-line and, in particular, Internet-based business models.

The present invention provides for novel on-line business methods and systems, and more particularly an Internet-based service for the used industrial equipment and machinery marketplace. The invention employs novel internal redeployment and external redistribution systems, both of which can be accessed by users via the Internet. A client computer connected to the Internet can download digital information from server computers. Client application software typically accepts commands from a user and obtains data and services by sending requests to server applications running on the server computers. A number of protocols are used to exchange commands and data between computers connected to the Internet. These protocols include the File Transfer

Protocol (FTP), the Hyper Text Transfer Protocol (HTTP), the Simple Mail Transfer Protocol (SMTP) and the Gopher document protocol.

The HTTP protocol is used to access data on the World Wide Web, often referred to as "the Web." The Web is an information service on the Internet providing documents and links between documents. It is made up of numerous Web sites located around the world that maintain and distribute electronic documents. A Web site may use one or more Web server computers that store and distribute documents in a number of formats, including the Hyper Text Markup Language (HTML). An HTML document contains text and metadata (commands providing formatting information), as well as embedded links that reference other data or documents. The referenced documents may represent text, graphics, or video. A Web browser is a client application or an integrated operating system utility that communicates with server computers via FTP, HTTP and Gopher protocols. Web browsers receive electronic documents from the network and present them to a user.

The present invention is most suited, but not limited to, uses in connection with the Internet. For example, the present invention may be used in connection with a local area network (LAN), wide area network (WAN) or an Intranet. The present invention is not limited to any particular client or server technology, such as a particular browser, Web server, or operating system.

The on-line market maker service of the present invention provides for novel business methods and systems for the used industrial equipment and machinery marketplace. The invention provides for several distinct advantages through the use of novel on-line internal redeployment systems as well as on-line and off-line external asset disposition systems. Addressing a primary cause of the inefficiencies of the used industrial equipment and machinery marketplace, the market maker service of the present invention provides users with end-to-end service. For purposes of the present invention, the term "user" can be defined as any individual or entity interacting with the present invention for the potential transfer and/or sale and/or purchase of used industrial equipment and machinery, including sellers and vendors as well as buyers and purchasers. Sellers are provided with a novel system for the internal redeployment of assets globally among internal corporate sites (e.g., manufacturing, inventory, distribution) as well as a multiple channel (i.e., off-line and on-line) system for the

marketing and disposition of surplus assets. Buyers' needs are fulfilled through the listing of both assets for sale and assets desired by buyers. The market maker service also facilitates transactions by providing a variety of on-line and off-line services including asset appraisal, evaluation and valuation as well as necessary assurances including warranties, financing, credit lines and other services. Additionally, the market maker service also acts as a transaction clearinghouse for taxes, duties and other costs of doing business, further facilitating transactions.

The market maker service of the present invention also enhances the value of those transactions performed in the used industrial equipment and machinery marketplace. The service assures sellers access to not only traditional off-line acquisition and disposition services, but also novel on-line internal redeployment, direct sales and auction services. The service also provides sellers with an extended audience of active buyers accessing asset information. In addition, the service assures sellers that buyers not only have access to real-time, accurate and complete asset information, but that buyers have been pre-approved or qualified to ensure that they possess the financial and other qualifications necessary for completing transactions. By partnering with leading off-line firms in key vertical or other market segments, the service assures buyers that they are accessing real-time, accurate and complete information from reputable industry participants. Buyers and sellers are also provided with the security necessary for participating in transactions as the service provides for the cataloguing, appraisal and valuation of assets, along with financial services. Market specialists and principals further provide transactional value by increasing market liquidity to both sellers and buyers.

The market maker service of the invention is also advantageous in that it provides the used industrial equipment and machinery marketplace and its participants with reliability and integrity. Sellers are assured that they are dealing with buyers that have been pre-approved or qualified, by financial and/or other criteria, and are thus capable of completing transactions. The service also provides buyers with exclusive asset listings, as well as assurance regarding the quality and value of assets by providing for the independent cataloguing, appraising, evaluation and valuation of assets. Further reliability and integrity is brought to the market as the service acts as an independent transaction clearinghouse for the transfer of funds, accounting and auditing. The market

maker service of the invention thus provides for those services necessary for transactions to actually occur, thus providing for a reliable marketplace.

The effectiveness of the market maker service of the invention is further enhanced through exclusive and non-exclusive partnering with market leaders possessing broad market knowledge, client relationships and key business processes in the disposition of used industrial equipment and machinery. These partnerships can provide the market marker service with access to a large number of active sellers and qualified buyers worldwide. These partnerships can also provide the market maker service with access to experts in many asset classes, and in many vertical industries.

The business model underlying the present invention can, of course, be replicated and scaled to create a marketplace in key vertical industries and asset classes. Additionally, these partnerships can provide the market maker service with access to financial, logistical and other services for the facilitation of transactions. Most important, these partnerships provide the service with access to top reputations in the industry. By leveraging its partnerships with market leaders, the market maker service of the invention can become the market leader and establish its position as the global marketplace providing all services to buyers and sellers of used industrial equipment and machinery.

Description of Internet-Based System

The following provides an operations overview of several aspects of the present invention in accordance with preferred embodiments. As the present invention allows for customizing the look, feel and functionality of a specific system in order to meet specific on-line inventory and asset recovery needs including any brand image requirements, the following description is intended as a generic representation based on needs identified as common among large industrial asset recovery and procurement groups.

The market maker service of the invention provides for novel internal redeployment and external asset disposition via on-line requisition, direct sale, auction and/or e-commerce type capabilities. It is preferred that these capabilities of the invention provide for comprehensive customer and product database management. These on-line capabilities can include an administrative interface through which

administrators can completely customize any database containing assets, potential customers, auction format information, site configurations, bidders and successful purchasers, and e-mail specifications. This administrative interface is preferably accessible through a standard Web page interface using secure user authentication features. The secure user authentication features can be administered to provide additional users with varied limits of access. The administrative interface can allow for the ability to manually add, delete and modify assets, or control published and non-published assets such as time-frame and other criteria. The administrative interface can also provide the ability to generate reports and view current status regarding purchasers, bidders and product demographic data.

It is preferred that the on-line capabilities of the invention provide for dynamic Web page content. Through the use of HTML page pre-processing, the invention can provide the ability to update the content of requisition, direct sale and auction Web pages dynamically. The invention is thus provided with greater flexibility in providing real-time information that needs to be retrieved from the many databases involved, for example, with the flow of an auction. Further, the invention provides for the addition of new functionalities to a Web page such as real-time advertising of other available asset auctions or possibly even third party advertising spots. Users can thus become more frequently aware of other aspects of the invention due to the flexible nature of the invention's on-line auction technology. For example, multiple bidders can become more frequently aware of other bids due to the flexible nature of the invention's on-line auction technology.

It is preferred that the on-line capabilities of the invention provide for purchase order entry and inquiry. The invention can provide for full cash register-like functionality fitting all direct sale, auction and e-commerce-type specifications. Such functionality can include itemizing customer orders, applying discounts, totaling orders, billing and purchasing functions, tax collection, freight collection, and purchase order tracking. Complete virtual and physical receipt of purchases can be easily designed and graphically matched according to each user's own receipt and purchase order requirements.

It is preferred that the on-line capabilities of the invention provide for on-line payment transaction processing. The invention can include the ability to provide for an

on-line payment processing solution that allows for multiple payment types. Credit cards, by way of example only, can be verified and processed in real-time using industry standard solutions including CyberCash, Verifone, Viacrypt PGP and First Visual. Payments can be customized to the server according to payment type. Payments and transactions can be recorded in the same database as existing asset purchases or a separate database depending on a particular user's requirements. All information can be stored in an encrypted database format to allow bidders to quickly bid on additional auction offerings without re-entering their information. A user database can thus be built over time, creating significant marketing advantages.

It is preferred that the on-line capabilities of the invention provide for an order process shipment management system. Transactions tracked by the virtual cash register capability of the invention can be recorded in existing inventory and purchase order databases. Additionally, the order management system can be customized to automatically update the inventory/shipping database at all distribution/fulfillment facilities. The database servers used for shipping can be different than the servers used for inventory or customer records, thus allowing for the creation of a workflow application that will save money by reducing unnecessary resources. The invention can also allow for customization providing real-time shipment tracking screens for tracking order shipments of commercial courier services. The invention can also provide buyers and administrators first hand information concerning product orders placed. Additional features of the invention can include e-mail notification of shipment processing.

It is preferred that the on-line capabilities of the invention provide for promotions. The invention allows administrators to flag certain auction assets as special promotional items, and to locate such assets in an area outside the normal database. Such promotional assets can be those assets a user wishes to auction quickly. By allowing a user to select a Web page from which promotional assets can be accessed, the invention makes it generally much easier for potential purchasers to find such promotional assets on the site.

It is preferred that the on-line capabilities of the invention provide for e-mail notification. The invention can provide for the ability to notify bidders, potential bidders and potential purchasers about significant events. This notification can be especially significant when such bidders and purchasers are maintaining a passive presence at the

site. For example, bidders can automatically receive notices if and when they are outbid on an asset. Bidders may also automatically receive notices when an auction is set to close so that they may return to the site in order to place another bid. Successful purchasers can be immediately notified and provided with confirmation of payment, as well as shipment terms and requirements.

It is preferred that the on-line capabilities of the invention provide users with communication and administration capabilities. The communication capabilities of the present invention can provide users with the ability to send each other messages, including messages via external e-mail. The administration capabilities of the invention can provide users with the ability to correct, revise and update company or personal data and information previously submitted to the system. Users can also review all purchases, sales and account transactions. Users that maintain catalogs or asset or inventory items on the system are provided with the ability to review, add, delete and/or the update information when necessary.

It is preferred that the on-line auction capabilities of the invention provide for the security of users including buyers, bidders and sellers. Based on a user's security system, a user's database maintenance facility can include the option of limiting the availability of specific auctioned assets to selected sellers and/or bidders. This capability can be fully administered through the standard browser interface.

It is preferred that the on-line technology of the present invention provides for a search engine. In one preferred embodiment, for example, the on-line auction technology of the invention includes the MICROSOFT SQL engine. The SQL-based database can also be included as it is specifically geared to "wide area" usage such as the Internet. Microsoft Exchange software can be fully integrated, providing for a strong mail server, with a proven design and track record for heavy usage. This software can also include the Active Server Pages (ASP), placing the software in the unique position of being able to utilize future development of "distributed database records and functions," with only minor changes in server side scripts. Additionally, incorporated code and search libraries allow for the customization of multiple search indexes and filters according to application requirements. Search features can include powerful search filters for user-friendly data search functions along with flexible multiple keyword entry for fast topic finds and item category lookups.

It is also preferred that the on-line technology of the invention provides for a user browser interface. The user browser interface of the invention can include database product search screens formatted according to, by way of example, auction close times, high bids, asset pricing, availability, and search filter specifications. The user browser interface can provide for retrieved asset review information from other sources, and discount and asset package advertisements. The interface can provide for custom logo presentation screens, as well as visual split screens for orders, products and specials. These and other aspects can be present within certain embodiments of the present invention as described below.

1. Description of an Internal Redeployment System

In one preferred embodiment of the present invention, a client application includes an internal redeployment system for the internal management and redistribution of used industrial equipment and machinery as well as items of inventory. The internal redeployment system can be an on-line system, particularly an Internet-based system, allowing access to pre-assigned internal corporate sites (e.g., manufacturing, inventory, distribution). This system can be a closed-end system, in particular an Intranet type system. This system can allow a client to access, query, order and document corporate asset and inventory transfers globally. The internal redeployment of assets and inventory can occur via requisition, auction and/or other e-commerce type transactions.

The internal redeployment system can provide for the internal redistribution of assets and inventory. Internal redistribution can be provided, by way of example and without limitation, via an internal requisition and/or e-commerce type transactions. In addition, internal redistribution can occur via a direct sale, auction and/or e-commerce type transactions. The system can provide for the consolidated procurement and processing of requisitions and/or e-commerce type transactions between multiple internal corporate locations including corporate operating sites and asset and inventory depot centers. The system can also provide for comprehensive asset and inventory database maintenance, shipping and transaction reconciliation. The system can track equipment and assets internally as they are transferred between corporate operating sites and inventory depot centers.

Figure 1 illustrates an exemplary network environment in which the internal redeployment service of the invention may be employed. Actual network and server environments can, of course, be arranged in a variety of configurations; however, the exemplary environment shown here provides a framework for understanding the type of environment in which the present invention operates. The network can include client computers 10a, a server computer 10b, and database 30 accessible via server computer 10b. The client computers 10a are in electronic communications with the server computer 10b via communications network 40, e.g., an Intranet. Client computers 10a are connected to the communications network 40 by way of communications interfaces 42. Communications interfaces 42 can be any one of the well-known communications interfaces such as Ethernet connections, modem connections, and so on.

Server computer 20b provides management of database 30 by way of server software such as database server system software, described more fully below. As such, server 10b acts as a gatekeeper from a variety of data sources and provides that data to a variety of data consumers. Server computers 10b may maintain data in a relational database. Client computers 10a that desire to access data stored in the database can access the data via communications network 40. In the example wherein server 10b comprises a database server, client computers 10a request the data by way of SQL queries (e.g., update, insert, and delete) on the data stored in database 30.

Where server computers 10b and client computers 10a are connected by way of an Intranet or the Internet, communications may be facilitated by HTML, XML, and so on. Client computers 10a may employ a browser. Client computers 10a may represent asset and inventory depot centers and internal corporate sites including manufacturing, inventory and distribution sites.

The server 10b hosts the internal redeployment service, which is accessible via an Intranet at a plurality of internal corporate sites and asset and inventory depot centers. A central administrator, corporate site or depot center administrator and/or other approved user (e.g., corporate employee, etc.) supplies asset and inventory item data 30 and information including name, description, manufacturer, price and/or other suitable information. Asset and inventory item data 30 and information can be supplied through an administrative interface accessible via a standard Web page. In addition, users can access a user interface via a standard Web page in order to search for and locate a

particular asset or item of inventory. Users may search and locate available assets or items of inventory by type, location, industry or other suitable criteria. For example, users can search and locate asset or item of inventory data 30a by corporate site or depot center and asset or inventory type. Users can also access detailed data descriptions 30b regarding a particular asset or item of inventory. Users may request the transfer of an available asset or item of inventory from its current corporate site or depot center to another corporate site or depot center. Where the internal redeployment service is operating on an e-commerce based model, the available asset or item of inventory may have an associated price or reserve, and the user may be required to purchase the available asset or item of inventory via direct sale or auction. The internal redeployment service of the invention can further facilitate such transactions by acting as an internal transaction clearinghouse providing for accounting services as well as the transfer of funds.

The following two models represent alternative exemplary embodiments for locating and redeploying an asset or item of inventory using the internal redeployment system of the present invention. It should be appreciated that a variety of other models are within the scope of the internal redeployment system of the present invention.

Model #1 Internal Redeployment via Requisition

1. User logs onto Internet site and in order to proceed beyond home page, user enters his/her user ID and password.
2. User is routed to a Web page and directed to select an industry category (e.g., utilities, refining and petrochemical, semiconductors, manufacturing).
3. User is routed to a Web page and asked to select asset or inventory type (e.g., valves, generators, electrical).
4. User is routed to a Web page and directed to select an asset or item of inventory (e.g., pressure switch stock # 3111). Asset and item of inventory descriptions can also be provided.
5. User is provided with the capability to requisition and user requests at least one asset or item of inventory for transfer to another corporate site or depot center.

Model #2 Internal Redeployment via Direct Sale Purchase

1. User logs onto Internet site and is required to enter ID and password.
2. User is routed to a Web page where user is provided with the capability to enter and user enters search criteria (e.g., stock number, corporate site) for assets and items of inventory.
3. User is routed to a Web page listing assets and items of inventory satisfying the search criteria. Detailed asset and inventory information including price can also be listed.
4. User is provided with the capability to purchase and user purchases at least one asset or item of inventory for transfer to another corporate site or depot center.

With reference to Figure 1, the internal redeployment system can also provide for the internal management and maintenance of assets and inventory. This system can provide for asset and inventory adjustments (real-time or otherwise) by asset, item of inventory and/or corporate location including assigned corporate site or depot center. This system can also provide for an asset and inventory accounting system for adjusting stock levels and site location availability instantaneously. For example, where an on-line request for transfer (requisition) and/or purchase of an asset or item of inventory has been made, the data 30-30b stored in the server computer 10b can be automatically adjusted to reflect that the asset or item of inventory has been internally redeployed. The data 30-30b can be instantaneously adjusted to reflect that the asset or item of inventory has been transferred from one corporate site to another. The data 30-30b can be adjusted before or after actual shipment of the asset or item of inventory. As another example, the data 30-30b stored in the server computer 10b can reflect those assets and items of inventory located at a corporate location. The data 30-30b can be automatically adjusted to reflect changes (increase or decreases) in items of inventory, whether through sales, internal redeployment or otherwise. The system can also provide for the automatic readjustment of inventory levels via internal redeployment, external purchase or otherwise, where levels fall below or rise above a set level.

The internal redeployment system of the present invention can also be integrated with the external redistribution system of the present invention. The system provides the

central administrator, corporate site or depot center administrator or other approved user the opportunity to redistribute assets and inventory via the external redistribution capabilities of the invention. In one embodiment of the present invention, the central administrator can elect to redistribute assets externally via on-line direct sale, auction and/or other e-commerce type transaction. It is preferred that assets and items of inventory available internally can be made available to others via the external on-line redistribution capabilities of the invention. It is further preferred that assets and items of inventory as well as detailed information be made available to others through a Web page accessible via the Internet. More preferred is that the assets and inventory are equally available through the internal redeployment and external redistribution capabilities of the present invention.

2. Description of an Industry Redeployment System

In preferred embodiments, the present invention provides for a client application including an industry redeployment system for the management and redistribution of used industrial equipment and machinery as well as inventory within a consortium or other trading group. For purposes of the present invention, a consortium or trading group may be considered to include participants within a particular industry, industries and/or other approved group. Preferably the industry redeployment system manages and redistributes assets and inventory among participants within a vertical market. The industry redeployment system can be an on-line system, particularly an Internet-based system, allowing access by consortium participants. This system can be a closed-end system, in particular an Intranet type system. This system can allow participants to access, query, order and document asset and inventory transfers within the consortium. The industrial redeployment of assets and inventory can occur via requisition, auction, direct sale and/or other e-commerce type transactions.

Figures 14 and 15 provide an overview of the industrial redeployment system in accordance with preferred embodiments of the invention. The industrial redeployment service provides participants (e.g, Co.1, Co. 2, Co. 3) or other approved users of a consortium the opportunity to redistribute assets and inventory among themselves. Preferably the consortium participants are part of a particular vertical market. In accordance with preferred embodiments of the present invention, participants within a

particular industry, industries and/or other trading group may form a consortium by deciding to redeploy assets and inventory among themselves. In other preferred embodiments, a consortium may be formed where the market maker service determines among which participants assets and inventory may be redeployed.

With reference to Figure 14 and 15, the industry redeployment system can be integrated with the internal redeployment system of the present invention. In accordance with preferred embodiments, a consortium participant (e.g, Co.1, Co. 2, Co.3) has access to the industry redeployment system as well as the internal redeployment system for the redeployment of assets and items of inventory among its multiple internal corporate locations (e.g., Ops1, Ops2, Ops3). With reference to Figure 15, the industry redeployment system can also be integrated with the external redistribution system of the present invention. In a preferred embodiment of the present invention, assets and inventory are made available for redeployment via the internal redeployment system, and if not redeployed internally, the assets are made available for redeployment via the industry redeployment system, and if not redeployed within the consortium, the assets are made available for external redistribution.

It is further preferred that assets and items of inventory as well as detailed information be made available to consortium participants through a Web page accessible via an Intranet or the Internet. Consortium participants can access detailed data descriptions regarding particular assets or items of inventory. Consortium participants may redeploy and acquire assets and inventory via requisition, auction, direct sale and/or other e-commerce type transactions. In accordance with certain embodiments, the present invention provides for internal communications allowing for continuous contact with all participants throughout any transaction process. Participants can communicate via e-mail, post bulletin board messages, confirm transactions and make numerous other inquiries. Other on-line and off-line support as described herein can also be available.

3. Description of an External Redistribution System

The present invention provides for a client application including on-line transaction capabilities for the external redistribution of used industrial equipment and machinery. Like the internal redeployment system, the external redistribution system is preferably an on-line system, more preferably an Internet-based system, allowing access

to registered users. In particular, the external redistribution system provides for the management and disposition of assets and items of inventory via external direct sales, auctions and/or other e-commerce type transactions.

Figure 2 illustrates an exemplary network environment in which the external redistribution service of the invention may be employed. Actual network and server environments can, of course, be arranged in a variety of configurations; however, the exemplary environment shown here provides a framework for understanding the type of environment in which the present invention operates. The network can include Internet client computers 400, a Web server computer 300, and database 310 accessible via server computer 300. The Internet client computers 400 are in electronic communications with the server computer 300 via communications network 500, e.g., the Internet. Internet client computers 400 are connected to the communications network 500 by way of communications interfaces 510. Communications interfaces 510 can be any one of the well-known communications interfaces such as Ethernet connections, modem connections, and so on. Additionally, a plurality of Intranet-based internal redeployment systems can be integrated with the external redistribution system, as illustrated by Figure 2. Administrators and users of internal redeployment systems can access the external redistribution system by way of communications interfaces 520. Administrators and users can access the communications network 500 of the external redistribution system via Internet Service Providers (ISP), as illustrated by Figure 2.

Server computer 300 provides management of database 310 by way of server software such as database server system hardware, described more fully below. As such, server 300 acts as a gatekeeper from a variety of data sources and provides that data to a variety of data consumers. Server computers 300 may maintain data in a relational database. Internet client computers 400 that desire to access data stored in the database can access the data via communications network 500. In the example wherein server 300 comprises a database server, Internet client computers 400 request the data by way of SQL queries (e.g., update, insert, and delete) on the data stored in database 310.

Where server computers 300 and Internet client computers 400 are connected by way of an Intranet or Internet, communications may be facilitated by HTML, XML, and so on. Internet client computers 400 may employ a browser. Internet client computers 400 may represent stations where users can interact with the present invention for the

potential transfer and/or sale and/or purchase of used industrial equipment and machinery.

The server 300 hosts the external redistribution system, which is accessible via the Internet at a plurality of Internet client computers, internal corporate sites and asset and inventory depot centers. It is preferred that the external redistribution system provides for the on-line registration, access, qualification and approval of users including both vendors and consumers. It is preferred that access to the system is provided only to registered users. Users are provided with a Web page accessible via the Internet for registering with the external redistribution system of the invention. Users are provided with a Web page including a user input window whereby users are directed to supply (enter or input) certain information in order to register with the system. Such information can include a user's name, address, e-mail address, occupation, credit or financial history and/or any other suitable information. Users are provided with individual user identifiers (IDs) and passwords once registered. It is preferred that users are able to access the system immediately upon registration.

It is preferred that the present invention provides for the on-line qualification and approval of users. While various mechanisms including the telephone are suitable for qualification and approval, users can be provided with a Web page accessible via the Internet for qualification and approval to the system. Users are provided with a Web page including a user input window whereby users are directed to supply certain information for qualification and approval to the system. Information suitable for qualifying or approving potential buyers can include credit or financial check, reference check, industry experience, submission of a deposit or any other suitable information. Although the phrase qualified or approved buyer can have a variety of definitions within the scope of the present invention, within certain embodiments the phrase can be defined as a buyer deemed capable of completing (e.g., financing a purchase) those transactions provided for by the present invention. It is preferred that users are notified via e-mail once qualified and approved.

It is preferred that the present invention provides users with on-line access to the external redistribution system. Users are provided with a Web page accessible via the Internet for accessing the external redistribution capabilities of the invention. Users are provided with the Web page including user input windows whereby users are directed to

supply certain information in order to access the system. This information can include, by way of example, user IDs and passwords. It is preferred that all access within the system is protected through SSL and security encryption.

It is preferred that the on-line direct sale capabilities of the invention include extensive asset listing capabilities. Asset and inventory item data 310 and information can be supplied through an administrative interface accessible via a standard Web page. Users can elect to list assets and items of inventory in on-line catalogs, whether by industry, asset type, asset name and/or any other suitable designation. It is preferred that catalog listings include asset categories and sub-categories. In the context of the used industrial equipment and machinery, categories can include utilities, semi-conductors, manufacturing, refining and petrochemical and industrial parts and equipment. It is also preferred that the present invention provides for administration capabilities enabling users including vendors to administer information regarding itself and its respective on-line asset and inventory catalogs. These administrative tasks can be assigned to numerous individuals within an organization. This self- and catalog- administration can be accomplished through an intuitive form action that requires little training. Data and information including asset and inventory descriptions, quantity, price, bid duration, product information, non-public sales as well as tracking information can be easily specified. The capacity to support images can also be included. In accordance with certain embodiments of the invention, a simple interface prompts for image upload after the entry of asset, inventory and/or product data. Catalog entries can be reviewed prior to final submission to the system's database. Catalog entries can also be added and available for bid instantly or require site administrator approval before going public. Additionally, single or multiple vendor (or inter-departmental, multiple vendor) account setup and access can be either pre-approved or require site administrator approval before allowing items to be actively added to the on-line catalog.

It is preferred that users are provided with powerful search capabilities. Users can access a user interface via a standard Web page in order to search for and locate a particular asset or item of inventory. Users may search and locate available assets or items of inventory by industry, type, location or other suitable criteria. With reference to Figure 2, for example, users can search and locate asset or item of inventory data 310a by industry, asset or inventory category, and asset or inventory type. Users can also

access detailed data descriptions 310b regarding a particular asset or item of inventory. These capabilities can be customized to allow for specific or intuitive search inquiries. Users are provided with access to on-line products and a complete array of services and functionalities. In accordance with certain embodiments, the present invention provides for an internal communications center allowing for continuous contact with all registered users throughout any transaction process. Users can communicate via e-mail, post bulletin board messages to groups, confirm transactions, contact vendors and make numerous other inquiries. Additionally, a help system offers both an on-line tutorial and built-in help section to assist with the full cycle operations of the system. Off-line support can also be available.

a. On-line direct sales

In accordance with certain embodiments, users including vendors can elect to redistribute corporate assets and inventory via the on-line direct sale capabilities of the present invention. Users can access these on-line direct sale capabilities for the redistribution of surplus assets and inventory as well as increasing revenues from standard product lines. The on-line direct sale capabilities can provide for an Internet interface for multiple users including sellers and vendors to redistribute assets. A payment security system can be provided, as well as seller and buyer notification via e-mail. It is preferred that the invention provides for the comprehensive identification, evaluation, appraisal and valuation of used industrial equipment and machinery.

It is preferred that the on-line direct sale capabilities of the invention provide for Internet-based inventory listings with real-time purchase interaction. It is also preferred that the on-line direct sale capabilities of the invention provide for extensive asset and inventory search capabilities. Users including potential buyers are preferably provided with the ability to search asset and inventory catalogs by industry, asset or inventory type, asset or inventory name or any other suitable search criteria. In one embodiment of the invention, users are provided with general search capabilities across all catalogs. Users can perform asset or inventory searches by key terms including item #, asset description or name, or any other suitable criteria. For example, a client is provided with descriptive information concerning a particular electrical motor in response to the key terms A# 4365" and "electrical motor".

In another embodiment of the invention, users are provided with the ability to search by catalog. These catalogs may include industry catalogs. Clients are provided with categories and sub-categories of assets and items of inventory in response to the selection of a particular industry catalog. For example, a user is provided with a listing of assets including boilers and steam generators in response to selecting the catalog "utilities". The user is then provided with a listing of specific boilers in response to selecting the sub-category "boiler". Finally, the user is provided with descriptive information concerning a boiler in response to selecting a particular boiler.

It is preferred that users can make direct purchases of assets and items of inventory via the on-line place order capabilities of the invention. Assets and items of inventory can be purchased on-line via the submission of user information including user address, as well as billing and shipping information. Preferably it is not necessary to submit such information where the information has been previously submitted. It is preferred that the present invention provides for the facilitation of transactions via the providing of services including, by way of example only, asset warranties, insurance and indemnity services, asset financing, escrow services and foreign exchange. Where an asset or item of inventory is not listed on the service of the present invention, users can submit requests to be notified when such items become available.

The following model represents an exemplary embodiment for searching, locating and redistributing an asset or item of inventory using the on-line direct sale capabilities of the present invention.

Model #3 Direct Sale via industry catalog search

1. User logs onto Internet site and in order to proceed beyond home page user must enter his or her user ID and password.
2. User is provided a Web page displaying the vertical industry catalogs available.
3. User is provided a Web page listing categories and sub-categories of assets in response to selecting an industry catalog.
4. User is provided a Web page displaying detailed asset information in response to selecting a sub-category.

5. User is provided with the opportunity and user enters and electronically submits an offer regarding the asset. Receipt of the offer is immediately acknowledged to the user via e-mail or otherwise.

6. Customer representative contacts the user with any questions and to verify information submitted with offer.

7. Customer representative contacts the user to inform the user of the outcome of the offer. An e-mail or other written confirmation is also sent to the user for written confirmation.

8. Where the offer is accepted, the customer representative assists the user with any details (e.g., financing, shipping, warranties) necessary to complete the direct sale.

9. After determining those services that will be provided, the customer representative provides the user with the total amount of the transaction (e.g., US dollars).

10. The user then releases the appropriate funds to the service.

11. Upon receipt of the funds, the service contacts the seller to coordinate shipping.

It should be appreciated that a variety of other models are within the scope of the present invention.

b. On-line auctions

In accordance with certain embodiments, users can elect to redistribute surplus assets and items of inventory via the on-line auction capabilities of the present invention. Users can also access these on-line auction capabilities as an alternative channel for increasing revenues from standard product lines. It is preferred that the on-line auction capabilities of the invention include Internet- and Web- based inventory auctions with real-time bid interaction. The on-line auctions capabilities can provide for not only multiple simultaneous auctions, but also multiple auction formats. The on-line auction capabilities can also provide an interface for multiple vendors to auction product. A payment security system can be provided, as well as seller and buyer notification via e-mail. It is preferred that the invention provides for the comprehensive identification, evaluation, appraisal and valuation of used industrial equipment and machinery. Like

the direct sale capabilities of the invention, the on-line auction capabilities also provide for comprehensive customer, asset and product database management.

It is preferred that the on-line auction capabilities of the present invention provide for multiple concurrent auctions. An on-line auction administrative interface can be provided which allows for multiple concurrent auctions, thus allowing a particular asset to become available almost universally. The on-line auction capabilities of the invention can accommodate different auction styles and formats, although the standard auction sale format is preferred. With the standard auction sale format, an asset is placed on the online auction block for sale. The highest bidder will be the winner until the entire quantity of the offered asset is gone. Successful bidders are determined with reference to the time of bid receipt. Auction can be conducted absolute to the highest bidder or with minimum reserve prices.

It is preferred that the on-line auction capabilities of the invention include both private and public auction services providing comprehensive asset recovery solutions to clients. Like the direct sale capabilities of the invention, the on-line auction capabilities provide for extensive asset listing and inventory search capabilities with catalog listings readily displayed. It is preferred that users including bidders can easily view current bid status, product information and item specifications once a particular asset or item of inventory catches a user's interest. It is also preferred that each online auction site can be readily customized for a specific audience or marketplace, in particular a specific business to business marketplaces.

It is preferred that the on-line auction capabilities of the invention include complete asset registration and processing systems enabling real-time bidding and purchasing of corporate assets. Bid development and selection can be achieved through automated RFP and RTQ modules. In accordance with the present invention, an exemplary bidding process can be described. Users including bidders are provided with a Web page including an icon, for example a "Bid NOW!" icon, that takes a potential bidder to a bidders form and prompts for action. Using pop down lists and "fill in the blank" form standards, the bidder can enter login, password and bid particulars along with shipping method. Once a bid is placed, the Web page can update immediately to reflect current winning bids. The bidder can be notified via e-mail when the bidder has a closing winning bid or is outbid. Where a bidder is outbid, the bidder may be directed to

a "Mybid" Web page where all active bids can be viewed by the bidder. The bidder may, of course, then place another bid via the bidders form. It is preferred that the present invention for product descriptions, current bids and bid actions required that can be easily managed through one consolidated interface. Additionally, the automatic shipment of assets and payment for assets can be provided within these capabilities.

It is preferred that the on-line auction capabilities of the invention provide for comprehensive messaging including the ability to notify clients of on-going bids via e-mail. Banking and accounting features can be customized for transfers through pre-approved third party direct sales or other transfer channels. In addition, customized databases can also be provided for providing historical evaluations, audits and asset management analysis.

The following model represents an exemplary embodiment for searching, locating and redistributing an asset or item of inventory using the on-line auction capabilities of the present invention.

Model # 4

1. User logs onto site and in order to proceed beyond home page, user must enter their user ID and password.
2. User is routed to a Web page displaying detailed information for those assets available in the marketplace as well as various purchase methods enabled.
3. User is routed to a Web page hosting an electronic auction in response to selecting a particular asset.
4. An electronic auction commences in which participants make bids (i.e., offers) on the asset over a fixed time frame.
5. User enters and electronically submits a bid to the electronic marketplace. User is provided with a Web page displaying current bids.
6. User is notified electronically when a higher bid has been submitted for the same asset or item of inventory.
7. User again enters and electronically submits a bid to the electronic marketplace. User is again provided with a Web page displaying current bids.
8. User is notified electronically that the bid is a winner.

9. Details (e.g, financing, warranties, shipping) necessary to complete the transaction are determined.

10. User is notified electronically of the total amount of the transaction (e.g., U.S. dollars).

11. User releases the appropriate funds to the service in order to complete the transaction.

12. Upon receipt of the funds, the service contacts the seller to coordinate the user's purchase.

It should be appreciated that a variety of other models are within the scope of the present invention.

3. Description of an Off-Line Remarketing Network

The market maker service of the present invention also provides for off-line remarketing and asset disposition capabilities. These capabilities can include access to the remarketing and asset disposition networks of top international and national asset disposition firms. In particular, these off-line networks are preferably integrated with the internal redeployment and external redistribution systems and methods of the invention. These off-line networks can provide for several advantage within the context of the present invention. First, the off-line networks instantly supply the market maker service with a large number of active and qualified users including buyers and sellers. Second, the off-line networks supply the on-line aspects of the service with experts in a large number of asset classes and vertical industries. Third, the already international presence of the off-line networks helps provide the service with international on-line presence. Finally, and possibly most important, by creating partnerships with top off-line networks, the present invention is provided with a top reputation as well as brand image in the used equipment and machinery marketplace.

It is preferred that the off-line networks of the invention provide for the independent and fair identification, cataloguing, evaluation, appraisal and/or valuation of used industrial equipment and machinery. The on-line asset reallocation aspects of the invention are thus enhanced through the use of independent asset appraisers for evaluating the condition and value of seller and vendor assets. On-line buyers are thus

assured they receive assets in the condition as specified and for fair value. Sellers are similarly assured of a fair value for their assets while their chances of asset reallocation enhanced.

It is preferred that the off-line networks provide for maintenance and/or logistical support for used industrial equipment and machinery reallocation. The off-line networks thus provide for outsourced on-site or off-site maintenance and hosting of assets, as well as technical support and training capability. The off-line networks also provide for the physical transport of assets reallocated on-line. Through maintenance and logistical support, the market maker service of the invention is better able to facilitate end-to-end value-driven transactions for the used industrial equipment and machinery marketplace.

It is also preferred that the off-line networks provide for additional off-line asset dispositions. Like the on-line capabilities of the invention, the off-line networks provide for both private and public off-line direct sales and auctions. For example, the off-line networks can provide for resales via private placement, off-line private treaty liquidation, sealed bid auction, open bid public auction, consignment or other similar means. In sum, the off-line remarketing networks facilitate and enhance the on-line capabilities of the invention. Through the integration of on-line and off-line networks, the market marker service of the invention facilitates the selling and buying of used industrial equipment and machinery.

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Conclusion

The present invention provides improved systems and methods of asset management for the reallocation and sales of used industrial equipment and machinery. An important feature of the preferred embodiments of the service is the use of an Internet- or Intranet- based internal redeployment system for the management and redistribution of used industrial equipment and machinery among internal corporate sites. The preferred embodiments of the service also include the use of an Internet-based redistribution system for the external management and disposition of used industrial equipment and machinery via direct sales and auctions. The service thus provides novel systems and methods for the internal redeployment of assets globally among internal corporate sites as well as multiple channel systems and methods for the marketing and disposition of surplus assets. In sum, the service provides for a comprehensive asset database management system for participants in the used industrial equipment and machinery marketplace.

It should be noted that the present invention may be implemented with a variety of database and database management applications and network configurations. The various techniques described herein may be implemented in hardware or software, or a combination of both. Preferably, the techniques are implemented in computer programs executing on programmable computers. Program code is applied to data entered using an input device to perform the functions described above and to generate output information. The output information is applied to one or more output devices. Each program is preferably implemented in a high level procedural or object oriented programming language to communicate with a computer system. However, the programs can be implemented in assembly or machine language, if desired. In any case, the language may be a compiled or interpreted language. Each such computer program is preferably stored on a storage medium or device (e.g., ROM or magnetic diskette) that is readable by a general or special purpose programmable computer for configuring and operating the computer when the storage medium or device is read by the computer to perform the procedures described above. The system may also be considered to be implemented as a computer-readable storage medium, configured with a computer program, where the storage medium so configured causes a computer to operate in a specific and predefined manner.

It is understood, however, that the invention is susceptible to various modifications and alternative constructions. It should be understood that there is no intention to limit the invention to the specific constructions described herein. On the contrary, the invention is intended to cover all modifications, alternative constructions, and equivalents falling within the scope and spirit of the invention.

CLAIMS

What is claimed is:

1. A network-based method for the reallocation of assets or items of inventory between and among corporate sites and/or companies, comprising:

providing a first database of assets available for internal redeployed among sites within a first company;

permitting users within the first company to access the first database for the purpose of determining whether such users wish to acquire any of the assets represented therein; and

if an asset represented in the first database is not acquired by a user within the first company, then storing data representative of such asset in a second database which is accessible to users external to the first company, whereby assets of the first company that are not internally redeployed are made available, via a network, for purchase by other companies.

2. A method as recited in claim 1, wherein the method further comprises the use of an internal redeployment model for locating and redeploying an asset or item of inventory, said internal redeployment model comprising:

asking a user to select an industry category from a list on a Web page;

asking the user to select an asset or inventory type;

asking the user to select an asset or item of inventory of the type selected; and

permitting the user to requisition the selected asset or item of inventory, so as to cause the asset or item of inventory to be transferred to a designated corporate site or depot center.

3. A method as recited in claim 1, wherein the method further comprises the use of an internal redeployment model for locating and redeploying an asset or item of inventory, said internal redeployment model comprising:

receiving from a user, via a Web page, search criteria for assets or items of inventory;

providing to the user a listing of assets or items of inventory satisfying the search criteria; and

permitting the user to purchase at least one asset or item of inventory from the list, so as to cause the asset or item of inventory to be transferred to a designated corporate site or depot center.

4. A method as recited in claim 1, wherein said users external to the company are members of a consortium or trading group.

5. A method as recited in claim 4, wherein the method further includes managing and redistributing assets or inventory among participants within a vertical market.

6. A method as recited in claim 1, wherein the method further comprises the use of an external redistribution system providing for the management and disposition of assets or items of inventory via electronic transactions carried out over the Internet.

7. A method as recited in claim 6, wherein said electronic transactions include external, on-line direct sales.

8. A method as recited in claim 6, wherein said direct sales include the use of a direct sale model comprising:

providing to a user a Web page displaying a plurality of vertical industry catalogs;

providing a listing of categories and sub-categories of assets or items of inventory in response to the user having selected an industry catalog;

displaying detailed asset information in response to the user having selected a sub-category;

receiving from the user an electronically-submitted offer regarding the asset, and acknowledging receipt of the offer;

informing the user whether the offer is accepted or rejected; and

if the offer has been accepted, assisting the user with aspects of financing, shipping, and/or warranty necessary to complete the direct sale.

9. A method as recited in claim 6, wherein said electronic transactions include

on-line auctions.

10. A method as recited in claim 9, wherein said on-line auctions include the use of an on-line auction model comprising:

displaying, via a Web page, information concerning assets or items of inventory available;

routing the user to a Web page hosting an electronic auction in response to the user having selected a particular asset or item of inventory;

permitting the user to bid on the particular asset or item of inventory;

when and if the user is deemed to have submitted a winning bid, notifying the user electronically that the user's bid is a winner; and

assisting the user with aspects of financing, shipping, and/or warranty necessary to complete the sale; and

11. A method as recited in claim 6, further comprising providing for on-line qualification and approval of users.

12. A method as recited in claim 1, further comprising the use of an off-line remarketing system.

13. A method as recited in claim 12, wherein said off-line remarketing system is integrated with internal redeployment and external redistribution systems.

14. A network-based system for the reallocation of assets or items of inventory between and among corporate sites and/or companies, comprising:

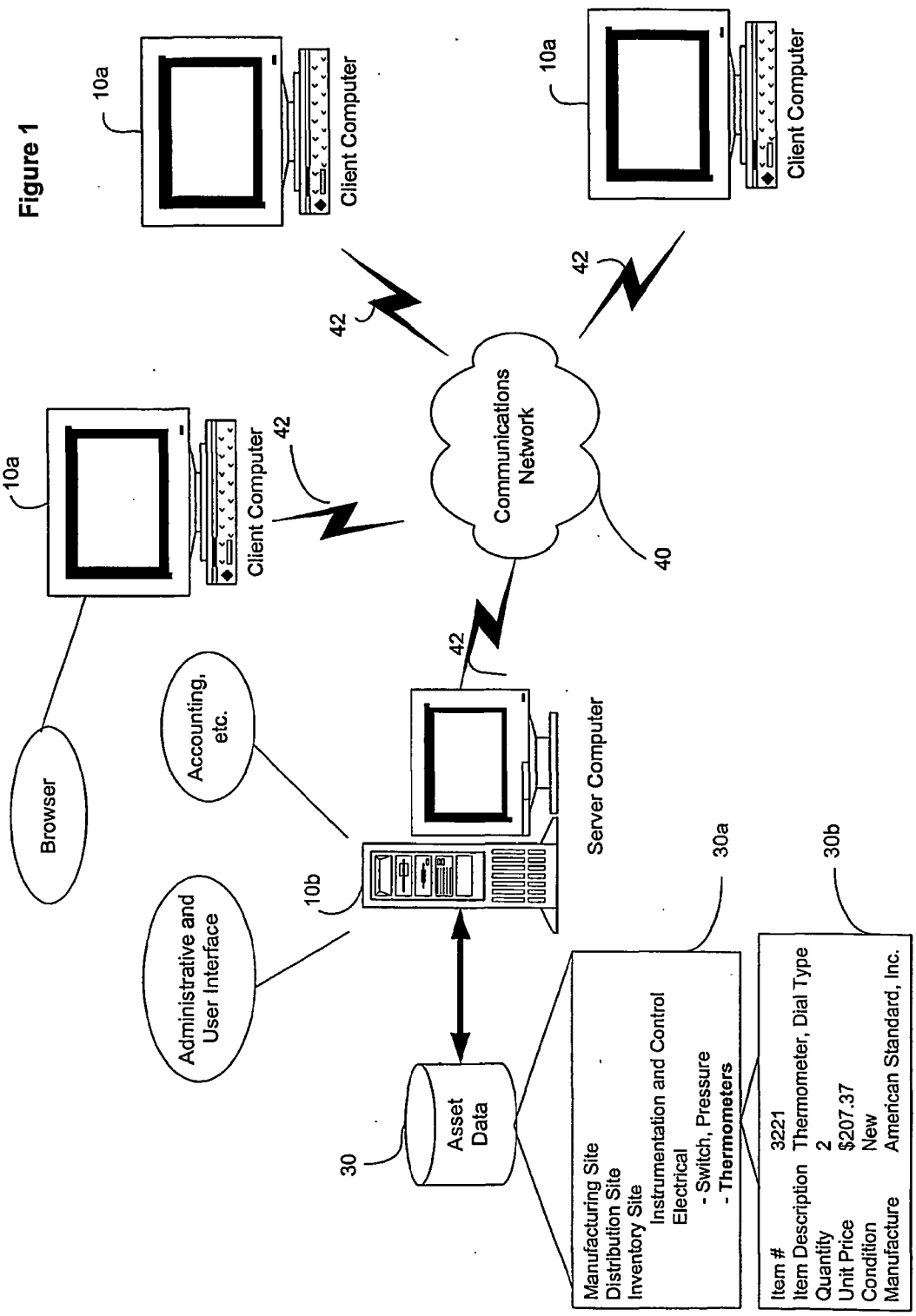
a first database of assets available for internal redeployed among sites within a first company;

a second database that is accessible to users external to the first company;

computer network means for permitting users within the first company to access the first database for the purpose of determining whether such users wish to acquire any of the assets represented therein, and if an asset represented in the first database is not acquired by a user within the first company, then storing

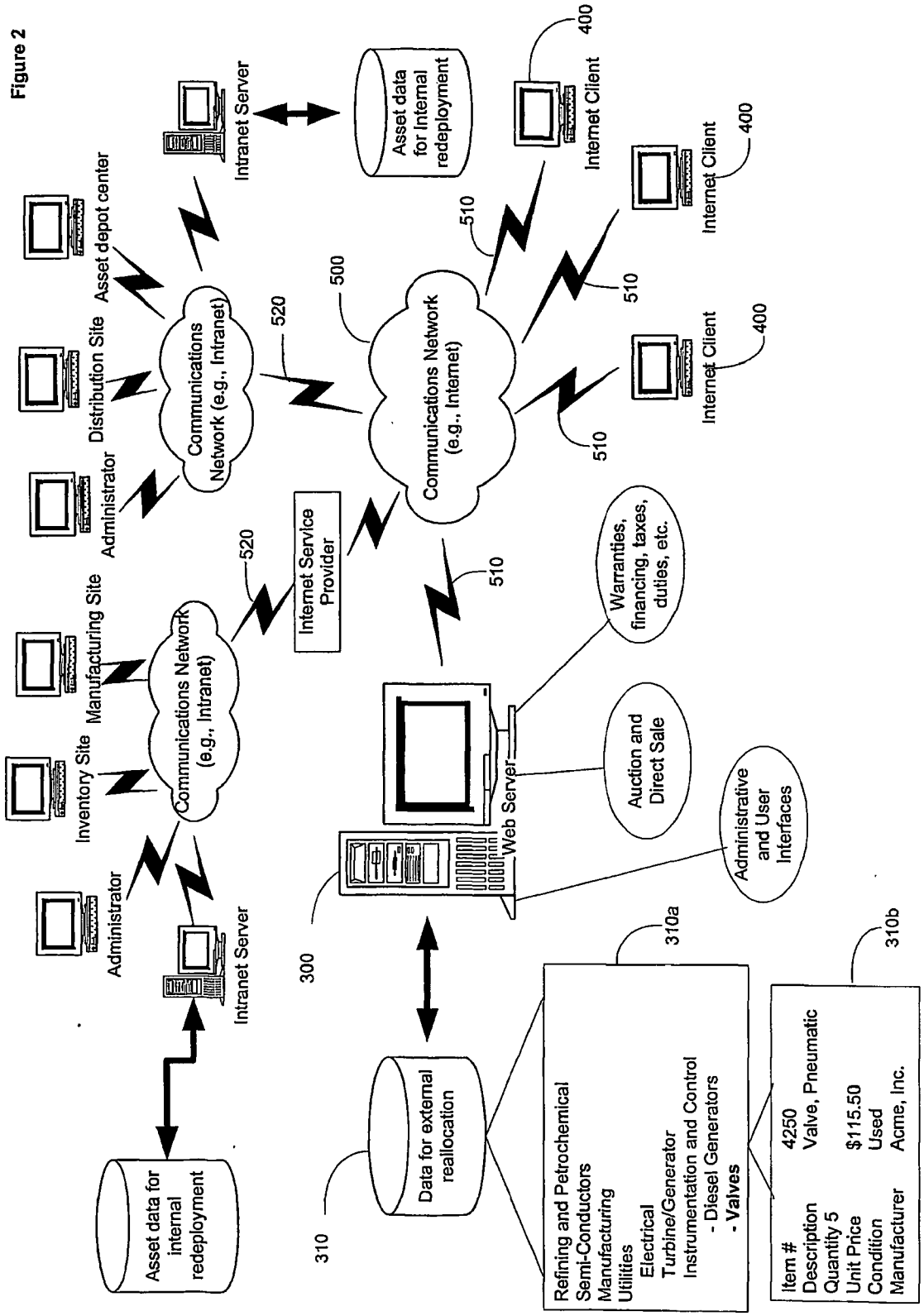
data representative of such asset in the second database, whereby assets of the first company that are not internally redeployed are made available, via a network, for purchase by other companies.

Figure 1



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Figure 2



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Figure 3

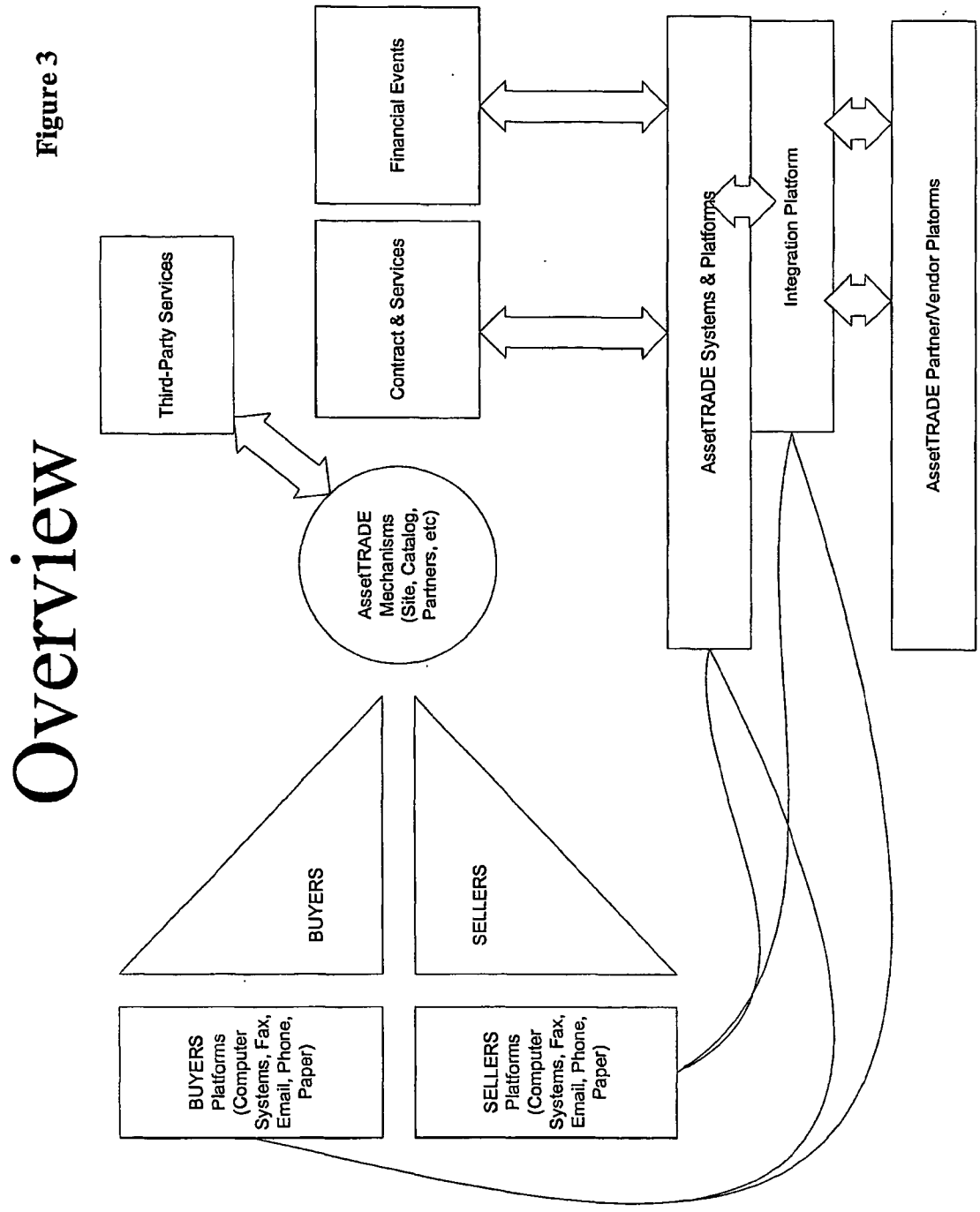
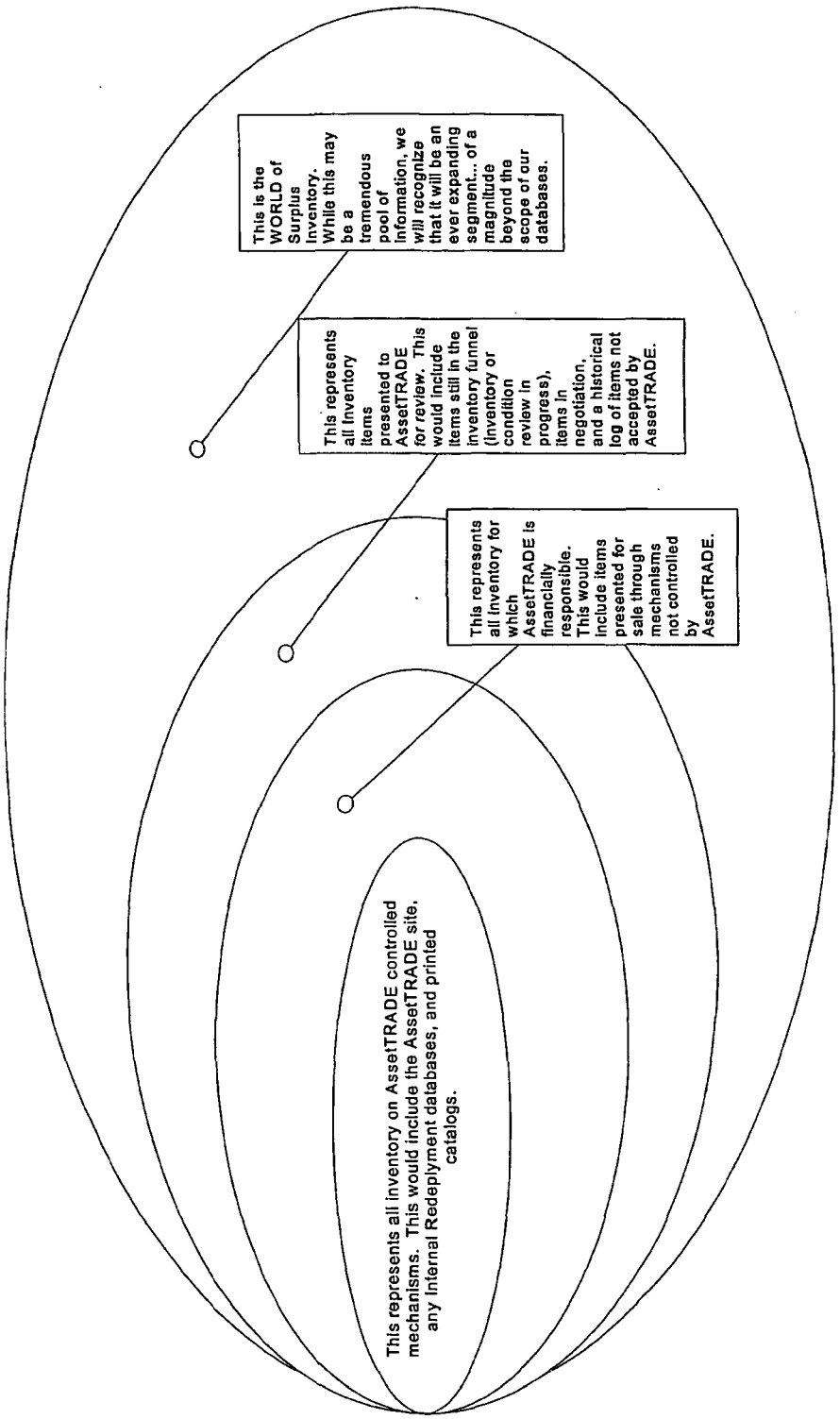

Overview
Financial Events
Third-Party Services
Contract & Services
AssetTRADE Systems & Platforms
Integration Platform
AssetTRADE Partner/Vendor Platforms
AssetTRADE Mechanisms (Site, Catalog, Partners, etc)
BUYERS
SELLERS
BUYERS Platforms (Computer Systems, Fax, Email, Phone, Paper)
SELLERS Platforms (Computer Systems, Fax, Email, Phone, Paper)

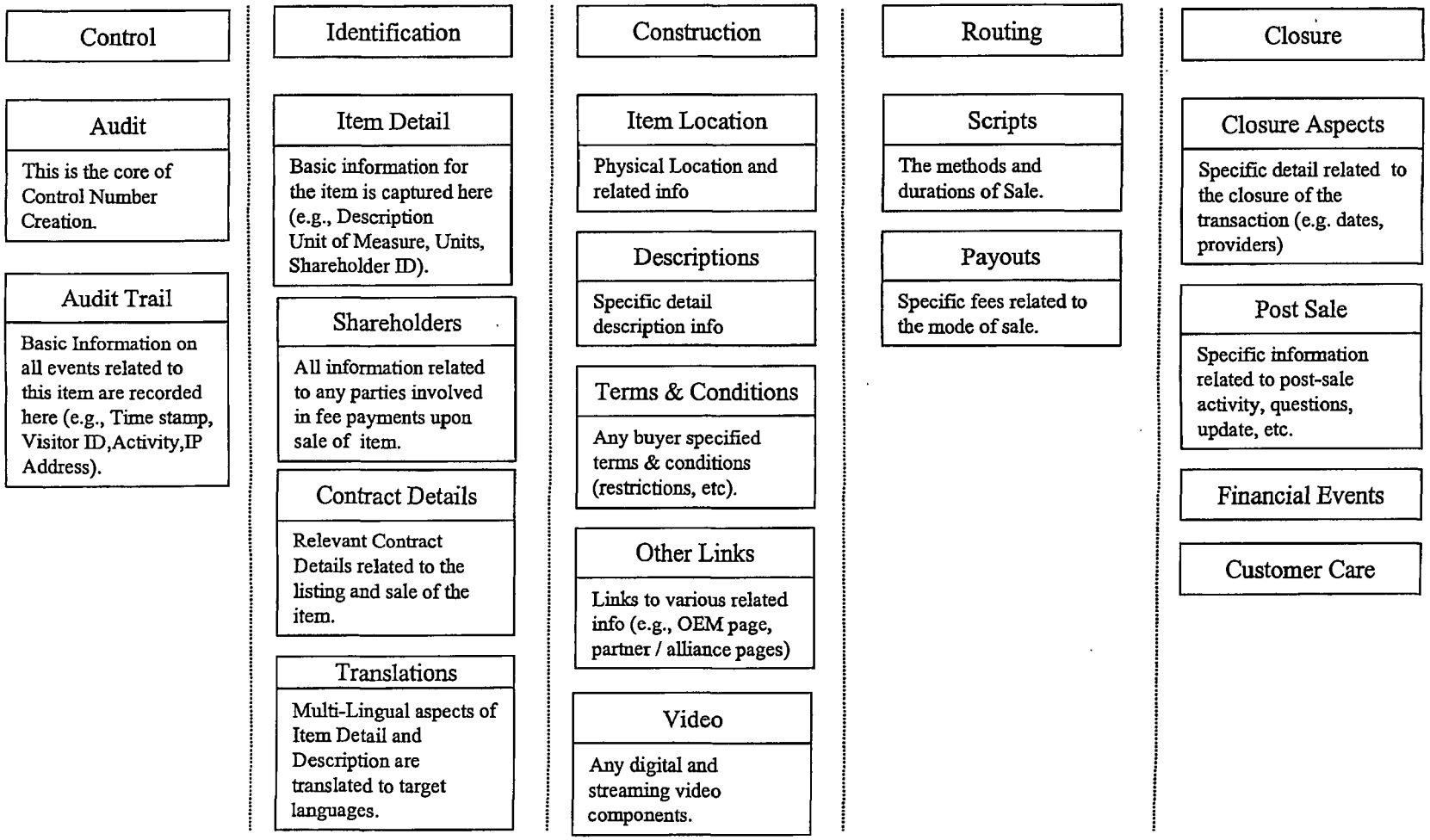
Figure 4

The AssetTRADE World of Inventory



The Inventory Master

Figure 5



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Figure 6

Our Array Of Disposition Methods

- AssetTRADE Internal Redeployment
- Various Vertical Consortiums
- The AssetTRADE MarketPlace
- Traditional and Online Disposition Methods

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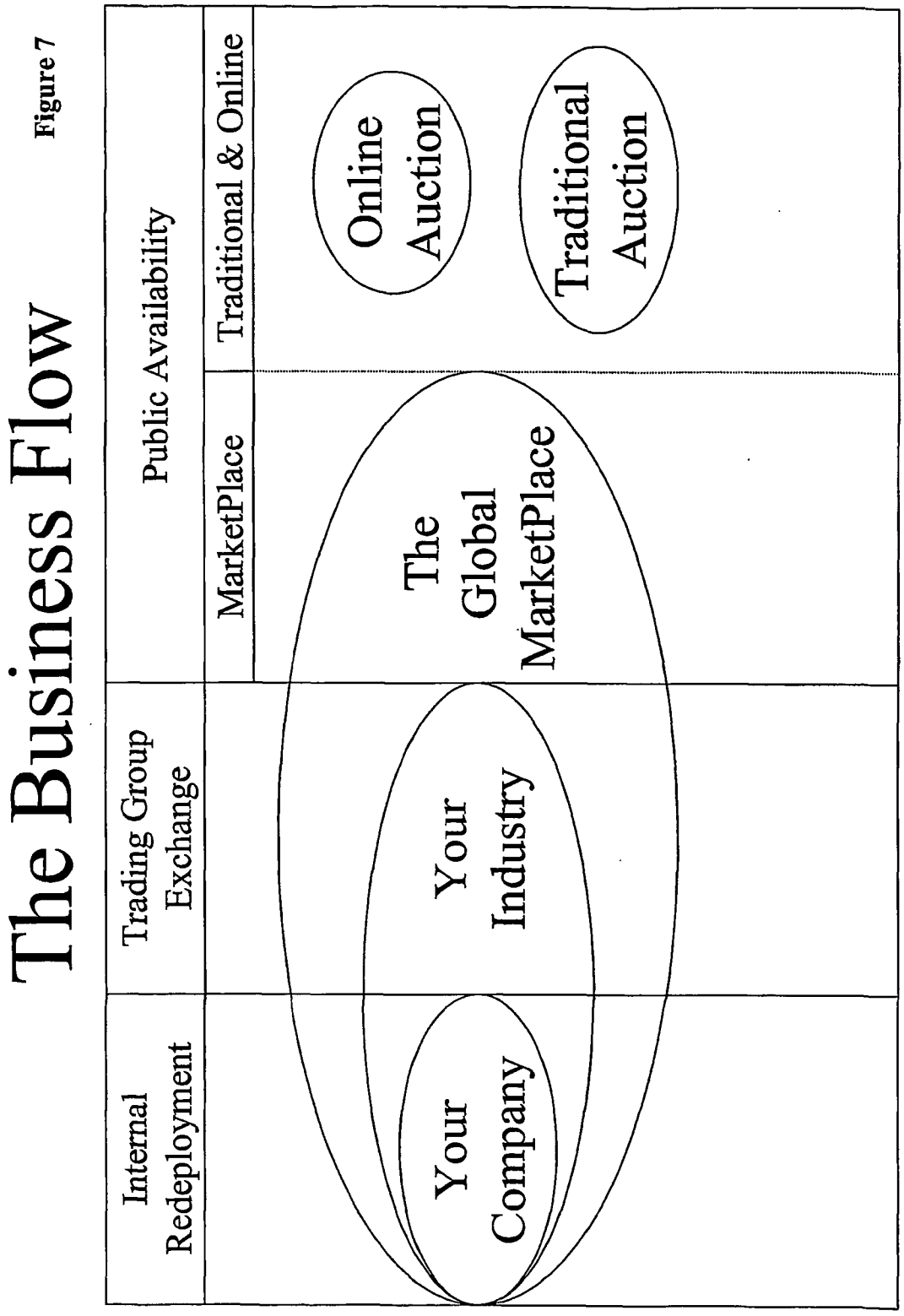
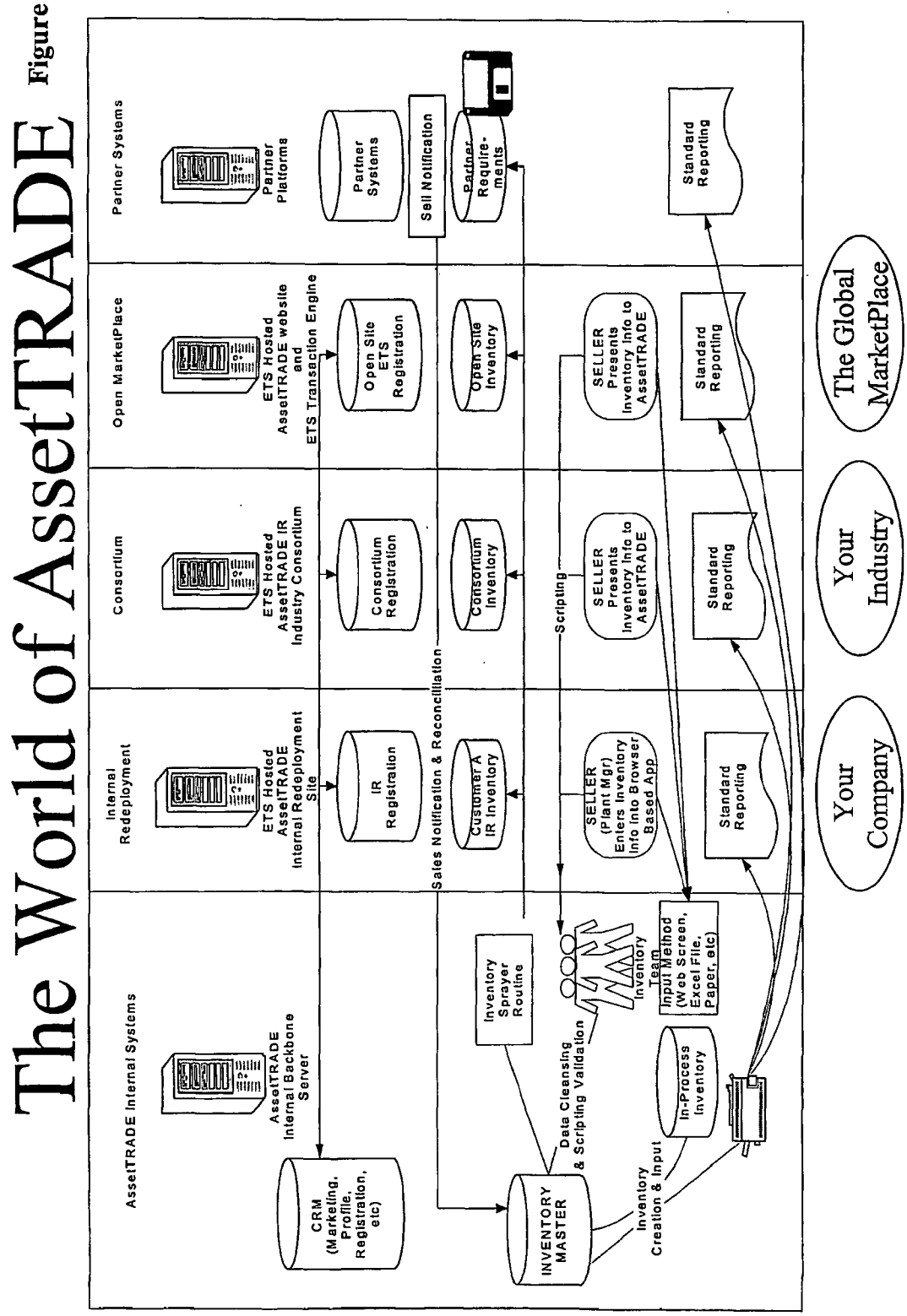

The Business Flow
Internal Redeployment
Trading Group Exchange
Public Availability
MarketPlace
Traditional & Online
Your Company
Your Industry
The Global MarketPlace
Online Auction
Traditional Auction

Figure 7

Figure 8



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Figure 9

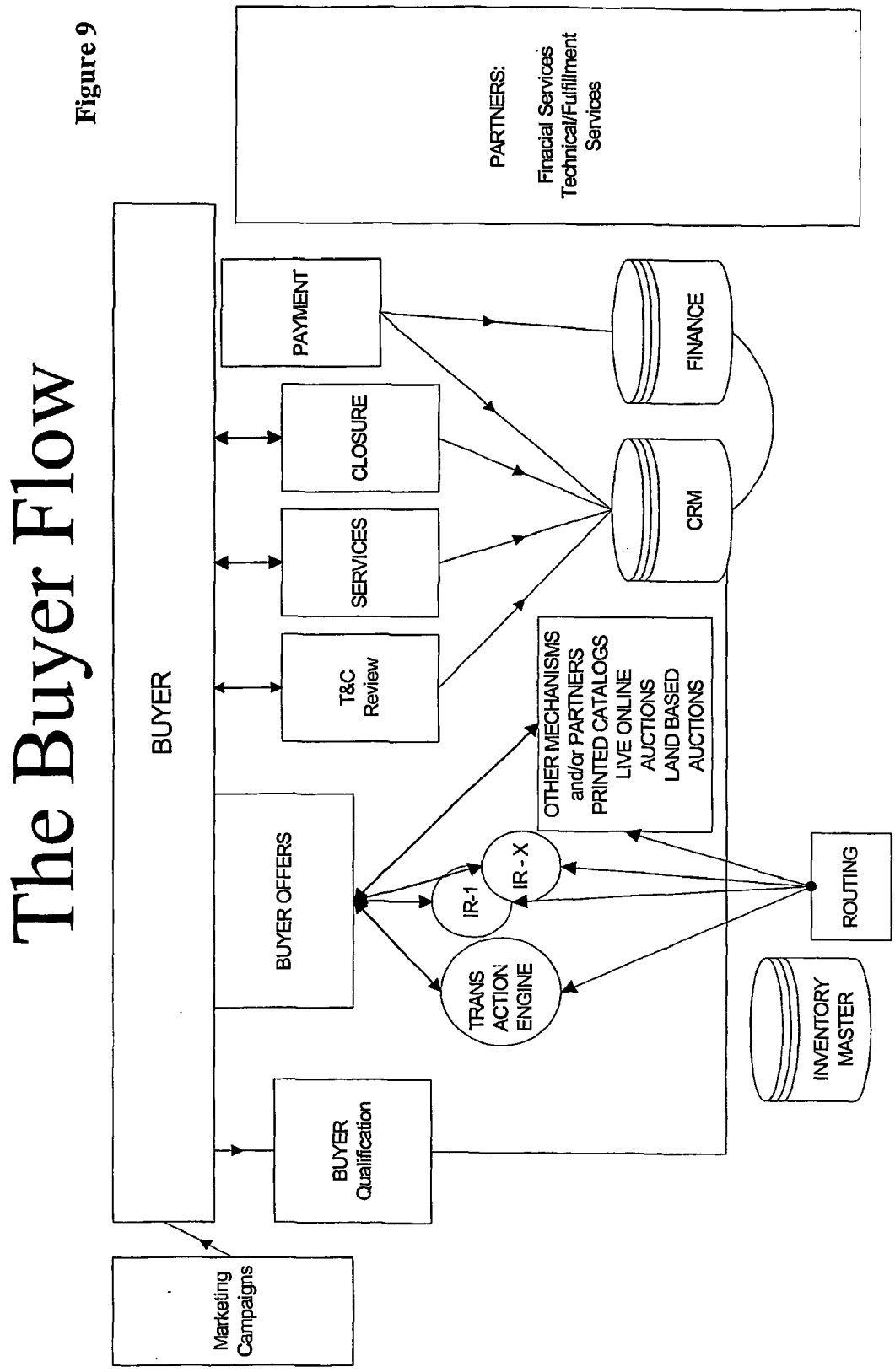
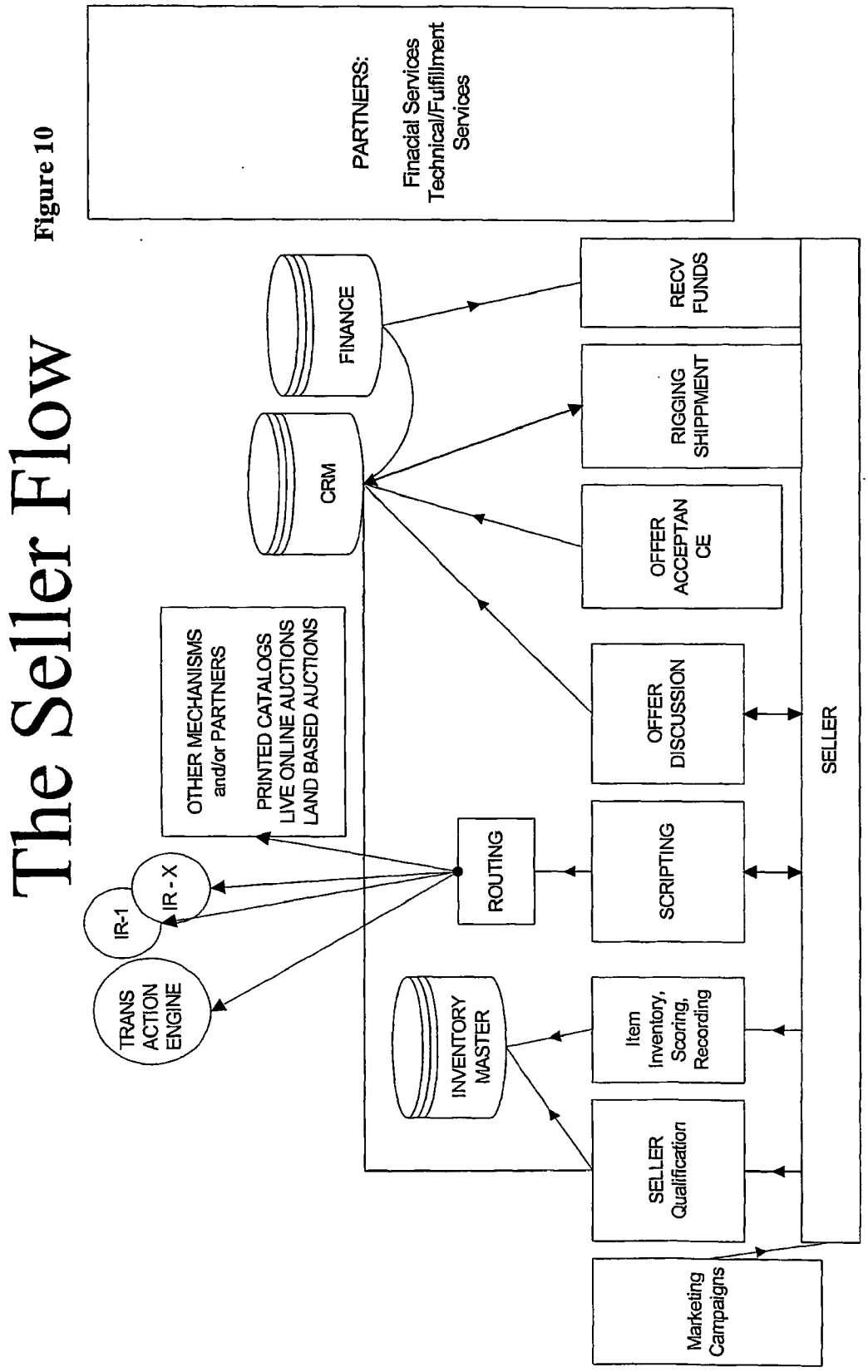
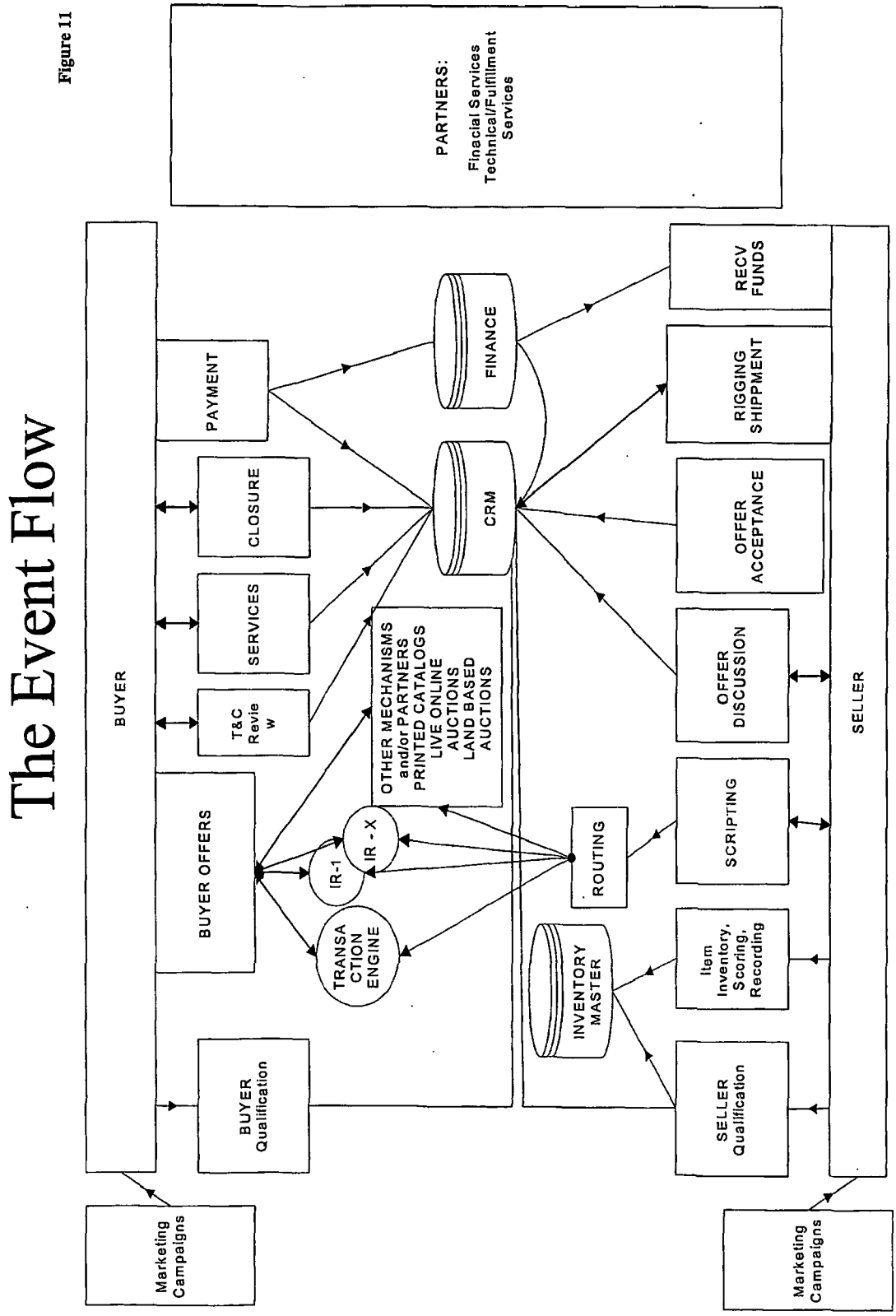

The Buyer Flow
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AUCTIONS
BUYER OFFERS
IR-1
IR - X
TRANS
ACTION
ENGINE
ROUTING
INVENTORY
MASTER
BUYER
Qualification
Marketing
Campaigns

Figure 10



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Figure 11



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Figure 12

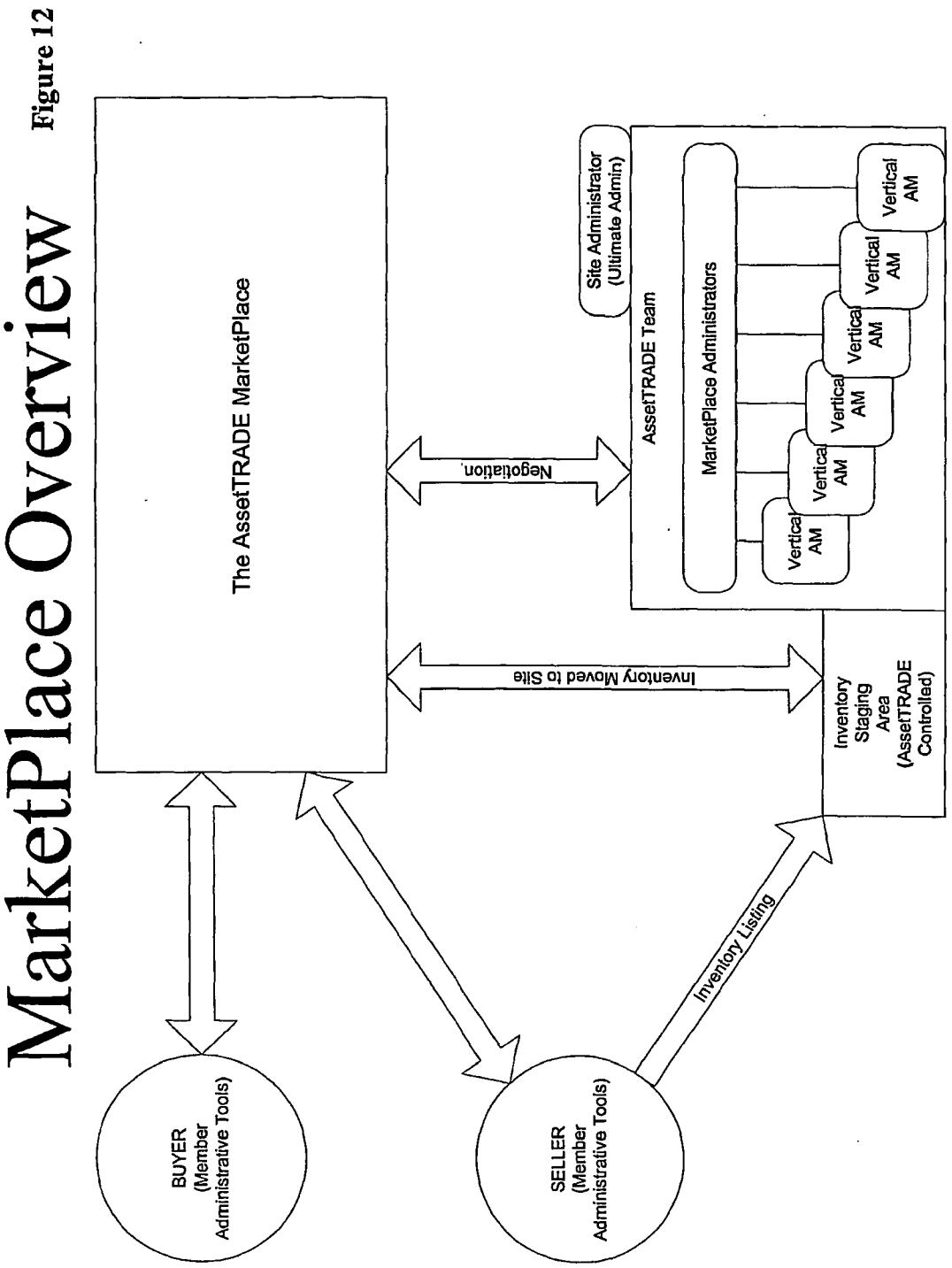

MarketPlace Overview
The AssetTRADE MarketPlace
Site Administrator (Ultimate Admin)
AssetTRADE Team
MarketPlace Administrators
Vertical AM
Vertical AM
Vertical AM
Vertical AM
Vertical AM
Negotiation
Inventory Moved to Site
Inventory Staging Area (AssetTRADE Controlled)
BUYER (Member Administrative Tools)
SELLER (Member Administrative Tools)
Inventory Listing

Figure 13

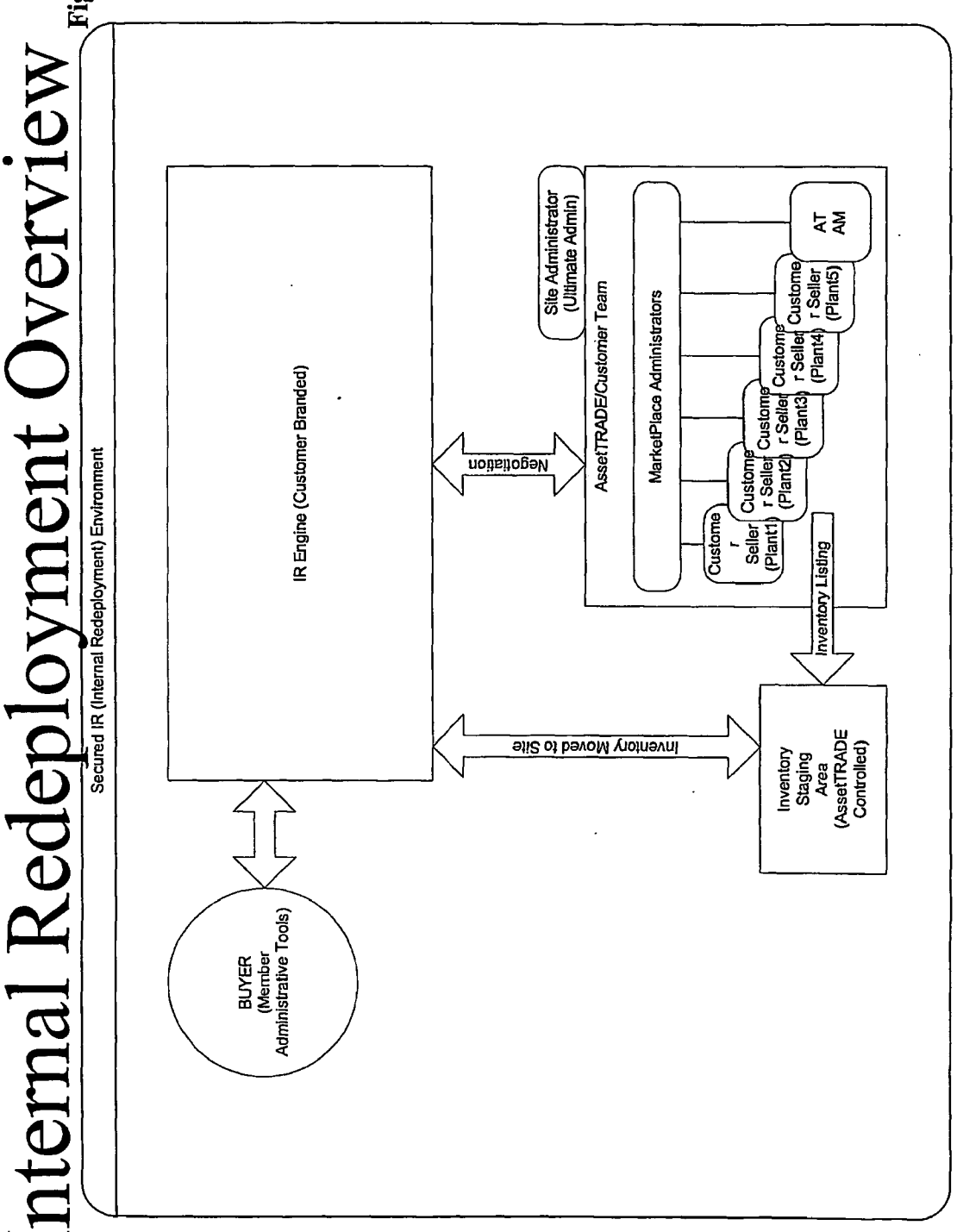

Internal Redeployment Overview
Secured IR (Internal Redeployment) Environment
IR Engine (Customer Branded)
BUYER (Member Administrative Tools)
Negotiation
Inventory Moved to Site
Inventory Staging Area (AssetTRADE Controlled)
Inventory Listing
AssetTRADE/Customer Team
Site Administrator (Ultimate Admin)
MarketPlace Administrators
Customer Seller (Plant1)
Customer Seller (Plant2)
Customer Seller (Plant3)
Customer Seller (Plant4)
Customer Seller (Plant5)
AT AM

Figure 14

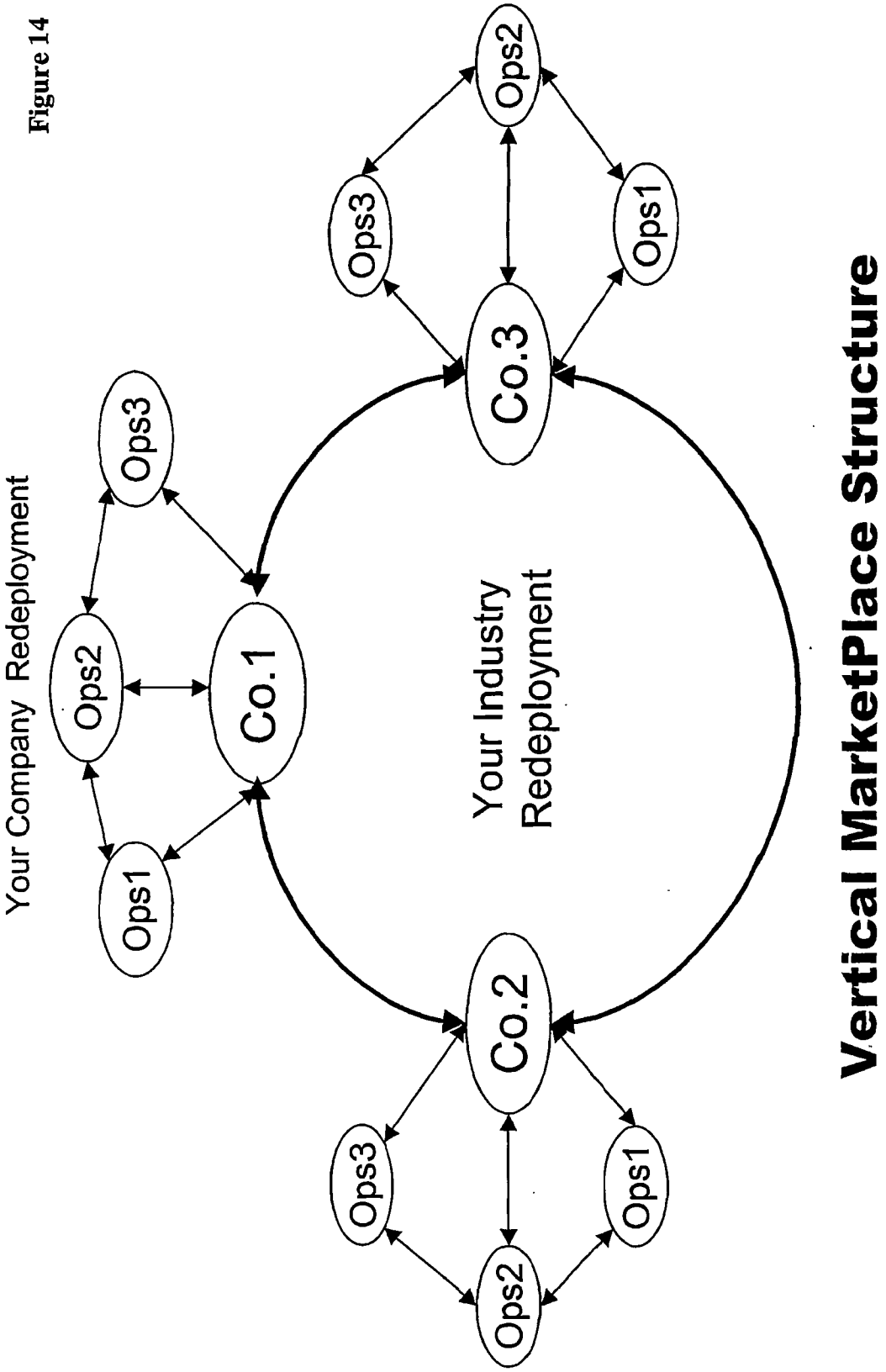
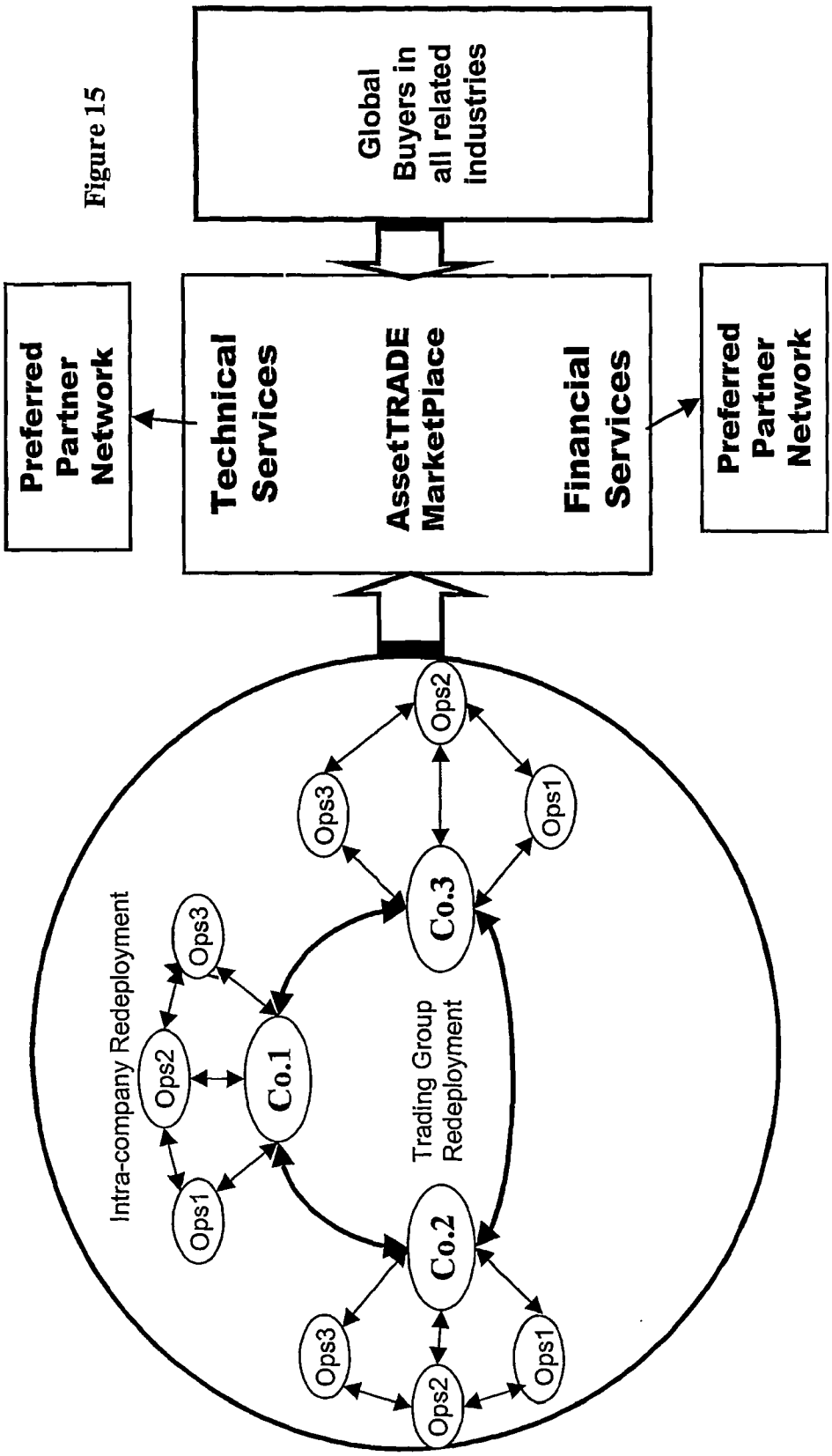

Vertical MarketPlace Structure
Your Company Redeployment
Your Industry Redeployment
Co.1
Co.2
Co.3
Ops1
Ops2
Ops3

Figure 15



AssetTRADE MarketPlace Structure

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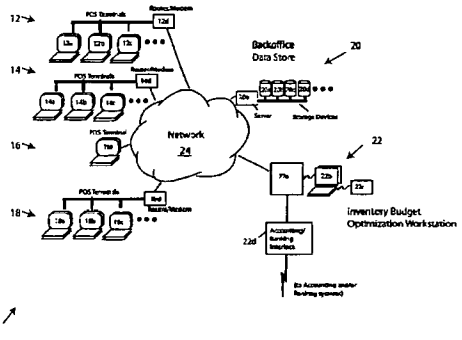
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(54) Title: METHODS AND APPARATUS FOR RETAIL INVENTORY BUDGET OPTIMIZATION AND GROSS PROFIT MAXIMIZATION



(57) Abstract: The invention provides methods and apparatus for determining optimum inventory allocations across retail stores and departments. According to one aspect of the invention, such methods include inputting an historical return on investment for each of plural merchandise departments and/or stores (collectively, "departments") in a retail enterprise. This return on investment can be, for example, a gross margin return on investment (GMROI) that is a function of the inventory allocated to each respective department in each of one or more prior periods, e.g., selling seasons, as well as the financial return achieved by that department based on that inventory. The method further includes determining inter-departmental (or inter-store) risks in the historical returns on investment (e.g.,GMROI's). This can be determined, for example, as a function of the covariance between the historical GMROI's of each pair of departments in the plurality of departments. Still further, the method includes determining an optimal allocation of inventory budget to each of the departments for a current or future time period, e.g., a current or future selling season. That optimization is determined by maximizing the total return (e.g., gross margin dollars, if GMROI is used as the return on investment measure) for those departments, as a whole, as a function of one or more constraints - at least one of which is a tolerance of risk in the return on investment (e.g., GMROI) for the plural departments, as a whole. That optimum allocation is displayed, according to the method, in a report to an general merchandise manager or other person. Alternatively, or in addition, the optimum allocation is used to fund accounts used by the departments to acquire inventory.

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Methods And Apparatus For Retail Inventory Budget Optimization And Gross Profit Maximization

Background

This application claims the benefit of priority of United States Provisional Patent Application Serial No. 60/475,875, filed June 4, 2003, entitled "Applying Portfolio Management Ideas to Merchandising," the teachings of which are incorporated herein by reference.

The invention pertains to digital data processing and, more particularly, to determining an optimum allocation of inventory among retail stores or departments. The invention has application, by way of non-limiting example, in the fashion apparel trade, the department store trade, and other business that retail a variety of merchandises in several departments and/or several geographic locations.

Retailing can be an unpredictable business. This is especially true where fashion, fads or other volatile external factors drive purchasing decisions. Thus, for example, an article of clothing that is in vogue this month among teens may fall out of favor next month, only to become popular four months later among thirty-somethings.

To compensate for this, chain stores and other large retailers typically employ general merchandise managers (GMMs). These individuals are often responsible for setting overall merchandising strategy, ensuring that pricing, promotions and marketing improve the bottom line, e.g., in the face of changes in demand. GMMs are also responsible for allocating inventory budgets for the departments so that stock available throughout the buying season will meet but, preferably, not exceed demand.

To this end, typically a GMM (or CFO) is given an overall inventory budget. He is charged with maximizing the return on that budget while honoring constraints such as the minimum inventory investment needed for each department, e.g., due to traffic considerations, the extent of square footage that is available, and so on. Often the departmental allocations are based on the prior year's figures, modified to accommodate any inventory overruns or shortages that occurred, changes in pricing, and so forth. To the extent that GMMs take risk into account in any explicit manner, it is based on a gut feel about how each individual department is expected to fare in the upcoming season.

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An object of this invention is to provide improved methods of digital data processing and, particularly, for example, improved methods for determining optimum allocations of inventory among retail departments and/or geographic locations.

Yet another object is to provide such methods as can be implemented using historical retail data and conventional departmental constraints.

Still another object is to provide such methods as are applicable in a range of retailing environments, including fashion apparel retail.

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Summary

The aforementioned are among the objects attained by the invention which provides methods and apparatus for determining optimum inventory budget allocations across retail stores and departments. Those allocations can be used, for example, to generate reports (e.g., for use by a general merchandise manager or other personnel) and/or for funding inventory acquisition accounts.

According to one aspect of the invention, such methods include inputting an historical return on investment for each of plural merchandise departments and/or stores (collectively, "departments") in a retail enterprise. This return on investment can be, for example, a gross margin return on investment (GMROI) that is a function of the inventory allocated to each respective department in each of one or more prior periods, e.g., selling seasons, as well as the financial return achieved by that department based on that inventory.

The method further includes determining inter-departmental (or inter-store) risks in the historical returns on investment (e.g., GMROI's). This can be determined, for example, as a function of the covariance between the historical GMROI's of each pair of departments in the plurality of departments.

Still further, the method includes determining an optimal allocation of inventory budget to each of the departments for a current or future time period, e.g., a current or future selling season. That optimization is determined by maximizing the total return (e.g., gross margin dollars, if GMROI is used as the return on investment measure) for those departments, as a whole, as a function of one or more constraints — at least one of which is a tolerance of risk in the return on investment (e.g., GMROI) for the plural departments, as a whole. That optimum allocation is displayed, according to the method, in a report to an general merchandise manager or other person. Alternatively, or in addition, the allocation can be used (e.g., via an accounting and/or banking interface module) to fund accounts from which the departments acquire inventory.

Related aspects of the invention include methods as described above in which the optimal allocation is determined by executing an optimization tool, such as the Solver program in Microsoft Excel, on a digital data processor.

Further related aspects of the invention include methods as described in which the risk in a GMROI for the plural departments, as a whole, is determined as a function of (i) a candi-

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date allocation of inventory budgets to each of the departments, and (ii) covariance between historical GMROI's of each pair of departments in the plurality.

Other aspects of the invention include methods as described above in which the optimal allocation is determined as a function of constraints that include, not only tolerance of risk in return on investment (e.g., GMROI) for the plural departments, as a whole, but also one or more of the following: (i) a maximum budget for those plural departments, as a whole, (ii) a minimum allocation of inventory budget to one or more of the departments, and (iii) a maximum space required for inventory.

Yet still other aspects of the invention include methods of optimizing allocation of inventory budgets as described above in which at least the optimization step is executed on a digital data processor.

These and other aspects of the invention are evident in the drawings and in the description that follows.

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Brief Description of the Drawings

A more complete understanding of the invention may be attained by reference to the drawings, in which:

Figure 1 depicts a digital data processing system of the type in which the invention is embodied;

Figure 2 is a flowchart depicting steps performed in an optimization system according to one practice of the invention;

Figure 3 depicts a table of GMROIs used as an input to a system according to the invention;

Figure 4 depicts a table of covariances generated during execution of a system according to one practice of the invention; and

Figure 5 depicts a report produced by a system according to the invention.

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Detailed Description of Invention

Figure 1 depicts an environment in which the invention is practiced. While this may be a retailing enterprise of international, national, local (or other) scale, in the illustrated embodiment, the environment is a retail store 10 comprising (among other things) retail departments 12 – 18, "back office" data store 20, and inventory budget optimization workstation 22. These are interconnected for communication via a local area network 24, as illustrated.

Departments 12 – 18 represent conventional (or non-conventional) retail departments such as, by way of non-limiting example, apparel, housewares, jewelry, furniture, beauty, electronics, and so forth. Typically, these departments have separate inventories and inventory budgets. Moreover, the departments typically experience different monetary returns from sales, lending or leasing (collectively, "sales") of the respective inventories, e.g., on account of differences in costs, pricing and/or demand.

Although the text that follows largely addresses inventory budget allocation among merchandising departments within a single-store "enterprise," the invention is equally applicable to inventory budget allocation among stores (or across departments) within larger retail enterprise, e.g., of international, national or other scope. As above, these stores have separate inventories and inventory budgets. And, as above, the stores typically experience different monetary returns from sales of their respective inventories. In such environments, "departments" 12 – 18 represent those stores (or other retail outlets) and/or some or all of their constituent departments. In this regard, the term "retail sites" can be substituted for the term "departments" in this patent specification and the claims that follow. Likewise, the term "inter-site" can be substituted for the term "inter-departmental," and so forth.

In the drawing, each department is represented by one or more interconnected point of sale (POS) terminals 12a – 18c. These provide for inventory tracking and management, as well as for collection of monies from retail patrons at the time of sale. Though POS terminals are used for these purposes in the illustrated embodiment, it will be appreciated that in other embodiments these functions may be exercised by other mechanisms known in the art, automated or otherwise.

Back office data store 20 represents a repository of sales information from departments 12 – 18, as well as information regarding their inventory budgets, during prior time periods, e.g., fiscal years, selling seasons, and the like. This may be part of a general back office management function, e.g., that additionally includes overall corporate financial tracking and management, or otherwise. In the illustrated embodiment, the store 20 comprises storage devices

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20a – 20d, which are coupled to network 24, via server and/or database management system 20e. Information regarding sales from inventory is communicated from the POS terminals in each of the departments to store 20 via router/modems 12d, 14d, 16d, 18d and network 24, though in other embodiments that information may be communicated by other means. Of course, in some embodiments, data store 20 may be contained in or obtained from other, multiple and/or distributed sources.

Inventory budget optimization workstation 22 comprises a personal computer, workstation, mainframe or other digital data processing system of the type commonly available in the marketplace, as programmed in accord with the teachings hereof for determining optimum inventory allocations and reporting those allocations and/or funding inventory acquisition accounts. The workstation 22 comprises processor section 22a (comprising a central processing unit, dynamic storage, input/output control, and the like), a monitor, keyboard and other user input/output devices 22b, and printers or other output devices 22c, networked, or otherwise — again, all of the type commercially available in the marketplace.

The invention is based in part on the discovery that retail merchandise inventory investment decisions can be made by applying the otherwise unrelated theory of financial portfolio optimization. This capitalizes on a similarity not appreciated by artisans in either the retail merchandise inventory investment field or the portfolio management field. The inventor hereof has realized that problems in these two otherwise disparate fields have some commonality and that workstation 22 — or other digital data processing apparatus operating in accord with the invention — can be adapted to optimize retail merchandise inventory investment decisions (e.g., for reporting purposes and/or purposes of funding inventory accounts) for departments 12 – 18 using ideas from the theory of portfolio optimization.

Most notably, as discussed in detail below, workstation 22 models the merchandise inventory investment decision problem in a manner that reflects, not just return on inventory "investments" by each of departments 12 – 18, but also the risk associated with those "investments." By optimizing inventory investment decisions among all departments based on such a model, general merchandise mangers (GMMs), CFOs or other retail decision-makers (collectively, "general merchandise managers" or "GMMs"), can be made cognizant of and given the ability to manage the risk associated with their inventory allocation decisions, while maximizing their return on investment.

At the start of each planning period, the GMM is given a budget that has to be allocated among multiple departments. He is charged with maximizing the return on the budget while

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honoring constraints such as the minimum inventory investment needed for each department, e.g., due to traffic considerations, the extent of square footage that is available, and so on.

Comparing the considerations made by a GMM with those made by a conventional investment portfolio manager, it is clear that retail decision-makers don't think about risk in an explicit way, certainly, not in a quantitative way and, still more certainly, not in a quantitative way that takes into account how risks associated with department-level buying decisions add up to total risk for the overall retail inventory "investment." Rather, prior art retail decision-makers think about risk in an ill-defined, gut feel sort of way. This qualitative assessment is usually at the department level, not the overall store or enterprise level.

However, the inventor has realized that, given nature of retailing and especially, for example, the fickle nature of certain of its sectors (such as fashion apparel), a quantitative assessment of risk associated with inventory investments, at both departmental and store/enterprise levels, can facilitate optimizing allocation of inventory budgets.

To this end, analogizing to the financial world, the risk of allocating budgets to (or "investment" in) the inventory of a single retail department can be defined as the standard deviation of that department's percentage returns over time. Here, "return" is defined as the monetary recoupment from sales of the inventory by that department. That return is referred to below as "general merchandise return on investment" or "GMROI." It will be appreciated that the GMROI metric described below is merely one way to measure "return on investment." Those skilled in the art will appreciate that other metrics for return on investment may be used instead or in addition.

If the quarterly percentage return (GMROI) of, say, the Jewelry department for the past three years has been 80% every quarter, then the risk associated with that department is zero (since the returns are constant). On the other hand, if the quarterly returns are 98%, 64%, 142%, 153%, 136%, 101%, 111%, 147%, 72%, 85%, 130%, and 106%, then the mean return is 112% and the risk (i.e., standard deviation) is 81%. What this means is that roughly two-thirds of the time, the quarterly return of Jewelry department will be within 81% of the average return of 112%. More simply put, a department with fairly steady GMROI will have a lower GMROI risk compared to a department with high GMROI one year and terrible GMROI the next year.

Moving on to the calculation of risk of an inventory budget as a whole., i.e., the risk associated with multiple retail departments in a store or enterprise, inter-departmental covariance comes into play. This is a quantification of the notion that overall risk can be reduced by

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diversification — or, analogizing (again) to the financial world, that the total risk of an entire stock portfolio is less than the sum of the risks of the individual stocks.

The inventor has discovered that using pair-wise covariances is one way to calculate the risk of the retail inventory budget as a whole. If a certain pair of departments has a highly positive covariance, it means that historically their GMROIs tend to sink or swim together. If a department pair has a highly negative covariance, then when one does well, the other tends to do badly and vice-versa. Using these pair-wise historical GMROI covariances, the illustrated embodiment determines the GMROI risk of the retail inventory budget as a whole, i.e., across all departments.

Figure 2 is a flowchart showing steps executed by workstation 22 in optimizing the expected return of a portfolio of merchandise inventory investments — and, thereby, optimizing allocation of inventory budgets — for a current or future sales period, taking GMROI risk and other constraints of the retailer into consideration.

In step 30, the workstation accepts inputs for the budget optimization. These can be input by a user, operating keyboard 22b, loaded from a file on store 20, downloaded or obtained directly from the departments 12 – 18, or otherwise. In the illustrated embodiment, these include the GMROIs of the departments (for which budget optimization is being performed) for the prior planning periods; the total available budget for inventory across all departments for the current (or future) sales period (for which the optimization is being performed); and the average space intensity (i.e., square footage needed for every $1000 of inventory) for each retail department.

By way of example, the departmental GMROIs for prior periods could be the prior twelve quarterly GMROI for each department, as indicated in the table 50 in Figure 3. Of course, GMROIs for epochs other than quarters could be used, as could numbers of those epochs be other than twelve (though, for purposes of calculation, it is preferable to have the same number of epochs for each of the departments). And, of course, it will be appreciated that the specific departments identified in the table, and used throughout this disclosure, are merely examples.

In step 32, the workstation accepts constraints used in determining the budget optimization. Typically, these are input by a user, operating keyboard 22b, though the constraints may also be loaded from a file on store 20, downloaded or obtained directly from the departments 12 – 18, or otherwise. In the illustrated embodiment, the constraints include the tolerance of risk in the GMROI for the departments as a whole, i.e., the risk the GMM is willing to accept

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on investment of the entire budget amount across all of the retail departments 12 – 18. The constraints may also include the minimum inventory budget for each department (e.g., the minimum investment in inventory based on traffic considerations or otherwise); and, total available square footage for retailing. Other embodiments may utilize more or less constraints.

In step 34, the workstation determines historical GMROI covariances for each pair of departments as a means of determining interdepartmental risk. Such covariances can be determined in any manner known in the art, though, in the illustrated embodiment, they are computed using the relation:

$$Cov(X,Y) = \frac{1}{n}\sum_{1}^{n}(x_i - \mu_x)(y_i - \mu_y)$$

where,

Cov(X,Y) is the covariance between historical GMROIs for the pair of retail departments X and Y;

n is the number of prior historical GMROIs provided for each of the departments X and Y;

μ_x and μ_y are the means GMROIs of historical GMROIs provided for each of departments X and Y

Figure 4 is a table 60 of interdepartmental risks determined from the values in table 50 in accord with the above, i.e., table 60 is a table of pair-wise covariances.

In step 36, the workstation 22 determines the minimum overall budget, minimum retail square footage, and minimum risk necessary to satisfy the department traffic minimums. In the illustrated embodiment, the minimum overall budget in this regard is the total sum of the minimum investments in inventory for the departments based on traffic considerations. Likewise, the minimum retail square footage is the total sum of the products, for each department, of that department's minimum investment based on traffic considerations and that department's average space intensity. To determine the risk needed to satisfy the department traffic minimums, the workstation 22 of the illustrated embodiment performs a matrix multiplication of (i) an array containing the minimum investments in inventory for the departments, and (ii) the pair-wise covariance matrix represented by table 60. The resulting matrix is multiplied by a transpose of the array of minimum investments. The workstation 22 then takes the square root

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of the resulting value to yield a risk needed to satisfy the department traffic minimums. Those skilled in the art will appreciate that the minimum overall budget, retail square footage, and risk needed to satisfy the department traffic minimums may be determined in other ways.

In step 38, the workstation 22 initializes a general-purpose optimization tool that can solve quadratic programming problems here, the Solver program that is part of Microsoft Excel, in order to determine the optimum allocation of the total available budget among the plural departments while honoring the constraints. Those skilled in the art will appreciate that other optimization tools can be used instead (or in addition) in order to determine the maximization described below. However, in an embodiment in which the workstation 22 executes the Solver tool within an Excel spreadsheet to make that determination, this entails identifying the following:

- A cell defining the metric to maximized by the Solver (or other optimization tool). In the illustrated embodiment, that cell defines an expected gross-margin based on the total sum of the products, for each department, of that department's average historical GMROI and that department's candidate budget allocation (i.e., the allocation determined for that department by Solver during its execution in step 40).

- An array of cells defining the departments' respective candidate budget allocations. It is this array, as alluded to above, that is manipulated by Solver during its execution in step 40. This array is referred to below as the Decision Vector or dv.

- A cell defining the total investment in inventory for each set of candidate budget allocations made by Solver. In the illustrated embodiment, it defines the investment as the sum of the candidate budget allocations, i.e., a sum of the values in vector dv. It is used in defining a constraint to maximization of the gross margin by Solver, specifically, a constraint that limits the summed amount to being less than or equal to the total available budget input in step 30.

- A cell defining the total retail space required for each set of candidate budget allocations made by Solver. In the illustrated embodiment, it defines that space as the total sum of the products, for each department, of that department's candidate budget allocation and that department's average space intensity input in step 30. That cell is used in defining a constraint to maximization of the gross margin by Solver, specifically, a constraint that limits the total sum to being less than or equal to the total available square footage input in step 32.

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- A cell defining the total risk on investment for the departments, as a whole, based on each set of candidate budget allocations made by Solver. In the illustrated embodiment, it defines that risk in a calculation that entails: (i) performing a matrix multiplication of the array dv and the matrix represented by Table 60, (ii) multiplying the resulting matrix by the transpose of dv, (iii) taking the square root of the result of step (ii). That amount represented in that cell is used in defining a constraint to maximization of the gross margin by Solver, specifically, a constraint that limits that amount to being less than or equal to the tolerance of risk in the GMROI for the departments, as a whole, entered in step 32.

As part of step 38, the initialization also includes defining a constraint to maximization of the gross margin by Solver to insure that any of the specific departmental candidate budget allocations exceed the minimum inventory budget for each department entered in step 32.

In step 40, the optimization tool is executed in order to maximize gross margin in view of the constraints defined in step 38. Assuming a valid solution set exists, this results in an estimation of a maximum gross margin that can be attained for the departments, as a whole, given the defined constraints. At the same time, it results in the set of candidate budget allocations that achieve that maximum gross margin.

In step 42, this information can be output in a report for use by the GMM, CFO or other decision maker in determining budget allocations for the individual departments in the current or upcoming period. It can also be used to report estimated gross margins to be attained from that allocation. Alternatively, or in addition, the set of candidate budget allocations associated with the maximum gross margin drives an accounting and/or banking interface module 22d — shown in Figure 1 coupled to workstation 22, by way of non-limiting example — that automatically or semi-automatically funds (e.g., via e-commerce, electronic or other communications with accounting and/or banking systems, as indicated in the drawing) actual or virtual bank accounts from which the respective departments draw for purposes of inventory acquisition.

Turning to Figure 5, there is shown a report of the type generated in step 42 combining the information determined in step 40, as well as the inputs and constraints used in that determination and discussed above.

Referring to that figure, inputs made in Step 30 are denoted by cells 72 (total available budget for inventory across all departments for the current (or future) sales period) and 74 (average space intensity for each retail department). GMROIs of the departments for the prior planning periods are entered via another screen (not shown) or directly from a file, or other-

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wise, as discussed above. Likewise, constraints entered in Step 32 are denoted by cells 76 (tolerance of risk in the GMROI for the departments as a whole); 78 (minimum inventory budget for each department); and 80 (total available square footage for retailing).

Figure 5 additionally shows the results of determinations made in step 36. These are denoted by cells 82 – 86, displaying the minimum overall budget, retail square footage, and risk needed to satisfy the department traffic minimums, respectively. Likewise, it identifies cells utilized in connection with step 38, namely, 88 (cell defining gross margin metric to be maximized); 90 (the array of cells, dv, defining the departments' respective candidate budget allocations); 92 (cell defining the total investment in inventory for each set of candidate budget allocations); 94 (cell defining the total retail space required for each set of candidate budget allocations made); and 96 (cell defining the total risk on investment for the departments, as a whole, based on each set of candidate budget allocations).

An additional set of optimized financials, based on the foregoing, are shown in cells 98. The last of those figures, labelled Risk-Adjusted Return, equates with the so-called Sharpe Ratio used in financial portfolio management.

Those skilled in the art will appreciate that Figure 5 represents only one of many reports that can be produced with the figures generated in Step 40. In addition, a suitably equipped workstation 22 could utilize the optimum budget allocations determined in that step to update store/enterprise records, e.g., of the type maintained in store 20.

Described above are methods meeting the aforementioned objects. It will be appreciated that these are only some examples of the invention and that embodiments incorporating modifications thereto fall within the scope of the invention. Thus, for example, it will be appreciated that one or more of the steps described above can be performed other than by a digital data processor. Moreover, it will be appreciated that systems operating according to the invention can be used to optimize budgets for multiple planning periods extending into the store/enterprise future.

In view of the foregoing, what I claim is:

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1. A method of optimizing allocation of inventory budgets to each of plural merchandise departments and/or stores in a retail enterprise, the method comprising

A. inputting a historical return on investment by each of the plural departments and/or stores (collectively, "departments") in a retail enterprise, individually,

B. determining inter-departmental risks in the historical returns on investment for the plural departments,

C. determining an optimal allocation of inventory budget to at least one of the plural departments for a current or future time period by maximizing total return on investment for those departments, as a whole, where such maximization is a function of one or more constraints, at least one of which is a tolerance of risk in the return on investment for the plural departments, as a whole,

D. utilizing the optimum allocation determined in step (C) by any of (i) displaying that optimum allocation in a report to an general merchandise manager or other person, and (ii) funding one or more accounts for use by the departments in acquiring inventory.

2. The method of claim 1, comprising executing step (C) on a digital data processor.

3. The method of claim 2, wherein the maximizing step of step (C) comprises executing an optimization tool on the digital data processor.

4. The method of claim 1, wherein step (A) comprises inputting, as the historical return on investment by each of the plural departments, an historical gross margin return on investment (GMROI) of each of the plural departments, where the historical GMROI of each department is determined as function of (i) the inventory allocated to that department in each of one or more prior periods, and (ii) the gross margin earned by that department.

5. The method of claim 4, wherein step (B) comprises determining the inter-departmental risk in the historical returns on investment for the plural departments as a function of covariance between the historical GMROI's of each pair of departments in that plurality.

6. The method of claim 4, wherein step (C) comprises determining a risk in GMROI for the plural departments, as a whole.

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7. The method of claim 4, wherein step (C) comprises determining the risk in the GMROI plural departments, as a whole, as a function of (i) a candidate allocation of inventory budgets to those departments and (ii) covariance between historical GMROI's of each pair of departments in that plurality.

8. The method of claim 4, wherein step (C) includes maximizing a gross margin for the plural departments, as a whole, in view of constraints on at least one of (i) a maximum budget for those plural departments, as a whole, (ii) a minimum allocation of inventory budget to one or more of the departments, and (iii) a maximum space required for inventory.

9. The method of claim 1, wherein step (C) includes maximizing a rate of return for the plural departments, as a whole, in view of constraints on at least one of (i) a maximum budget for those plural departments, as a whole, (ii) a minimum allocation of inventory budget to one or more of the departments, and (iii) a maximum space required for inventory.

10. In a method of optimizing allocation of inventory budgets to each of a plural merchandise departments or stores in a retail enterprise that sell from inventory, the improvement comprising executing on a digital data processor the steps of

A. determining a covariance between historical returns on investment of each pair of departments and/or stores (collectively, "departments") in a retail enterprise in the plural departments,

B. determining an optimal allocation of inventory budgets to each of the plural departments by maximizing a return on investment for those departments, as a whole, in view of one or more constraints, at least one of which is a tolerance of risk in return on investment for the plural departments, as a whole, and

C. utilizing the optimum allocation determined in step (B) by any of (i) displaying that optimum allocation in a report to an general merchandise manager or other person, and (ii) funding one or more accounts for use by the departments in acquiring inventory.

11. In the method of claim 10, the further improvement wherein step (B) comprises determining the risk in return on investment for the plural departments, as a whole, as a function of (i) a candidate allocation of inventory budgets and (ii) the covariance

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between historical returns on investment of each pair of departments in the plural departments.

12. In the method of claim 11, the further improvement comprising executing steps (A) - (C) on a digital data processor.

13. In the method of claim 11, the further improvement wherein step (A) comprises determining, as the covariance between historical returns on investment of each pair of departments in the plural departments, a covariance between historical gross margin returns on investment (GMROI) of each pair of departments in the plural departments, where the historical GMROI of each department is determined as function of (i) the inventory allocated to that department in each of one or more prior periods, and (ii) the gross margin earned by that department

14. In the method of claim 13, the further improvement, wherein step (B) comprises determining the risk in return on investment for the plural departments as a whole as a function of (i) a candidate allocation of inventory budgets and (ii) the covariance between historical GMROI's of each pair of departments in the plural departments.

15. In the method of claim 10, the further improvement wherein the maximizing step of step (B) comprises executing an optimization tool on the digital data processor.

16. In the method of claim 10, the further improvement wherein step (B) includes maximizing the return on investment for the plural departments, as a whole, in view of constraints on at least one of (i) a maximum budget for the plurality of departments, as a whole, (ii) a minimum allocation of inventory budget to one or more of the departments, and (iii) a maximum space required for inventory.

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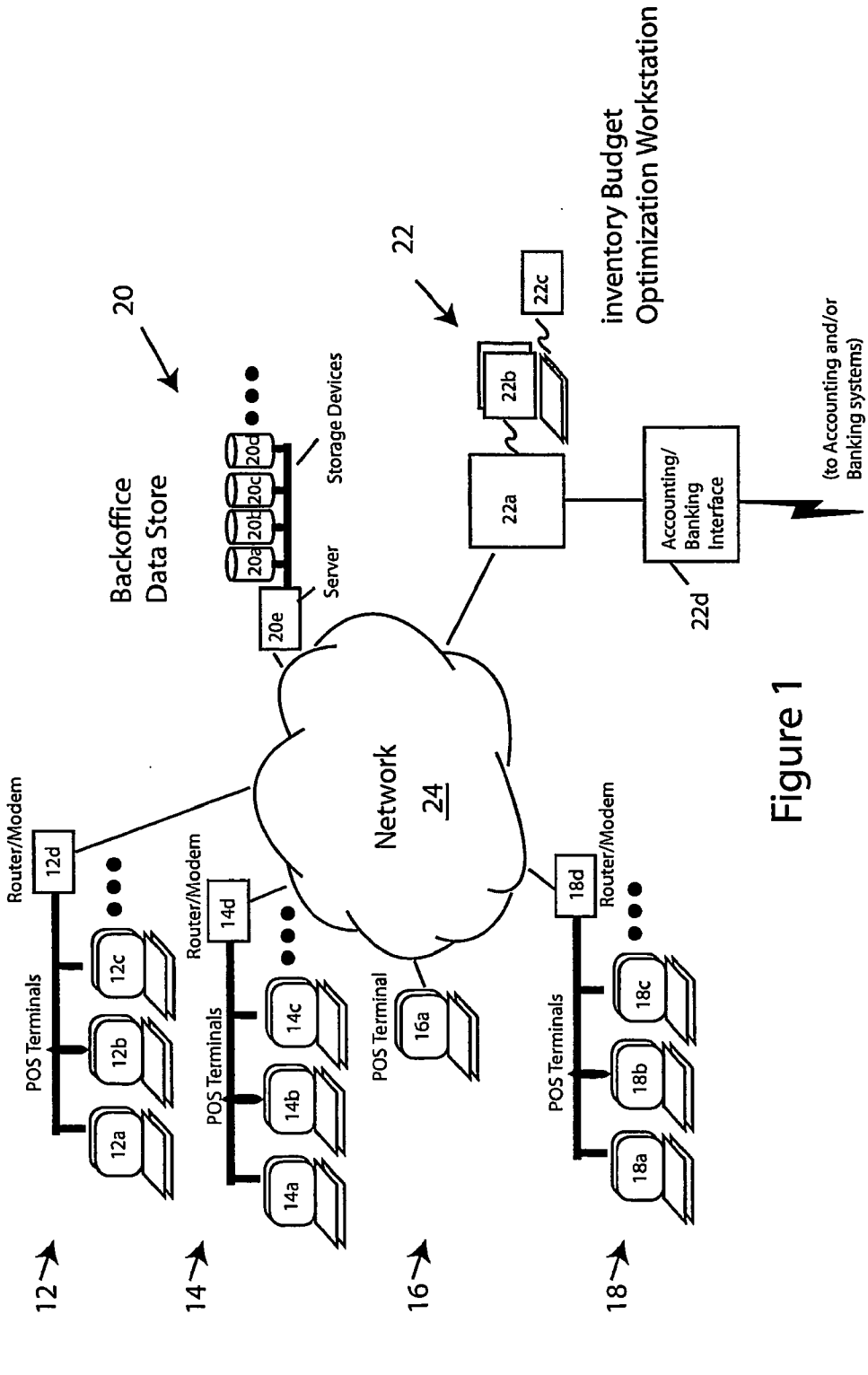


Figure 1

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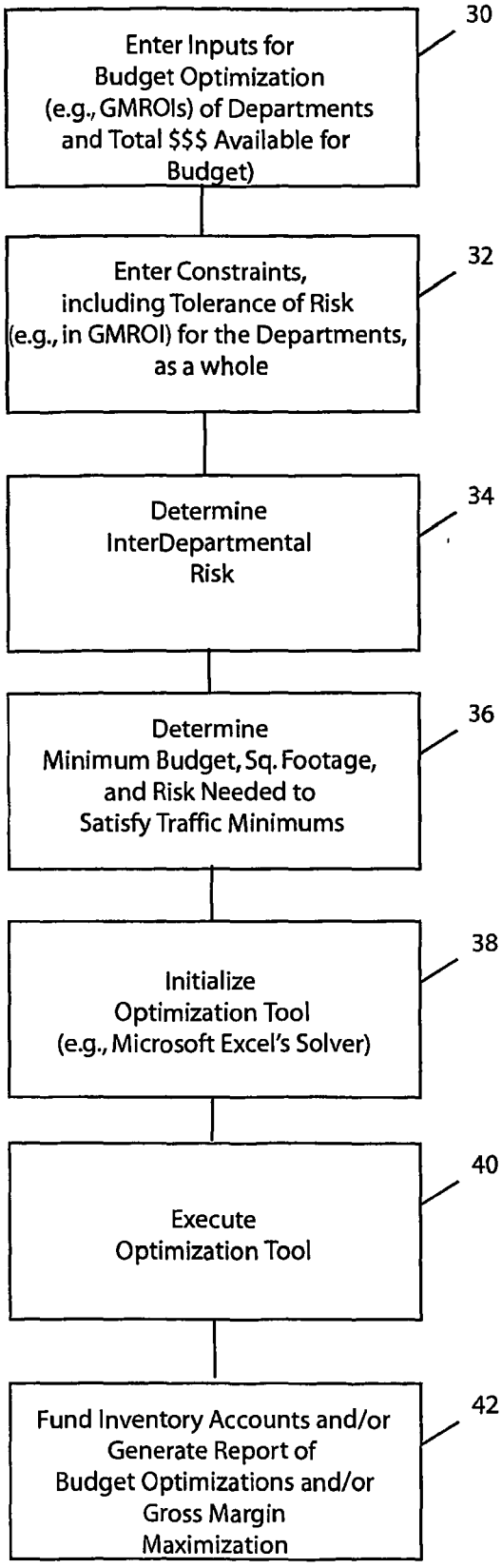


Figure 2

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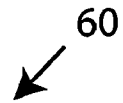
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	Q2-2000	Q3-2000	Q4-2000	Q1-2001	Q2-2001	Q3-2001	Q4-2001	Q1-2002	Q2-2002	Q3-2002	Q4-2002	Q1-2003
Apparel	235	121	183	106	260	259	264	263	193	277	297	227
Housewares	162	87	216	176	75	86	194	220	224	142	75	219
Jewelry	98	64	142	153	136	101	111	147	72	85	130	106
Furniture	90	67	106	69	76	69	60	113	88	61	96	53
Beauty	113	102	92	92	76	103	112	85	76	106	71	88
Electronics	106	109	78	106	78	107	128	100	104	93	119	84

Historical Departmental GMROIs

Figure 3

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	Apparel	*Housewares*	*Jewelry*	*Furniture*	*Beauty*	*Electronics*
Apparel	3423.6875	-630.833333	135.938	122.3333	-63.9167	62.75
Housewares	-630.8333	3428.888889	224.806	213.3333	36.25	-134.17
Jewelry	135.9375	224.8055556	807.743	221.4167	-136.417	-91.417
Furniture	122.33333	213.3333333	221.417	340.8333	-101.5	-27.583
Beauty	-63.91667	36.25	-136.417	-101.5	188.667	58
Electronics	62.75	-134.166667	-91.4167	-27.5833	58	218.667

Historical Indepartmental Risks (i.e., pair-wise covariances)

Figure 4

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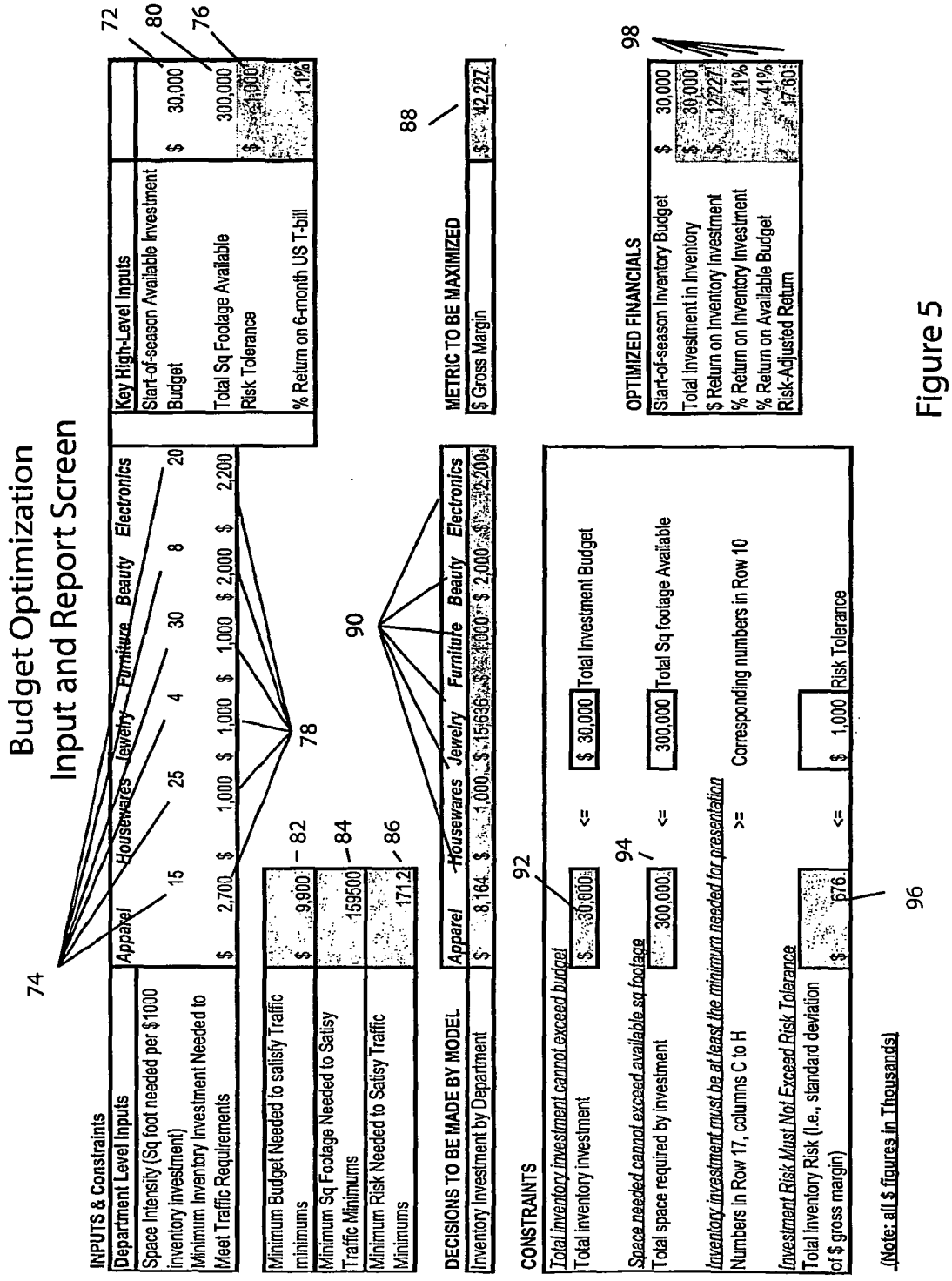


Figure 5

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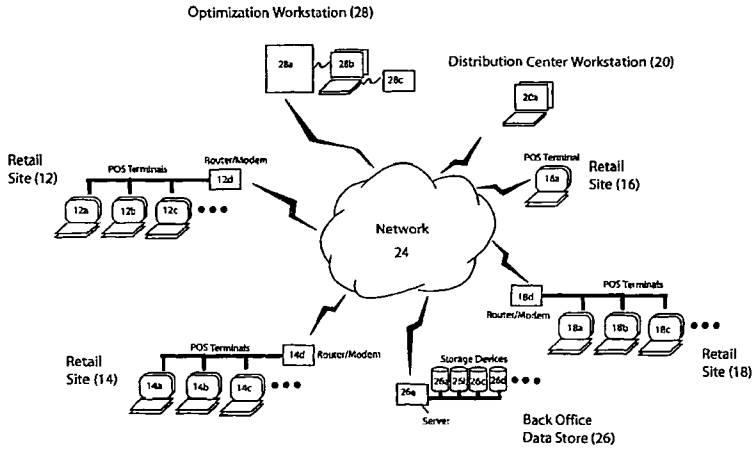
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(57) Abstract: The invention provides methods of, and systems for, optimizing the allocation of inventory to, and pricing of, goods sold by multiple retail sites, e.g., in a store, chain or other retail enterprise. Such a method includes generating a plurality of possible or "candidate" allocations of a given inventory among the multiple retail sites. That inventory can be, for example, a supply of the same or like goods at a distribution center that serves the retail sites. Each candidate allocation comprises an assignment of a respective share of that inventory to each of the sites. For each of the candidate allocations, an optimal price of the goods at *each* of the retail sites is estimated. The optimal price is one that will return an optimal gross margin to the respective site, given its assignment of the respective share of the inventory for the particular candidate allocation. For each of the candidate allocations, a sum is determined of the optimal gross margins across all the retail sites. From substantially all possible allocations, the candidate allocation that results in a largest total optimal gross margin is efficiently chosen.

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METHODS AND APPARATUS FOR INVENTORY ALLOCATION AND PRICING

Background of the Invention

This application claims the benefit of priority of United States Provisional Patent Application Serial No. 60/487,546, filed July 15, 2003, entitled "Model for Optimizing In-Season Tactical Decisions," the teachings of which are incorporated by reference herein.

The invention pertains to digital data processing and, more particularly, to methods and apparatus for optimizing inventory allocations and pricing for goods sold by multiple retail sites, e.g., retail stores and/or departments. The invention has application, by way of non-limiting example, in facilitating in-season tactical decisions by retail chains and other enterprises.

In current practice, retail enterprises (e.g., national or regional retail chains) handle in-season allocations of on-hand inventory at distribution centers (DCs) to retail sites (e.g., stores or departments) in a simple way based on the sites' own respective on-hand inventory positions and recent sales histories. This process typically involves (i) adding up the DC's on-hand inventory and the sites' on-hand inventory positions to get the total on-hand inventory; (ii) assigning that total inventory to each site in proportion to that site's recent sales history, e.g., the last four weeks of sales (for example, a site that sold a large amount of inventory during the last four weeks will be assigned a large share of the total inventory); and (iii) adjusting this assignment with each site's on-hand inventory position. If a site's on-hand inventory is more than its assigned inventory (as determined in step (ii)), no additional inventory is allocated to that site. If it is less, the difference between the assigned and on-hand amounts is sent to the site.

More sophisticated systems handle in-season allocations differently: they may use a forward four-week sales forecast (as opposed to the last four weeks' of sales) to divide up the total inventory. Regardless, the in-season allocation decisions made by these prior art systems do not take sufficient account of the retail sites' ability to sell or otherwise dispose of inventory that is allocated to them via appropriate pricing actions.

An object of this invention is to provide improved methods and apparatus for facilitating in-season tactical decisions in retailing.

A more particular object is to provide such methods and apparatus as facilitate inventory allocations among retail sites (e.g., stores and/or departments) within a retail enterprise.

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A related object is to provide such methods and apparatus as take into account the retail sites' varying ability to sell or otherwise dispose of inventory that is allocated to them.

Another related object is to provide such methods and apparatus as facilitate pricing decisions in connection with inventory allocation.

Still another object is to provide such methods and apparatus as can be readily implemented in existing and future business process systems, automated or otherwise.

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Summary of the Invention

The foregoing objects are among those attained by the invention which provides, in some aspects, a methods of optimizing the allocation of inventory and pricing of goods sold by multiple retail sites (e.g., stores and/or departments) in a store, chain or other retail enterprise.

Such a method, according to one aspect of the invention, contemplates generating a plurality of possible or "candidate" allocations of a given inventory among the multiple retail sites. That inventory may be, for example, a supply of the same or like goods at a distribution center that serves the retail sites. Each candidate allocation comprises an assignment of a respective share of that inventory to each of the sites.

For each of the candidate allocations, an optimal price of the goods at *each* of the retail sites is estimated. The "optimal" price is one that will return an optimal gross margin (that is, a highest gross margin) to the respective site, given its assignment of a respective share of the inventory for the particular candidate allocation. The method also determines, for each of the candidate allocations, a sum of the optimal gross margins across all the retail sites. From this, the method choses as the "best" candidate allocation, i.e., that which results in a largest total of all optimal gross margin across all sites.

A report is generated, according to one aspect of the invention, showing the candidate allocation and, particularly, of one or more of the sites' respective assigned shares under that allocation. The report can likewise show the optimal prices determined for those share assignments.

Related aspects of the invention provide a method as described above in which the candidate allocations that are generated and used for estimating the optimal pricing comprise substantially all possible candidate allocations of the given inventory. This is achieved, according to some practices of the invention, by use of an optimization tool — for example, one that utilizes a non-linear programming model. Such a tool can be used to choose the allocation that results in a largest sum total optimal gross margin across all of the sites.

Other aspects of the invention provide methods as described above in which one or more of the per-site shares assigned under the chosen allocation and/or the corresponding per-site optimal pricing are used to effect picking, distribution and/or stocking of actual inventory to the retail sites, e.g., via communication with manual and/or automated inventory distribution systems.

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Still other aspects of the invention provide methods as described above in which the estimation of each site's optimal pricing takes into account, not only a share of the candidate allocation of inventory, but also the price elasticity of the goods, the seasonality of the goods and/or the cost of the goods. Yet still other aspects of the invention provide such methods in which the optimal per-site pricing is determined from the sum of (i) inventory already on-hand at that site (or otherwise previously allocated to that site) and (ii) that site's share of the candidate distribution.

Still further aspects of the invention provide methods as described above in which the estimation of optimal price at which the goods can be sold by a retail site is determined in accord with the relation:

$$\text{MarkdownPrice} = \left(\frac{B \times Seas}{OH + Alloc} \right)^{\frac{1}{Elas}} \times InitP$$

where,

MarkdownPrice is an estimate of the optimal price of the goods at the retail site;

B is the rate of sale of the goods at the initial price;

Seas is a sum of the seasonality indexes for the goods over the planned selling period at the retail site;

OH is the inventory of goods on-hand at the retail site;

Alloc is a quantity of goods in the share (of the total inventory) assigned to the retail site;

Elas is the price elasticity of the goods;

InitP is the initial price of the goods.

Yet still other aspects of the invention provide systems configured and operating in accord with the methods above. These and other aspects of the invention are evident in the drawings and in the text that follows.

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Brief Description

A more complete understanding of the invention may be attained by reference to the drawings, in which:

Figure 1 depicts a physical environment 10 in which the invention is practiced;

Figure 2 depicts a digital data processing environment 10 in which the invention is practiced;

Figure 3 depicts a spreadsheet-based embodiment of the invention;

Figure 4 depicts a relationship between gross margin per site and inventory; and

Figure 5 depicts how optimal revenues and cost of goods sold vary with increasing on-hand inventory at a retail site.

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Detailed Description of the Illustrated Embodiment

Figure 1 depicts a physical environment 10 in which the invention is practiced. In the illustrated embodiment, that environment is a retailing enterprise of international, national, local (or other) scale comprising retail sites 12 – 18, inventory distribution center (DC) 20 and enterprise headquarter 21. That retailing enterprise (in this case, retail stores) can be a "chain" of commonly named and owned stores, though, it may be a looser (or tighter) collection of related stores, that are presumably (though not necessarily) under common control or management. Moreover, although the retail sites depicted and discussed here are stores, they may also be departments or other retail outlets (physical, virtual, online, or otherwise).

Illustrated retail sites 12 – 18 are conventional (or non-conventional) retail outlets, such as, by way of non-limiting example, clothing stores, department stores, jewelry stores, furniture stores, beauty supply shops, consumer electronics stores, and so forth. These sites maintain separate inventories which may be stored on-hand and/or, optionally, in an associated warehousing facility (not shown), e.g., nearby to each respective retail site.

In the discussion that follows and without loss of generality, such inventory is referred to as "on-hand" at a particular site, regardless of whether it is actually maintained at that site or at another retail site (or warehousing facility), e.g., within the same region or "zone," with which it exchanges inventory. Inventory stored at the distribution center 20 is not deemed on-hand to any of the sites, except the distribution center itself.

Distribution center 20 maintains inventory for in-season distribution to the retail sites 20. That inventory can be distributed to the sites 20 via overland carrier, here, represented by truck 22 and roads 24, or via other means, such as via airways or waterways, or, depending on the nature of the goods, electronically. Though only one distribution center 20 is shown in the drawing, it will be appreciated that the invention has equal application in embodiments having multiple distribution centers.

To simplify the discussion that follows, the inventory stocked by distribution center 20 inventory is assumed to comprise only "similar" goods — i.e., goods of a single brand, style, size and color (e.g., mens' navy-colored Levi's® 517® loose boot cut jeans, waist 34, length 30). In this regard, the optimization workstation 28 (Figure 2) discussed below determines optimum in-season inventory allocation and markdown pricing of such "similar" goods to and by the retail sites 12 – 18. That optimum allocation and pricing is one that maximizes total gross margin to the retail enterprise (e.g., chain) for the sale (or other disposal) of those similar goods by the retail sites 12 – 18. In embodiments where the distribution center 20 stocks many vari-

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eties of goods, the optimization workstation 28 likewise, but separately, determines optimum in-season inventory allocation and/or markdown pricing for each other group of "similar" goods stocked by the DC 20.

Enterprise headquarters 21 represents any facility and/or functionality from which inventory allocation and/or pricing decisions are made. Though illustrated as being housed in a separate facility in the drawing, that headquarters may be cohoused and/or coextensive with one or more of the retail sites 12 – 18 and/or distribution center 20.

In the illustrated embodiment, the sites 12-21 are electronically linked for the transfer of information as indicated by the satellite dishes depicted atop the respective facilities. In practice, the transfer of information between and amongst locations 12 –22 may take place over any number of electronic and/or physical media known in the art, e.g., by way of non-limiting example, wireless and/or wired transmission over a WAN, Internet or other network 24, as shown in Figure 2.

More particularly, Figure 2 depicts a digital data processing environment 10 in which the invention is practiced. Here, the aforementioned information transfer is shown taking place over network 24, though, in practice other media can be used instead or in addition. Referring to the drawing, each retail site 12 – 18 includes one or more interconnected point of sale (POS) terminals 12a – 18c. These provide for inventory tracking, as well as for pricing and collection of monies from retail patrons at the time of sale. Though POS terminals are used for these purposes in the illustrated embodiment, it will be appreciated that in other embodiments these functions may be exercised by other mechanisms known in the art, automated or otherwise.

Distribution center 20 is includes a workstation 20a that tracks inventory at the center. This can be a personal computer, mainframe, other digital data processor or apparatus of the type known in the art for inventory tracking, as adapted for communication with optimization workstation 28, e.g., via a router, modem or other communications device (not shown), for practice of the inventions described herein. As shown in Figure 1, that workstation can form part of an automated inventory control system 20b.

Back office data store 26 represents a repository of inventory and sales information from retail sites 12 – 18, as well as inventory information from DC 20. This may be part of a general back office management function, e.g., that additionally includes overall corporate financial tracking and management, or otherwise. In the illustrated embodiment, the store 26 comprises storage devices 26a – 26d, which are coupled to network 24, via server and/or database management system 26e. Information regarding inventory and sales therefrom is com-

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municated from the POS terminals in each of the sites 12 –18 to data store 26 via router/modems 12d, 14d, 16d, 18d and network 24. Inventory information is likewise communicated from the DC workstation 20a, as discussed above, via network 24. Of course, in other embodiments information may be communicated among back office store 26, sites 12 – 18 and DC 20 by other means. And, in some embodiments, data store 20 may be contained in or obtained from other, multiple and/or distributed sources.

Optimization workstation 28 comprises a personal computer, workstation, mainframe or other digital data processing system of the type commonly available in the marketplace, as programmed in accord with the teachings hereof for optimizing in-season inventory allocations and/or markdown pricing as among DC 20 and retail sites 12 – 18. The workstation 28 comprises processor section 28a (comprising a central processing unit, dynamic storage, input/output control, and the like), a monitor, keyboard and other user input/output devices 28b, and printers or other output devices 28c, networked or otherwise — again, all of the type commercially available in the marketplace. The workstation 28 can be coupled for communications with back office data store 26, via network 24 or otherwise, to gather sales and inventory information from sites 12 – 18 and DC 20. Workstation 28 uses that information to determine optimal inventory allocations and/or pricing (as described below), to print reports for review and implementation by personnel acting on the enterprise's behalf, and/or to directly implement optimal allocation and/or pricing conclusions.

As noted previously, in the prior art, in-season tactical decisions relating to allocations and markdowns are made independently. This leads to significant loss in gross margin, e.g., because the allocation system and the markdown system may compensate for site-level performance in inconsistent ways.

Take, for example, a chain that utilizes chain-wide markdown pricing that is independent of allocation. If the pricing system, detects poor chain-wide sales performance of an item, it may effect (or recommend) an immediate chain-wide discount on that item in order to stimulate sales. When the allocation system detects high rates of sale (ROS) on that item by certain sites in the chain, it may effect (or recommend) an immediate allocation of inventory to those sites — notwithstanding that the recent markdown triggered the high ROS for some of these sites. In other words, the allocation system will not distinguish between sites with a high ROS caused by high "natural" demand and sites that have a high ROS due to "markdown induced" demand. For another example, a site may have a high ROS (in total) over the last 4 weeks, but this high total may mask the fact that the most recent one or two weeks may have been very slow. If this is the case, the pricing system would be likely to recommend a markdown very soon, leading to a situation where the allocation system is sending merchandise to stores that

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are about to take markdowns. The end result: the allocation system sends merchandise to the wrong sites.

Put another way, when the markdown and allocation systems act independently, "weak" stores get merchandise that should have gone to "strong" stores. Particularly, the weak stores get merchandise they should not have received in the first place, and they have to mark down it down to get rid of it. Further, when pricing is performed at the chain level, the strong stores have to mark down the merchandise, as well, even though they can move the merchandise without doing so. The end result is a loss of gross margin dollars.

If markdown pricing by the chain effected at the retail site level (or at some level below chain level), the mis-allocation problems caused by the independence of prior art markdown and allocation system are further exacerbated. In site-level pricing, prices (and therefore margins) may vary from site-to-site. However, since prior art allocation systems do not take margins into account, they may send more merchandise to low-margin stores and less merchandise to high-margin stores. This can be referred to as "margin leak." This is in addition to the consequences described above for the chain-level pricing case. In other words, even if the allocation system is smart enough to feed the strong sites and starve the weak sites, if it does not take margins into account, it may end up feeding low-margin strong stores at the expense of high-margin strong stores.

With respect to markdown pricing, prior art site-level pricing systems may make markdown recommendations taking into account only site-level on-hand inventory positions. They do not take into account that inventory which the independent allocation system will recommend sending to the sites in the near future. The result may be a recommendation for no markdown, even though a large shipment is due to arrive soon. When that happens, it may prove necessary to cut prices drastically to clear the merchandise.

These problems are avoided in systems according to the invention, which jointly optimize in-season allocations and markdowns taking into account, for example, (i) retail site-level (or zone-level) on-hand inventory positions, prices and margins, and (ii) on-hand inventory positions at the distribution center. Strong stores are allocated inventory instead of the weak stores so that they can sell it at higher margins. In the case of chain-level pricing, markdown recommendations are not triggered prematurely. While in the case of site-level pricing (or, again, when pricing is made at some level below the chain level), markdowns are made in conjunction with allocation decisions. In all cases, gross margin is optimized.

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It will be appreciated that simply providing visibility from the allocation system into the markdown system, and *vice versa*, does not solve the problems raised by the prior art wholly satisfactorily due to a chicken-and-egg nature of the pricing and allocation problem. For example, knowing a big shipment will arrive next week at a retail site may help the markdown system make a better recommendation for that store. However, it raises a further question: should the allocation system have even sent merchandise to that store in the first place?

The inventor has discovered that the correct way to solve this problem is to view allocation and markdown decisions as part of a single problem. This permits solutions that jointly optimize both decisions. To get some insight into this, the essence of the problem is demonstrated in the following example.

Assume a retail enterprise sells just one type of good and has two retail sites, A and B, each with some units of inventory on-hand selling at current prices that are, possibly, already marked down. Also assume that the sites take inventory from a single distribution center, with exactly one unit of the good in its on-hand inventory. The question is how to set the price of the good at the respective retail sites for the coming week and how to allocate the single unit of inventory (from the distribution center) between the sites so as to maximize total gross margin to the enterprise.

Option A is to allocate the single unit at the DC to retail site A. The optimal markdown required to maximize gross margin for each site is then independently determined, e.g., in the conventional manner known in the art. The sum total of those maximum gross margins is referred to as GM-A. Option B, alternatively, is to allocate the single unit at the DC to retail site B. Again, the optimal markdown required to maximize gross margin for each site is independently determined. The sum total of those gross margins is referred to as GM-B. In this simple example, if GM-A is greater than GM-B, Option A is selected as the one that optimizes enterprise gross margin. Otherwise, Option B is selected.

As evident here, given a specific allocation of distribution center inventory to the sites, solving the joint problem of allocation and pricing involves solving a markdown optimization problem for each site independently. Conceptually, this direct approach can be summarized as involving the following steps:

1. Listing all (or substantially all) possible allocations of DC inventory to the sites;

2. For every listed allocation:

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i. Independently determining, for each site, the markdown that optimizes the gross margin for that site;

ii. Adding up the optimal gross margins across all sites to get the total enterprise gross margin for the given allocation.

3. Picking the allocation (and corresponding markdown determinations) that results in the highest total enterprise gross margin.

While the approach outlined above is conceptually sound, it glosses over a serious impediment to putting it into practice: the number of possible allocations (i.e., creating the list referred to in the very first step of the approach above) is large even for small problems. As an example, for a single distribution center with 100 units of on-hand inventory and ten stores, the number of possible allocations to the stores is over 10^{100} (i.e., 10 to the 100th power). Moreover, for each of these allocations, it is necessary to determine ten times the markdown that optimizes the individual site gross margin (one determination for each of the stores). The problem is compounded as the size of the on-hand inventory at the distribution center, the number of retail sites served by the distribution center, and the number of different types of goods increases. For example, it is not uncommon for on-hand inventories at distribution centers to be in the hundreds of thousands and the number of retail sites served by a distribution center to be in the hundreds.

To overcome the impracticality of the direct approach described above but still attain the same objective, the inventor has realized a practical approach that can be effected in two steps:

1. Given a candidate allocation of inventory as between the retail sites, estimate the optimal markdown price recommendation — that is, the recommendation that maximizes gross margin for that site (given its share of the candidate allocation) — preferably, without extensive computation. Repeat this step, if and as necessary, to cover all desired candidate allocations.

2. Pick the candidate allocation from step 1 that maximizes the sum total gross margin for all sites without explicitly considering every possible candidate allocation. This implicit and efficient consideration of every possible candidate allocation is made possible by the use of advanced mathematical techniques.

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Figure 3 depicts an embodiment of the invention in accord with this approach. The embodiment comprises a Microsoft Excel spreadsheet 40, as described below, executing on optimization workstation 28 (Figure 2). Those skilled in the art will appreciate that such spreadsheets provide a combined declarative and procedural programming platform and that other platforms (e.g., purely procedural, purely declarative, a combination thereof, or otherwise) or can be used instead, or in addition, based on the teachings herein. In the drawing, selected cells of the spreadsheet are designated by dark rectangles and are discussed below.

The spreadsheet 40 includes a first input section 40a wherein retail chain-level specifics of the goods are provided. In the illustrated embodiment, this includes unit cost of the goods (here, labelled, "unit cost of item"), initial price of the goods, salvage value of the goods, and on-hand inventory at the distribution center (DC). Other embodiments may utilize greater or fewer chain-level inputs. As used in this paragraph, "chain" refers to any group of retail sites serviced by a common distribution center or centers. Depending on use, this may be an entire international, national, regional or local chain. It may also be a subset of such a chain. Values in section 40a may be supplied by the user or operator of workstation 28, they may also be supplied automatically, e.g., by batch download or otherwise, from back office data store 26, or otherwise.

Illustrated spreadsheet 40 includes a second input section 40b wherein site-level specifics of the goods are provided for each of the sites, here, labelled by way of non-limiting example "Store 1" – "Store 5." Those specifics include current on-hand inventory of the goods at each site, sum of seasonality indices for the goods at each site for the planned selling period, price elasticity of the goods at each site, estimate of base demand for the goods at each site, and current price of the goods at each site. Other embodiments may utilize greater or fewer site-level inputs. As above, values in section 40a may be supplied by the user or operator of workstation 28. They may also be supplied automatically, e.g., by batch download or otherwise, from back office data store 26, or otherwise.

Optimization and output section 40c of spreadsheet 40 utilizes values in the input sections 40a, 40b to determine an optimal allocation of inventory to the retail sites that maximizes chain-wide gross margin. Again, here, the term "chain" refers to any group of retail sites serviced by a common distribution center or centers.

Section 40c comprises cells 42a – 42e for storing candidate and final allocations of inventory from the DC to the sites. The values of these cells can be set by the user or otherwise, though, in the illustrated embodiment they are set by optimization tool discussed below.

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Cells 44a – 44e comprise price markdown functionality that determines, for a given or final allocation to a site (as reflected in cells 42a – 42e, respectively), a price markdown that would optimize the gross margin to that site. In the illustrated embodiment, each cell 44a – 44e determines the respective price markdown as a function of the candidate allocation, price elasticity of the good at the site, the seasonality of the good at the site and the cost of the good — though fewer or greater input factors may be taken into account.

In the illustrated embodiment, each cell 44a – 44e is implemented as an Excel formula, as set forth below, though other programmatic methods could be used instead or in addition:

$$\text{MarkdownPrice} = \left(\frac{B \times Seas}{OH + Alloc}\right)^{\frac{1}{Elas}} \times InitP$$

where,

MarkdownPrice is an estimate of the optimal price of the goods at the retail site;

B is the rate of sale of the goods at the initial price;

Seas is a sum of the seasonality indexes for the goods over the planned selling period at the retail site;

OH is the inventory of goods on-hand at the retail site;

Alloc is a quantity of goods in the share (of the total inventory) assigned to the retail site;

Elas is the price elasticity of the goods;

InitP is the initial price of the goods.

Though site-level price elasticities and seasonalities are used in the illustrated embodiment, as noted above, they are not required or used in other practices of the invention. However, as will be evident to those skilled in the art, the inclusion of such elasticities and seasonalities means that practices of the invention that use them can exploit site-level variations in buying behavior. Thus, for example, sites that serve price-insensitive customers can be treated very differently from stores that server price-sensitive shoppers. Other things being

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equal, this permits capturing incremental margin by diverting merchandise from low-elasticity stores to high-elasticity stores.

Cells 46a – 46e of the illustrated embodiment determine the optimal gross margin to each site corresponding to the optimal markdown price and candidate allocation in cells 44a – 44e and cells 42a –42e, respectively. In the illustrated embodiment, this is expressed by the following relation:

Optimized Gross Margin Per Site = (Optimized MarkdownPrice – Cost of Good) x (On-Hand Inventory + Candidate Allocation from DC)

The relations represented in cells 44a – 44e and 46a – 46e are essentially a low-overhead shortcut to answering the question of how the optimal markdown price and corresponding per-site gross margin can be estimated as a function of a candidate on-hand inventory level. Those relations can be used to capture the relationship graphically illustrated in Figure 4. That drawing shows how the optimal gross margin for each retail site varies as a function of the inventory of goods sold by that site.

To better understand the curve of Figure 4, it is useful to look at how optimal revenues and cost of goods sold vary with increasing on-hand inventory. This is shown in Figure 5. As the on-hand inventory gets bigger and bigger (given a fixed number of weeks in the planned selling period), the optimal markdown must get deeper and deeper to clear the inventory. Assuming a price elasticity greater than one, with every price cut, revenues increase. But as the price gets very small, the incremental increase in revenue is very little so the revenue curve flattens out. On the other hand, as the on-hand inventory gets bigger and bigger, the cost of those goods increases linearly.

Since the gross margin per site is the difference between revenues and cost of goods sold, the optimal gross margin versus inventory curve is the difference between the revenue curve and the cost curve. Intuitively, when the incremental gain in revenue starts to fall below the unit cost, the per site gross margin curve turns down and when the price falls below unit cost, the gross margin curve goes negative.

Cell 48 is a sum of cells 46a – 46e and represents the overall chain or enterprise gross margin. In the illustrated embodiment, cell 48 is configured as the target of a general-purpose optimization tool that utilizes a non-linear programming model to simultaneously find the combination of candidate allocations and optimized per-site gross margins, represented by cells

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42a – 42e and 46a – 46e, respectively, which maximizes sum cell 48. This model implicitly considers every possible allocation of DC on-hand inventory to the stores and approximates the optimal site-level markdown recommendations and optimal gross margin for every allocation.

The optimization tool of the illustrated embodiment is the Solver program, which is part of Microsoft Excel, though other optimization tools can be used in addition or instead. Here, Solver is configured to maximize cell 48 by changing the candidate allocations in cells 42a – 42e, subject to the constraint that total allocated inventory (i.e., the sum of cells 42a – 42e) does not exceed the inventory on-hand at the distribution center and, where applicable, to the constraint that the allocation is of integer (or other valid) allocable quantities of the good from the DC.

The end result of execution of the optimization tool (e.g., Solver) are suggested per-site allocations (stored in cells 42a – 42e), suggested optimized price markdowns (stored in cells 44a – 44e) and an estimate of the overall, chain-level gross margin attainable by that allocation and pricing. The latter is reflected in cell 48, as shown in the drawing. In the illustrated embodiments, this information is presented in a report, e.g., of the type reflected by spreadsheet 40 of Figure 2, for use by the chain (or other enterprise) inventory manager or other personnel in allocating inventory and setting prices.

In other embodiments, the allocations and optimized price markdowns generated by the optimization tool are transmitted by workstation 28 to the distribution center workstation 20, e.g., via network 24. The workstation 20 controls automated inventory system 20b, e.g., for automatic picking of goods off shelving in accord with those allocations and placing it on truck 22 (or other delivery mechanisms) for transfer to the retail sites 12 – 18. This, too, can be governed automatically, e.g., through routing or other control of the distribution mechanisms. Once at those sites, workstation 20 or retail site digital data processors can similarly govern unloading and stocking of the inventory into on-hand shelving (not shown). Simultaneously, workstation 28 can control pricing of the goods at the sites 12 – 18, e.g., through transmission of price markdown information to the POS terminals, radio frequency identification (RFID) pricing displays and/or or other price indicating mechanisms.

Described above are systems and methods attaining the desired objects. It will be appreciated that the illustrated embodiment is merely an example of the invention and that other embodiments incorporating changes therein fall within the scope of the invention. In view thereof, what I claim is:

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Claims

1. A method of pricing of goods by, and allocation of a given inventory of goods to, a plurality of retail sites, the method comprising

A. for each of a plurality of candidate allocations of the given inventory among the plurality of retail sites, where each candidate allocation comprises assignment of a respective share of the given inventory to each of the plurality of sites, performing the steps of

i. estimating an optimal price of the goods at each retail site, which optimal price will return an optimal gross margin to that site in view of its assignment of the respective share of the inventory,

ii. determining, for the plurality of sites, the sum of the optimal gross margins determined in step (i),

B. choosing the candidate allocation that results in a maximum sum of optimal gross margins,

C. displaying in a report to an inventory manager or pricing manager or other person at least one of

(i) at least one site's respective share of the candidate allocation of inventory chosen in step (B), and

(ii) the optimal price associated with at least one site's respective share of the candidate allocation of inventory chosen in step (B).

2. The method of claim 1, wherein step (A) comprises performing steps (A)(i) – (A)(ii) for substantially all possible candidate allocations of the given inventory among the retail sites.

3. The method of claim 1, wherein step (A) includes utilizing an optimization tool that generates the plurality of candidate allocations by varying assignment of respective shares of the given inventory to the plurality of retail sites.

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4. The method of claim 3, wherein step (B) includes utilizing the optimization tool to choose the candidate allocation that results in the maximum sum of optimal gross margins.

5. The method of claim 1, wherein step (A)(i) includes taking elasticity of the goods, seasonality of the goods and cost of the goods into account in estimating the optimal price of the goods at each retail site for its respective share of the inventory.

6. The method of claim 5, wherein step (A)(i) includes taking into account inventory on-hand, or otherwise previously allocated to, a retail site in estimating the optimal price of the goods at each retail site.

7. The method of claim 6, wherein step (A)(i) includes estimating the optimal price of the goods at each retail site as a function of the relation

$$\text{MarkdownPrice} = \left(\frac{B \times Seas}{OH + Alloc}\right)^{\frac{1}{Elas}} \times InitP$$

where,

MarkdownPrice is an estimate of the optimal price of the goods at the retail site;

B is a rate of sale of the goods at an initial price of the goods;

Seas is a sum of seasonality indexes for the goods over a planned selling period at the retail site;

OH is an inventory of goods on-hand at the retail site;

Alloc is a quantity of goods in the respective share assigned to the retail site;

Elas is a price elasticity of the goods;

InitP is the initial price of the goods.

8. A method of pricing of goods by, and allocation of a given inventory of goods to, a plurality of retail sites, the method comprising

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A. with an optimization tool, performing the steps of

(i) generating a plurality of candidate allocations of the given inventory among the plurality of retail sites, where each candidate allocation comprises assignment of a respective share of the given inventory to each of the plurality of sites,

(ii) for each of the plurality of candidate allocations, estimating an optimal price for the goods at each retail site which will return an optimal gross margin to that site in view of its assignment of the respective share of the inventory,

B. determining, for the plurality of sites, the sum of the optimal gross margins determined in step (A)(i),

C. choosing the candidate allocation that results in a maximum sum of optimal gross margins.

9. The method of claim 8, comprising providing functionality for estimating a said optimal price for the goods at a said retail site for a said assignment of a said respective share of the inventory, and invoking that functionality with the optimization tool in order to estimate the said optimal prices for the said retail sites.

10. The method of claim 8, comprising displaying in a report to an inventory manager or pricing manager or other person at least one of

(i) at least one site's respective share of the candidate allocation of inventory chosen in step (B), and

(ii) the optimal price associated with at least one site's respective share of the candidate allocation of inventory chosen in step (B).

11. The method of claim 8, wherein step (A)(i) comprises generating the plurality of candidate allocations to cover substantially all possible candidate allocations of the given inventory among the retail sites.

12. The method of claim 8, wherein step (B) includes utilizing the optimization tool to choose the candidate allocation that results in the maximum sum of optimal gross margins.

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13. The method of claim 8, wherein step (A)(ii) includes estimating the optimal price of the goods at each retail site as a function of the relation

$$\text{MarkdownPrice} = \left(\frac{B \times Seas}{OH + Alloc}\right)^{\frac{1}{Elas}} \times InitP$$

where,

MarkdownPrice is an estimate of the optimal price of the goods at the retail site;

B is a rate of sale of the goods at an initial price of the goods;

Seas is a sum of seasonality indexes for the goods over a planned selling period at the retail site;

OH is an inventory of goods on-hand at the retail site;

Alloc is a quantity of goods in the respective share assigned to the retail site;

Elas is a price elasticity of the goods;

InitP is the initial price of the goods.

14. In a method of automated inventory control, the improvement comprising

A. for each of a plurality of candidate allocations of the given inventory among the plurality of retail sites, where each candidate allocation comprises assignment of a respective share of the given inventory to each of the plurality of sites, performing the steps of

i. estimating an optimal price of the goods at each retail site, which optimal price will return an optimal gross margin to that site in view of its assignment of the respective share of the inventory,

ii. determining, for the plurality of sites, the sum of the optimal gross margins determined in step (i),

B. choosing the candidate allocation that results in a maximum sum of optimal gross margins,

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C. transmitting an indication of at least one site's respective share of the candidate allocation of inventory chosen in step (B) and/or the optimal price associated therewith for purposes of automatic control of at least one of pricing, picking, distribution, and stocking of the goods with respect to that site.

15. The method of claim 14, wherein step (A) comprises performing steps (A)(i) – (A)(ii) for substantially all possible candidate allocations of the given inventory among the retail sites.

16. The method of claim 14, wherein step (A) includes utilizing an optimization tool that generates the plurality of candidate allocations by varying assignment of respective shares of the given inventory to the plurality of retail sites.

17. The method of claim 16, wherein step (B) includes utilizing the optimization tool to choose the candidate allocation that results in the maximum sum of optimal gross margins.

18. The method of claim 14, wherein step (A)(i) includes taking elasticity of the goods, seasonality of the goods and cost of the goods into account in estimating the optimal price of the goods at each retail site for the respective share of the inventory.

19. The method of claim 18, wherein step (A)(i) includes taking into account inventory on-hand, or otherwise previously allocated to, a retail site in estimating the optimal price of the goods at each retail site.

20. The method of claim 19, wherein step (A)(i) includes estimating the optimal price of the goods at each retail site as a function of the relation

$$\text{MarkdownPrice} = \left(\frac{B \times Seas}{OH + Alloc}\right)^{\frac{1}{Elas}} \times InitP$$

where,

MarkdownPrice is an estimate of the optimal price of the goods at the retail site;

B is a rate of sale of the goods at an initial price of the goods;

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Seas is a sum of seasonality indexes for the goods over a planned selling period at the retail site;

OH is an inventory of goods on-hand at the retail site;

Alloc is a quantity of goods in the respective share assigned to the retail site;

Elas is a price elasticity of the goods;

InitP is the initial price of the goods.

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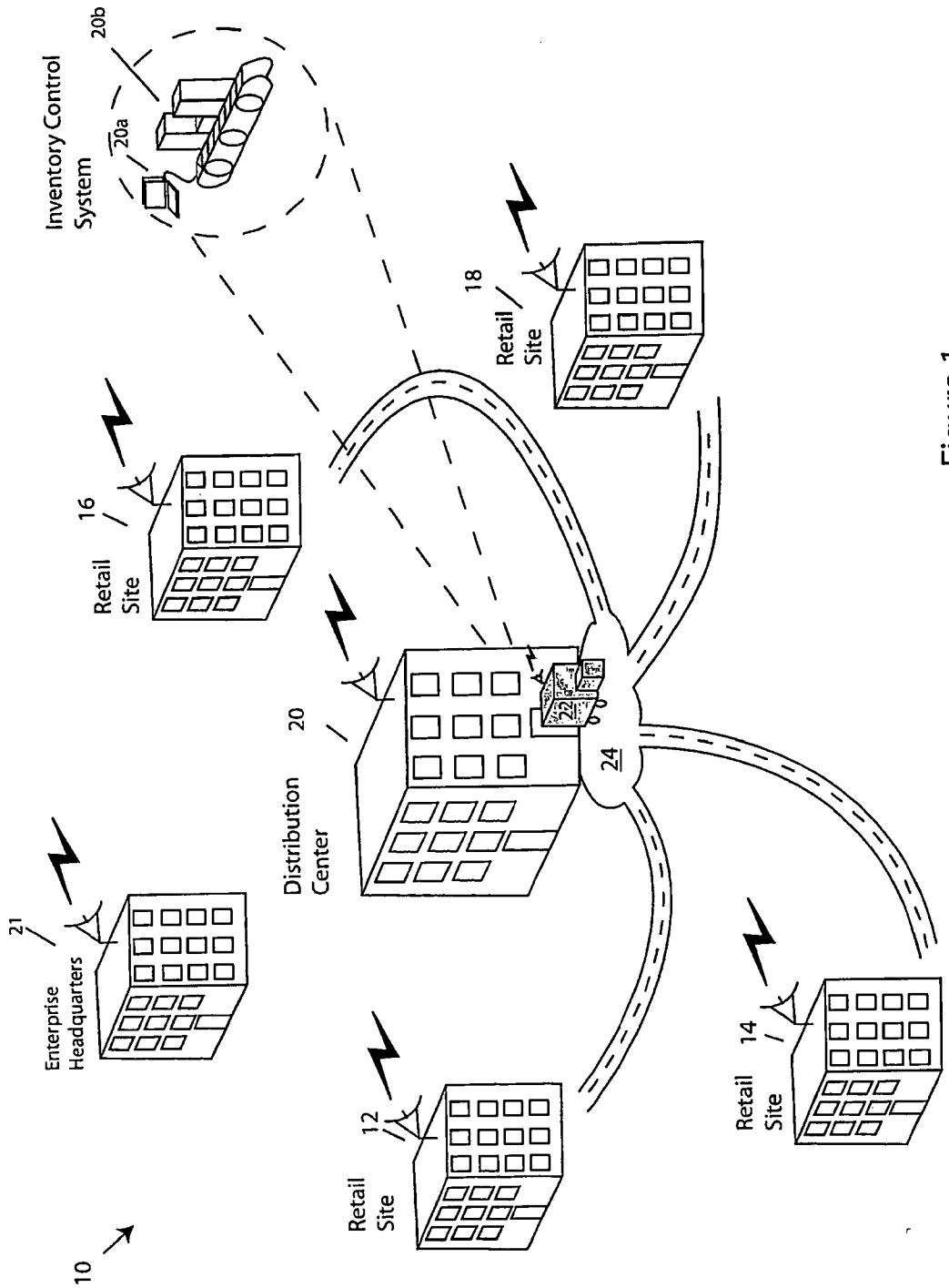

Inventory Control System
20b
20a
18
Retail Site
16
Retail Site
20
Distribution Center
22
24
21
Enterprise Headquarters
12
Retail Site
14
Retail Site
10

Figure 1

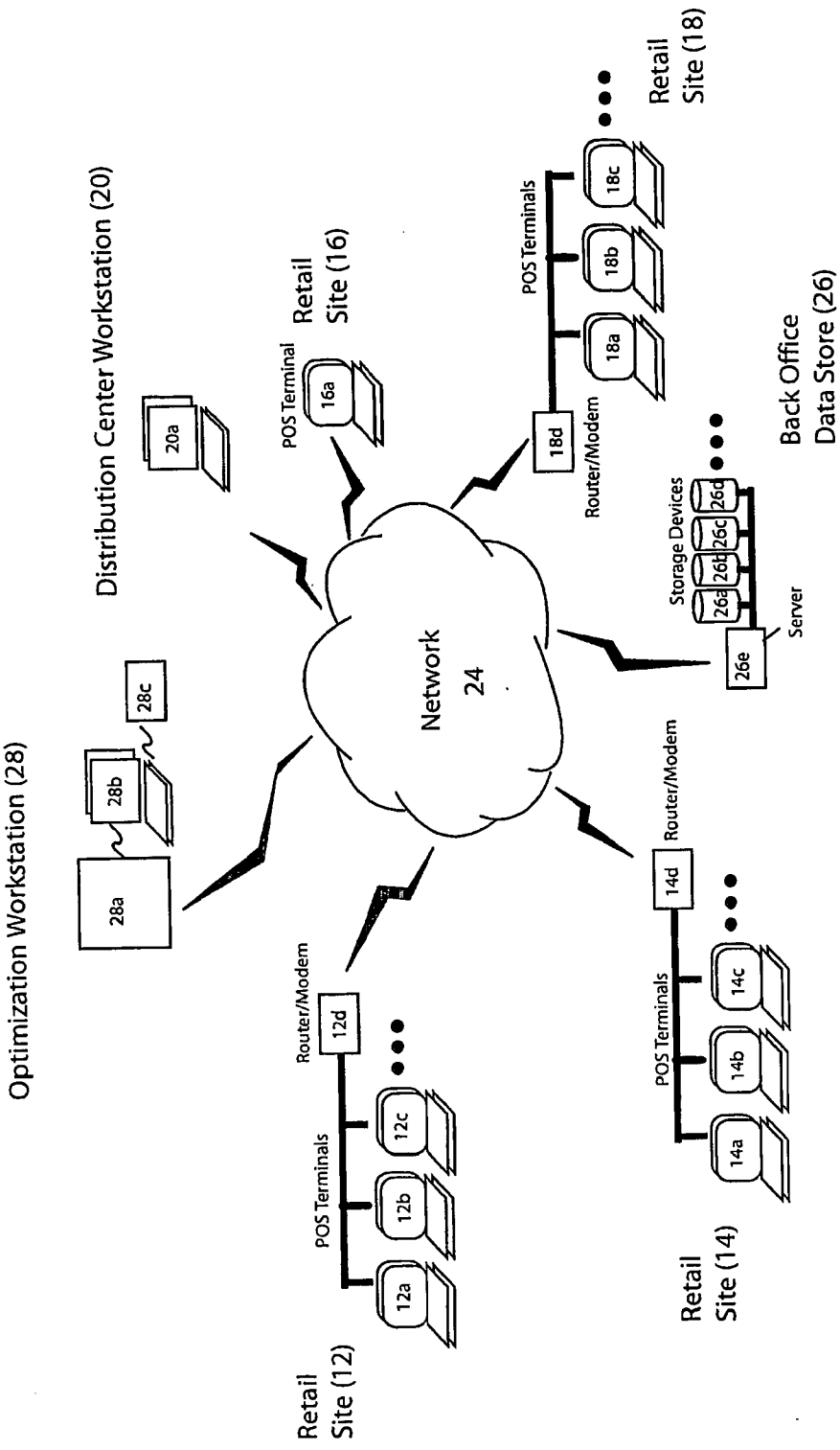

Optimization Workstation (28)
28a
28b
28c
Distribution Center Workstation (20)
20a
Network
24
Retail
Site (12)
Router/Modem
12d
POS Terminals
12a
12b
12c
Retail
Site (14)
Router/Modem
14d
POS Terminals
14a
14b
14c
Retail
Site (16)
POS Terminal
16a
Retail
Site (18)
Router/Modem
18d
POS Terminals
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Back Office
Data Store (26)
Server
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Storage Devices
26a
26b
26c
26d

Figure 2

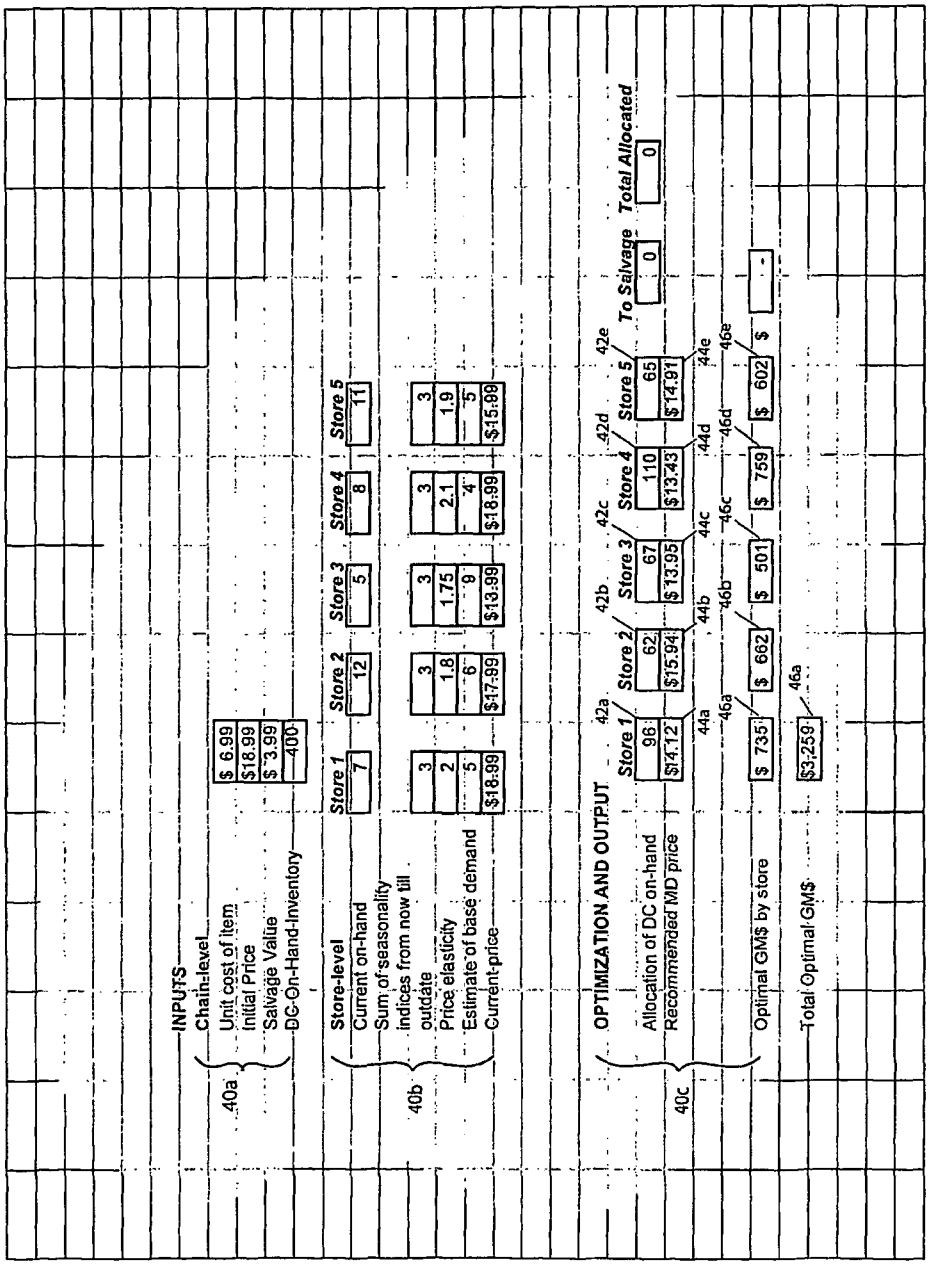

40
INPUTS
Chain-level
Unit cost of item
Initial Price
Salvage Value
DC-On-Hand-Inventory
$ 6.99
$18.99
$ 3.99
400
40a
Store-level
Current on-hand
Sum of seasonality indices from now till outdate
Price elasticity
Estimate of base demand
Current-price
Store 1
Store 2
Store 3
Store 4
Store 5
7
12
5
8
11
3
2
5
$18.99
3
1.8
6
$17.99
3
1.75
0
$13.99
3
2.1
4
$18.99
3
1.9
5
$15.99
40b
OPTIMIZATION AND OUTPUT
42a
42b
42c
42d
42e
Store 1
Store 2
Store 3
Store 4
Store 5
To Salvage
Total Allocated
Allocation of DC on-hand
Recommended MD price
96
$14.12
62
$15.94
67
$13.95
110
$13.43
65
$14.91
0
0
40c
44a
44b
44c
44d
44e
Optimal GM$ by store
$ 735
$ 662
$ 501
$ 759
$ 602
$ -
46a
46b
46c
46d
46e
Total Optimal GM$
$3,259
46a

Figure 3

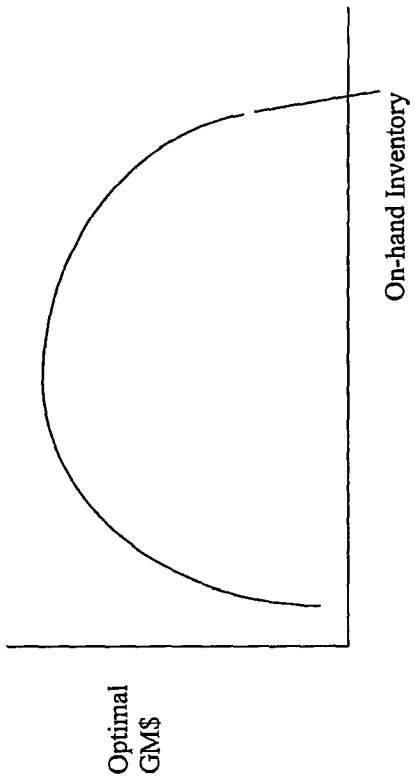


Figure 4

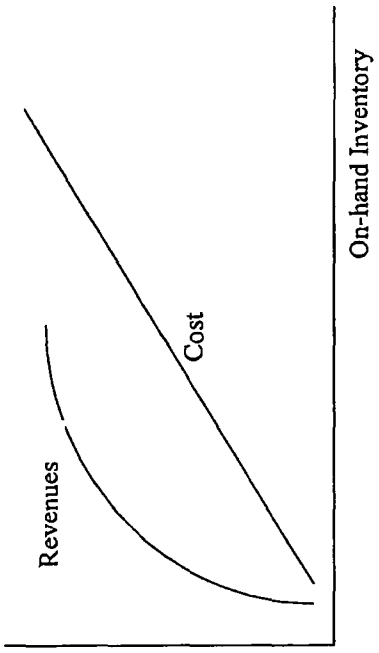


Figure 5

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

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03 FC:1642	430.00	DA
04 FC:1615	52.00	DA

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Serial No.:	Unknown	Group Art Unit:	Unknown
Filed:	Herewith	Docket:	2900.004US1
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

INFORMATION DISCLOSURE STATEMENT

MS PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 19-0743 in order to have this Information Disclosure Statement considered.

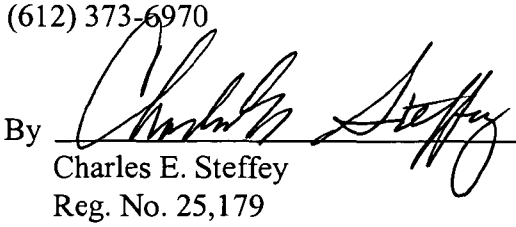
Pursuant to 37 C.F.R. 1.98(a)(2), Applicants believe that copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Notification of this change to this effect was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004 and October 19, 2004. Thus, Applicants have not included copies of the U.S. Patent Application Publications cited with this submission. Should the Office require copies to be provided, Applicants respectfully request that notice of such requirement be directed to Applicants' below-signed representative. Applicants acknowledge the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6970

Date: November 18, 2008

By 
Charles E. Steffey
Reg. No. 25,179

Express Mail mailing label number: EM 162 908 473 US
Date of Deposit: November 18, 2008
This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to the Commissioner for Patents, MS PCT, P.O. Box 1450, Alexandria, VA 22313-1450.

IAP04Rec'd PCT 18 NOV 2008

Modified PTO-1390 (based on Rev. 09-2007, form approved for use through 2/28/2010)

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C . 371		ATTORNEY'S DOCKET NUMBER 2900.004US1
		U.S. APPLICATION NO. (If known, see 37 CFR 1.5) Unknown 12/227451
INTERNATIONAL APPLICATION NO. PCT/AU2007/000684	INTERNATIONAL FILING DATE 18 May 2007	PRIORITY DATE CLAIMED 18 May 2006
TITLE OF INVENTION THE MANAGEMENT OF INVENTORY ALLOCATIONS		
APPLICANT(S) FOR DO/EO/US Andrew LOCH, Helen JOHNSON, Geoffrey TOOGOOD, Daniel Paul RUUL		

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a submission under 35 U.S.C. 371.
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4. ☐ The US has been elected (Article 31).
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   - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
   - b. ☒ has been communicated by the International Bureau.
   - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
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8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An UNSIGNED oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
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SEND TO: Mail Stop PCT, Commissioner for Patent, P.O. Box 1450, Alexandria, VA 22313-1450.

Uber Exhibit 1002 - p. 1134
Uber Technologies, Inc. v. SurgeTech, LLC

IAP Rec'd PCT 18 NOV 2008

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY=S DOCKET NUMBER
Unknown 12/22745/1	PCT/AU2007/000684	2900.004US1

20. Other items or information: COPY of PCT/AU2007/000684 (50 pgs); Drawings (5 pgs); International Search Report (3 pgs); Notification of Transmital of International Preliminary Report (1 pg); International Preliminary Report on Patentability (3 pgs); Amended Claim Sheets (5 pgs)

The following fees have been submitted	CALCULATIONS	PTO USE ONLY
21. ☒ Basic national fee (37 CFR 1.492(a)).....**$330**	$ 330.00	
22. ☒ Examination Fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) .....**$0** All other situations.....**$220**	$ $220.00	
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TOTAL OF 21, 22 and 23 =	$ $980.00	
☐ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) 37 CFR 1.492(j)). The fee is **$260** for each additional 50 sheets of paper or fraction thereof.		

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof (round up to a whole number)	RATE		
0 - 100 =	0/ 50 =	0	x **$270**	$ $0.00	
Surcharge of **$130.00** for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h))				$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	21 -20 =	1	x **$52**	$ $52.00	
Independent claims	3 - 3 =	0	x **$220**	$ $0.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$390**	$ $0.00	
			TOTAL OF ABOVE CALCULATIONS =	$ **$1032.00**	
☐ Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by ½.					
			SUBTOTAL =	$ **$1032.00**	
Processing fee of **$130.00** for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)). +				$	
			TOTAL NATIONAL FEE =	$	
Fees for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$ $0.00	
			TOTAL FEES ENCLOSED =	$ **$1032.00**	
			Amount to be refunded:	$	
			Amount to be charged	$ **$1032.00**	

Uber Exhibit 1002 - p. 1135
Uber Technologies, Inc. v. SurgeTech, LLC

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a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

12/227451

b. ☒ Please charge my Deposit Account No. 19-0743 in the amount of $ 1032.00 to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-0743. A duplicate copy of this sheet is enclosed.

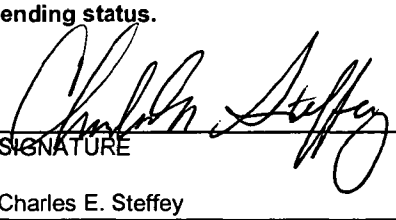
d. ☐ Fees are to be charged to a credit card. **WARNING**: Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

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NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

SEND ALL CORRESPONDENCE TO:

Customer No. 21186



SIGNATURE

Charles E. Steffey
NAME

25,179
REGISTRATION NUMBER

Uber Exhibit 1002 - p. 1136
Uber Technologies, Inc. v. SurgeTech, LLC

IAP Rec'd PCT 18 NOV 2008

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C . 371		ATTORNEY'S DOCKET NUMBER 2900.004US1
		U.S. APPLICATION NO. (If known, see 37 CFR 1.5) Unknown 12/227451
INTERNATIONAL APPLICATION NO. PCT/AU2007/000684	INTERNATIONAL FILING DATE 18 May 2007	PRIORITY DATE CLAIMED 18 May 2006
TITLE OF INVENTION THE MANAGEMENT OF INVENTORY ALLOCATIONS		
APPLICANT(S) FOR DO/EO/US Andrew LOCH, Helen JOHNSON, Geoffrey TOOGOOD, Daniel Paul RUUL		

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Uber Exhibit 1002 - p. 1137
Uber Technologies, Inc. v. SurgeTech, LLC

IAP20Rec'd PCT 18 NOV 2008

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY=S DOCKET NUMBER
Unknown 12/227451	PCT/AU2007/000684	2900.004US1

20. Other items or information: COPY of PCT/AU2007/000684 (50 pgs); Drawings (5 pgs); International Search Report (3 pgs); Notification of Transmital of International Preliminary Report (1 pg); International Preliminary Report on Patentability (3 pgs); Amended Claim Sheets (5 pgs)

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Uber Exhibit 1002 - p. 1138
Uber Technologies, Inc. v. SurgeTech, LLC

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

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Customer No. 21186

SIGNATURE

Charles E. Steffey
NAME

25,179
REGISTRATION NUMBER

Uber Exhibit 1002 - p. 1139
Uber Technologies, Inc. v. SurgeTech, LLC

IAP Rec'd PCT 18 NOV 2008
12/227451

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Andrew LOCH et al.
Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS
Attorney Docket No.: 2900.004US1
Customer No.: 21186

PATENT APPLICATION TRANSMITTAL

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

We are transmitting herewith the following attached items and information (as indicated with an "X"):

X Transmittal Letter (Form PTO-1390) to the DO/EO/US (and duplicate copy thereof) concerning a **PCT-U.S. National Stage filing under 35 U.S.C. 371** (3 pgs).
X Authorization to charge Deposit Account 19-0743 in the amount of $1032.00 to pay the filing fee.
X Incorporation by Reference herein in its entirety: *The entire disclosure of the prior application, PCT/AU2007/000684, filed May 18, 2007, and published on November 29, 2007 as WO 2007/134379 A1 is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein in its entirety.*
X Unsigned Combined Declaration and Power of Attorney (4 pgs).
X Information Disclosure Statement (2 pgs), Form 1449 (1 pg), and copies of cited references (8).
X Preliminary Amendment (8 pgs).
X COPY of PCT/AU2007/000684 (50 pgs)
X Drawings (5 pgs)
X International Search Report (3 pgs)
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X Amended Claim Sheets (5 pgs)
X Application Data Sheet (4 pgs).
X Return Postcard

Please charge any additional required fees or credit overpayment to Deposit Account No. 19-0743.

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.
Customer Number 21186

By: Charles E. Steffey
Charles E. Steffey
Reg. No. 25,179

Express Mail mailing label number: EM162908473US
Date of Deposit: November 18, 2008
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Uber Exhibit 1002 - p. 1141
Uber Technologies, Inc. v. SurgeTech, LLC

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Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof (round up to a whole number)	RATE		
0 - 100 =	0/ 50 =	0	x **$270**	$ $0.00	
Surcharge of **$130.00** for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h))				$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	21 -20 =	1	x **$52**	$ $52.00	
Independent claims	3 - 3 =	0	x **$220**	$ $0.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$390**	$ $0.00	
			TOTAL OF ABOVE CALCULATIONS =	$ **$1032.00**	
☐ Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by ½.					
			SUBTOTAL =	$ **$1032.00**	
Processing fee of **$130.00** for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)). +				$	
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			Amount to be refunded:	$	
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Uber Technologies, Inc. v. SurgeTech, LLC

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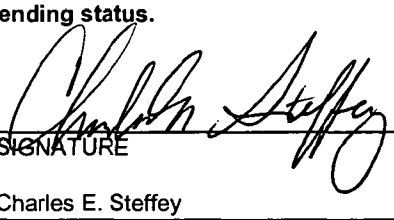
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Uber Technologies, Inc. v. SurgeTech, LLC

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TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C . 371		ATTORNEY'S DOCKET NUMBER 2900.004US1
		U.S. APPLICATION NO. (If known, see 37 CFR 1.5) Unknown 12/227451
INTERNATIONAL APPLICATION NO. PCT/AU2007/000684	INTERNATIONAL FILING DATE 18 May 2007	PRIORITY DATE CLAIMED 18 May 2006
TITLE OF INVENTION THE MANAGEMENT OF INVENTORY ALLOCATIONS		
APPLICANT(S) FOR DO/EO/US Andrew LOCH, Helen JOHNSON, Geoffrey TOOGOOD, Daniel Paul RUUL		

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a submission under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371 (f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
   - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
   - b. ☒ has been communicated by the International Bureau.
   - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   - a. ☐ is attached hereto.
   - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   - b. ☒ have been communicated by the International Bureau.
   - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An UNSIGNED oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A preliminary amendment.
14. ☒ An Application Data Sheet under 37 CFR 1.76.
15. ☐ A substitute specification.
16. ☐ A power of attorney and/or change of address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13*ter*.2 and 37 CFR 1.821 – 1.825.
18. ☐ A second copy of the published International Application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).

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U.S. APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO	ATTORNEY=S DOCKET NUMBER
Unknown 12/227451	PCT/AU2007/000684	2900.004US1

20. Other items or information: COPY of PCT/AU2007/000684 (50 pgs); Drawings (5 pgs); International Search Report (3 pgs); Notification of Transmital of International Preliminary Report (1 pg); International Preliminary Report on Patentability (3 pgs); Amended Claim Sheets (5 pgs)

The following fees have been submitted	CALCULATIONS	PTO USE ONLY
21. ☒ Basic national fee (37 CFR 1.492(a)).....**$330**	$ 330.00	
22. ☒ Examination Fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) .....**$0** All other situations.....**$220**	$ $220.00	
23. ☒ Search Fee (37 CFR 1.492(b)) If the written opinion of the ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33 (1)-(4) .....**$0** Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority .....**$100** International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB .....**$430** All other situations.....**$540**	$ $430.00	
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CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	21 -20 =	1	x **$52**	$ $52.00	
Independent claims	3 - 3 =	0	x **$220**	$ $0.00	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ **$390**	$ $0.00	
			TOTAL OF ABOVE CALCULATIONS =	**$ $1032.00**	
☐ Applicant claims small entity status. See 37 CFR 1.27. Fees above are reduced by ½.					
			SUBTOTAL =	**$ $1032.00**	
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			TOTAL NATIONAL FEE =	**$**	
Fees for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). **$40.00** per property +				$ $0.00	
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REGISTRATION NUMBER

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IAP Rec'd PCT 18 NOV 2008
12/227451

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Andrew LOCH et al.
Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS
Attorney Docket No.: 2900.004US1
Customer No.: 21186

PATENT APPLICATION TRANSMITTAL

MAIL STOP PCT
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Alexandria, VA 22313-1450

We are transmitting herewith the following attached items and information (as indicated with an "X"):

X Transmittal Letter (Form PTO-1390) to the DO/EO/US (and duplicate copy thereof) concerning a **PCT-U.S. National Stage filing under 35 U.S.C. 371** (3 pgs).
X Authorization to charge Deposit Account 19-0743 in the amount of $1032.00 to pay the filing fee.
X Incorporation by Reference herein in its entirety: *The entire disclosure of the prior application, PCT/AU2007/000684, filed May 18, 2007, and published on November 29, 2007 as WO 2007/134379 A1 is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein in its entirety.*
X Unsigned Combined Declaration and Power of Attorney (4 pgs).
X Information Disclosure Statement (2 pgs), Form 1449 (1 pg), and copies of cited references (8).
X Preliminary Amendment (8 pgs).
X COPY of PCT/AU2007/000684 (50 pgs)
X Drawings (5 pgs)
X International Search Report (3 pgs)
X Notification of Transmital of International Preliminary Report (1 pg)
X International Preliminary Report on Patentability (3 pgs)
X Amended Claim Sheets (5 pgs)
X Application Data Sheet (4 pgs).
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Customer Number 21186

By: Charles E. Steffey
Charles E. Steffey
Reg. No. 25,179

Express Mail mailing label number: EM162908473US
Date of Deposit: November 18, 2008
This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to MAIL STOP PCT, P.O. Box 1450, Alexandria, VA 22313-1450.

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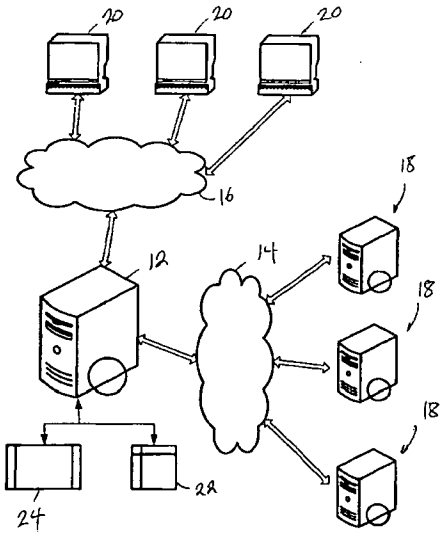
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Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS



(57) Abstract: A method of managing inventory allocations includes the step of receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers. The data is processed to obtain data relating to sales performance of one or more of the respective re-sellers. The method includes adjusting a price for which inventory allocated to that respective re-seller is to be sold by depending on said data relating to the sales performance of the respective re-sellers and / or re-allocating inventory items from that said respective re-seller to other respective re-sellers. The invention extends to a software product and to a system.

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THE MANAGEMENT OF INVENTORY ALLOCATIONS

FIELD OF THE INVENTION

This invention relates to the management of inventory allocations. More particularly, this invention relates to a system, to a method and to a software product for managing inventory allocations.

BACKGROUND OF THE INVENTION

Applicant has identified a particular problem when selling inventory, such as travel services including accommodation allotments, flights and other transport services. The problem is a result of the manner in which such inventory is allocated to various re-sellers, referred to as distribution channels ("Channels"), which can be *ad hoc* and thus inefficient.

It will be appreciated that efficient selection of Channels for such inventory can allow vendors to achieve a selling price that corresponds with demand for the inventory in the Channels. In this way, an optimum price for, and supply of the inventory in each Channel could be achieved with such correct selection.

While this invention is intended to cover a wide variety of inventory-types, Applicant has discovered that particularly the travel and accommodation industries would benefit greatly from efficient allocations of inventory to various Channels. A primary reason for this is that the traveling public is now able to book and pay online for practically all of its travel and accommodation needs via various online travel / accommodation reseller portals and agencies, which can be regarded as Channels. The online reseller market is particularly large in this field and the various Channels have the potential to be extremely successful.

The particular problem discovered by the Applicant is that the market has forced vendors to commit physical inventory to particular Channels in a relatively *ad hoc* manner. Furthermore, where the inventory is accommodation which needs to be sold between particular dates, any attempt to achieve efficiency by selecting the most efficient Channels can become extremely difficult. In particular, Applicant has found that most independent hotels and accommodation properties lack the resources to have members of staff dedicated

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to managing allocations to Channels. Applicant has found that it is practically impossible for them to manage this inventory in multiple Channels while still maintaining their businesses.

SUMMARY OF THE INVENTION

According to a first aspect of the invention, there is provided a method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carrying out at least one of the following steps in the data processing apparatus:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

The step of processing the data may include the step of calculating a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The step of processing the data may include the step of comparing the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The step of comparing the performance indicators may include the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The step of comparing the performance indicators may include the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The method may include the step of adjusting a price of the inventory allocated to said particular re-seller by a factor of Z.

The step of processing said data may include the step of carrying out a statistical analysis of said data relating to sales performance.

According to a second aspect of the invention, there is provided a system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of items of inventory allocated to respective re-sellers;

processing said data to obtain data relating to sales performance of at least one of the respective re-sellers; and

carrying out at least one of the following steps:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

The data processing apparatus may be configured to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The data processing apparatus may be configured to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The data processing apparatus may be configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The data processing apparatus may be configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The data processing apparatus may be configured to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

The data processing apparatus may be configured to carry out a statistical analysis of said data relating to sales performance.

According to a third aspect of the invention, there is provided a software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives data relating to the sale of items of inventory allocated to respective re-sellers;

processes said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carries out at least one of the following steps:

adjusts a price for which inventory allocated to at least that respective re-sellers is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocates inventory items from at least that said respective re-seller to other respective re-sellers.

The software product, when executed by a data processing apparatus, may cause the date processing apparatus to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The software product may, when executed by a the data processing apparatus, cause the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

The invention is now described, by way of example, with reference to the accompanying drawings. The following description is intended to illustrate particular embodiments of the invention and to permit a person skilled in the art to put those embodiments of the invention into effect. Accordingly, the following description is not intended to limit the scope of the preceding paragraphs in any way.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

Figure 1 shows a schematic view of an embodiment of a system, in accordance with the invention, for managing inventory allocations.

Figure 2 shows a flowchart indicating one embodiment, in accordance with the invention, of a method and a software product for managing inventory allocations.

Figure 3 shows a flowchart indicating a subroutine of the software product that is executed by a data processing apparatus of the system in the event that supply to a particular re-seller exceeds demand.

Figure 4 shows a flowchart indicating a further subroutine of the software product for collecting data relating to different re-sellers.

Figure 5 shows a schematic flowchart of another embodiment, in accordance with the invention, of a method and a software product for managing inventory allocations.

DETAILED DESCRIPTION OF THE INVENTION

In Figure 1, reference numeral 10 broadly illustrates an embodiment of a system, in accordance with the invention, for managing inventory allocated to respective re-sellers, according to an embodiment of a method, also in accordance with the invention.

At this point, it should be noted that Figure 1 also broadly illustrates a system that encompasses the remaining embodiments of the system, all in accordance with the invention.

In the following description, reference is made to the inventory items in the form of accommodation allotments and in further descriptions as Rooms. It is to be understood that such accommodation allotments or Rooms are allotments of property for the purposes of short term rental, such as holiday apartments, hotel rooms, etc.

However, Applicant emphasizes that the items of inventory can be any other items which are capable of being allocated to a re-seller.

Accordingly, reference to accommodation allotments or "Rooms" is not to be construed as limiting the scope of the invention as set out in the preceding summary.

The system 10 includes a data processing apparatus in the form of a computer 12 that is connectable to a network. In this case, the network can be the Internet indicated at 14 or a private network indicated at 16. It will readily be appreciated that the private network 16 can be a virtually private network (VPN) which could form part of the World Wide Web indicated at 14.

The computer 12 is programmed with a software product, in accordance with the invention. As such, the computer 12 is configured to receive sale data relating to accommodation allotments allocated to respective re-sellers, referred to as distribution channels ("Channels"), indicated schematically at 18, via the World Wide Web 14. It is to be appreciated that the Channels 18 can more specifically be servers associated with the Channels 18. This is particularly the case where the Channels 18 are online re-sellers.

The software product is such that, when executed by the computer 12, the computer 12 is able to process the sale data to obtain data relating to sales performance in each Channel (Performance Data). On receipt of the Performance Data, the computer is configured to adjust the price of accommodation allotments in respective Channels 18 depending on the Performance Data and / or re-allocate accommodation allotments in respective Channels 18 to other Channels 18.

The computer 12 is configured to store data representing accommodation allotments (Accommodation Allotment Data) required to be sold online by third party online resellers through the Channels 18. The system 10 allows a vendor of the inventory, in the form of a member or subscriber, indicated at 20, to place all or part of their accommodation allotment inventory required to be sold online in a database 22 of the computer 12. Thus, the software product of the invention is configured so that, when executed, it generates a database 22 and a subroutine 24 to manipulate the Accommodation Allotment Data, as described below.

In particular, the computer 12 is configured by the software to associate Channels 18 with accommodation allotments in the database 22. The computer 12 receives data relating to the sale of accommodation allotments (Sale Data) in the form of data relating to one or more of the following: sale price of each accommodation allotment, rate of commission and number of accommodation allotments sold over a pre-determined length of time. Subroutine 24 calculates an index (Sale Rate Index) for each Channel 18 in the form of a ratio of the number of accommodation allotments sold in a pre-determined time to the number of accommodation allotments available in that distribution channel 18 ("S"/"A").

The computer processes the Sale Data by calculating a performance rating for each distribution channel 18. The performance rating can include a determination of whether or not supply of accommodation allotments exceeds demand or vice versa per Channel.

By using the performance rating and the calculated Sale Rate Index, S/A, the subroutine 24 can calculate the number of accommodation allotments to allocate to a particular Channel 18 and the price at which those allotments can be sold to maximize a profit for the accommodation allotments.

A particular benefit of the invention is that the subroutine 24 allows for the setting of a minimum rate and can adjust prices up from or back to that rate based on the Channel Performance in which the relevant accommodation allotment is placed. Thus, if an accommodation allotment is a room and the particular Channel 18 has a higher demand than availability, the subroutine can automatically increase the room rate to maximize profit.

Furthermore, the subroutine is configured also to increase the rate in Channels with a high selling rate and that have a high rate of agents' commission so that their performance rating can be equal to or higher than other Channels 18 with lower agents' commission. It follows that the system 10 can be used to maximize profit on a range of competing Channels. It follows also that a rate at which a particular Channel is selling compared to its performance rating is directly proportional to a surplus of supply and the rate at which the accommodation allotments are being sold in that channel.

It is to be understood that supply of accommodation allotments and extent of commission control, at a basic level, the rate at which an accommodation allotment is sold in each Channel 18. It follows that if a shortage of supply should occur, a price of accommodation

allotments in all Channels 18 will increase. However, in the event that there is over-supply, the price will decrease relative to the performance rating.

It follows that the vendors or an administrator of the system of the invention can set a rate of change that could be used to increase or decrease a rate at which an accommodation allotment is sold. An example of a suitable rate is 10%. In a particular example, performance of the Channels 18 will be calculated per hour and related to previous statistical analysis of a particular targeted date range. That analysis can provide a tool for adjusting the rate upwardly or downwardly.

In the next embodiment described, there is provided a manner in which a suitable rate can be determined using a statistical equation. For the purposes of this example, it is assumed that a rate is set and subsequently adjusted as necessary.

In Figure 2, reference numeral 30 generally indicates a broad overview of the operation of the system 10 as a result of the execution of the software product of the invention.

In the system 30, reference numeral 32 indicates any Channel 18 in the form of a user-selected third party re-seller that stocks real-time property availabilities. The subroutine 24 is configured to utilize an XML standard to dynamically allocate or reallocate or update or query accommodation allotments associated with the Channel 32.

The system 30 is initiated with accommodation allotments being sold through the Channel 32 at a predetermined price. At 34, the subroutine 24 calculates a Sale Rate Index, as explained above. In particular, the subroutine 24 is configured to calculate the index by calculating an amount sold in a predetermined period of time divided by the amount allocated to that Channel (A/S). The value returned is then multiplied by 100 to get a percentage. The percentage is used as a parameter by the subroutine 24 to calculate whether or not particular Channels are allocated accommodation allotments. It will be appreciated that the parameter is used in a function to make that calculation. It will further be appreciated that Channels could be performing equally well, even though the value (A/S) is higher for one than the other. This would occur where one of the Channels has been allocated more than the other.

In that case, imaginary accommodation allotments are made to equalize. Alternatively, a suitable statistical equation (described in more detail in the following embodiment) can be

applied using a comparison to average values for A/S over the Channels being compared. The statistical equation can use a Standard Deviation parameter to adjust for the different starting amounts.

At 36, the subroutine 24 queries whether or not demand has exceeded supply in the Channel 32. If a negative answer is returned, the subroutine decreases the price by 10% at 38 and updates data representing the Channel 32.

This step is more clearly shown in Figure 3. In the event that supply exceeds demand at 40, the subroutine 24 queries at 42 whether any other Channel requires allocation of accommodation allotments. In the event that a negative answer is returned, the price can then be decreased as at 38. Once the price has been decreased, the subroutine 24 updates the data relating to the Channel 32, at 44.

In the event that the query at 42 is positive, the subroutine 24 allocates accommodation allotments, at 46, to another Channel. Subsequently, the subroutine 24 queries whether or not the rooms allocated to the other Channel exceed a previous demand at 48. In the event that that query returns a positive, the subroutine 24 carries out the step of decreasing the price, at 38. In the event that the query returns a negative, the Channel 32 is updated, as at 44.

The subroutine 24 includes a calculation at 38 that involves what is known as "Minimum Rack Rate", a "Current Rate" and a "Surplus Percentage". As is known in the accommodation industry, the term "rack rate" is used to refer to a fixed rate for a room. It follows that a Minimum Rack Rate would be a minimum price for a particular accommodation allotment. The current rate would be a rate at a particular snap shot in time. The Surplus Percentage would indicate a percentage of surplus accommodation allotments in a particular distribution channel.

The step of decreasing a price by the calculation at 38 is effectively a step of decreasing the performance rating of that particular channel. Accordingly, in this example, the subroutine 24 adjusts the performance rating down by 10%. Thus, if the Channel had a performance rating of X allotments selling at $Y each with a commission of $Z and the performance rating is to be reduced by 10%, the following calculation is carried out by the subroutine 24 to obtain the rate (R):

$$0.9X + Z = R$$

If the Minimum Rack Rate was below the R, then $R would be the new sale price per allotment. Otherwise, the minimum rack rate would be the price. It is thus to be appreciated that the subroutine 24 would not continually lower the prices of accommodation allotments beyond a predetermined minimum.

Reverting back now to Figure 2, if the query at 36 returns a positive, the subroutine 24 compares the performance rating of the Channel 32 with other channels. As set out earlier, the performance rating can be in the form of a number of parameters. For example, it could be related to a surplus or deficit percentage related to supply and demand of particular accommodation allotments. At 52, the subroutine 24 queries whether or not the performance rating of the Channel 32 is greater than the other Channels. This can be done using the "imaginary rooms" or the statistical analysis mentioned above.

If the query returns a positive, the subroutine 24 removes accommodation allotments from the lower performing Channels and adds them to the Channel 32. Alternatively, if the query at 52 returns a negative result, the subroutine 24 serves to increase the accommodation allotment price by a particular percentage. In this case, the percentage is 10%.

Using a calculation similar to the one used for decreasing the price, if a Channel with a performance rate of X allotments selling at $Y with a commission of $Z is increased by 10% the following calculation would be used to obtain the rate (R):

$$1.1X + Z = R$$

As can be seen in Figure 2, once the steps at 54 and 56 are completed, the subroutine 24 returns to 32 where the data relating to that Channel is updated.

It is important that the subroutine 24 collects the necessary data in an efficient manner.

Applicant has conceived two methods in which the data can be received from respective Channels 18. These are referred to as the "real-time" and "request-based" methods.

In this particular example, all calculations are done hourly per accommodation allotment and each allotment calculation is started apart from the others' calculations. It follows that property A calculations would for example start at 12:00 and property B calculations would start at 12:01 and so on. The subroutine 24 is configured such that the interval is decided by the amount of properties and servers on which the properties reside, where the servers communicate with the computer 12 via the World Wide Web 14. As set out above, the servers can also be represented by reference numeral 18.

Channels that report in real-time back to the subroutine 24 store their figures in the database 22 until they are needed by the subroutine 24. On the other hand, request-based Channels are polled by the subroutine 24 before the calculations are made.

An example of the manner in which the figures are collected from servers for the Channels is shown in Figure 4. In Figure 4, the subroutine 24 carries out hourly calculations at 60 for each accommodation allotment in the various distribution channels. At 62, the subroutine 24 cycles through a list of Channels where the accommodation allotments are stored in the data base 22.

The subroutine 24 then queries, at 64, whether or not the list of Channel has been cycled through. In the event that a negative response is returned, the subroutine 24 queries whether or not the Channel is "real-time". In the event that the response is negative, the subroutine 24 requests a report at 68 from the relevant server. On the other hand, if the query at 66 is positive, the subroutine 24 continues to cycle through the list of Channels at 62.

If the query at 64 is positive, the subroutine 24 carries out various calculations to obtain the sale rate indices and performance rating, at 70, as described earlier. At 72, the allotments are calculated. At 74, the subroutine 24 calculates the prices for the accommodation allotments in the various Channels. At 76, the subroutine 24 allocates accommodation allotments to various Channels, in accordance with the tests and parameters described with reference to Figures 2 and 3. At 78, the subroutine 24 queries whether or not the respective Channel is a real-time Channel. In the event that this query returns a negative result, the subroutine 24 polls the relevant server of the Channel at 80. The server for the Channel then transmits the report to the database 22. The subroutine 24 stores the report values in the database 22 at 82.

At 84 there is schematically indicated a real-time Channel. The Channel 84 provides, on a regular basis, real-time reports and requests of sales to the data base at 82.

In the event that the query at 78 returns a positive, the subroutine 24 serves to re-set allocations of accommodation allotments to various Channels 18 and the respective prices at 86.

EMBODIMENT FOR APPLICATION OVER A PREDETERMINED PERIOD

A further embodiment, in accordance with the invention, is now described with reference to an algorithm defined by the subroutine 24. The algorithm can be applied in the framework of the system 10, described above. However, this algorithm is an alternative to the algorithmic process described above, while still falling within the broader scope of the preceding material.

The description is with reference to the operation of the algorithm over a 5 day period. Reference is made to Tables 1 to 5 which appear at the end of the description of this embodiment. It is to be appreciated that the embodiment can readily be applied to longer or shorter periods without technical difficulty.

In this example, it is assumed that there are five Channels. This example takes into account that two of the Channels have negotiated blocks of 50 allotments, something which is conventional in the field. The negotiated blocks are indicated by the row entitled "blocked allocation" in the tables. It is to be understood that since those allotment allocations have been negotiated, it is not possible for the system 10 to act freely on those allocations.

For ease of reference only, the allotments are referred to as "Rooms".

It should be noted that the Rooms are those associated with a particular property (Property). The Property is to be understood as a characteristic of the Rooms that makes comparison between the Rooms meaningful. For example, the Rooms could be sourced from a common hotel franchise or from a particular geographical area or from a particular star rating etc.

Set out below is a list of Notations used with their meanings in the Tables and in the following description:

Notation	Definition
A	Number of Rooms Allotted
S	Number of Rooms Sold
I	An indicator variable to depict whether a Channel has a negotiated blocked allocation
T	Total Number of Rooms Sold
P	Proportion of Rooms Sold
NS_CR	Number of Rooms that are Not sold and CAN be redistributed
NS_CNR	Number Rooms that are Not sold and CANNOT be redistributed
TNS	Total Number of Rooms Not Sold
NAA	New Allocation Amount
Aadj	Allocation Adjustment Amount
FAA	Final Allocation Amount
RA	Redistribution Adjustment from Unblocked Rooms
FAA_UB	Final Allocation Amount After Unblocking

The following totals are used throughout and are calculated over all the Channels during a predetermined time period:

Notation	Definition
Sum_S	Total Rooms Sold Overall (per stated time period)
Sum_NSR	Total Rooms Not Sold (per time period) that CAN be redistributed

If a blocked allocation of Rooms has been negotiated (i.e. it is not possible to transfer those Rooms from one Channel to another), wholesalers generally release unsold Rooms back to the associated Property, usually 7 days from the end of a negotiated time-period.

It is thus necessary to monitor each of the Rooms within each step of the algorithm to ensure that any adjustments are made using only those Rooms that are free to be sold through Channels and transferred from one Channel to another. The reason is that the blocked Rooms can be considered as sold.

This five day example assumes that on day four, any Rooms obtained in a previously negotiated blocked sale that are not sold are then released into a general domain for selling in any of the other Channels to sell, and re-allocated accordingly. This reallocation will be a function of a Channel's relative performance in the market.

Day 4 is therefore analogous to the start of a final 7-day period when rooms are released to the general domain as mentioned above.

Furthermore, it is assumed that adjustments are made only once a day.

For each Channel, the number of Rooms sold is recorded and a total is calculated in the final column. In order to obtain a measure of how well a re-seller is performing in the market, a ratio between the Rooms sold per Channel and the total number of Rooms sold at each time point is calculated. This provides a measure of how well a Channel is selling the Rooms for a predetermined time period. This is then used to ascertain any price adjustments that should be made for the associated Channel.

For j = 1, ..., n, where j represents the Channel Number, the ratio is defined by

$P_j = \frac{S_j}{\sum_{j=1}^{n} S_i}$, S_j being the number sold per Channel. In this case, n = 5.

In order to evaluate any redistribution of room allocations (when necessary), it is also necessary to record the number of rooms that are not sold. In general, if there are some Channels that have negotiated room blocks for a given room type in a given property (as is the case in this example), then this amount needs to be further broken down into a count of rooms that can be redistributed to other channels and a count of rooms that cannot be redistributed to other channels.

However, it is assumed that if a Room is sold from a Channel with a negotiated allocation, this will be deducted from their initial block of Rooms rather than any redistributed allocation that may occur at a stage when a Channel is depleted of all Rooms. This will be discussed in more detail below.

In order to set up the algorithm in the subroutine 24, Rooms are artificially allocated to each Channel depending on each P calculated above. This allocation is considered to be artificial since the main consideration is not whether a Channel is selling a large proportion of its Rooms, only that it is selling a larger proportion of Rooms relative to its competitors in that Property.

However, it is necessary for the number of Rooms to be factored into the algorithm used by the subroutine 24. The reason is that an accommodation provider can choose to allocate, at the outset, a block of Rooms (through negotiation based on a business decision) to a Channel or even select Channels through which to sell Rooms.

In any event, the following example illustrates why the number of Rooms should not play a role in price adjustments.

Assume there are only two Channels for Rooms in a particular Property. Assume that Channel 1 has 20 Rooms and Channel 2 has 10 Rooms and they each sell 5 Rooms. Comparatively, they are performing equally well, but if the price changes are based on a ratio of sold Rooms to allocated Rooms, then Channel 1 appears to be doing worse and its prices would be required to drop compared to Channel 2 that appears to be doing better and its prices would invariably go up.

Consequently, in order to calculate any price adjustments, the proportion of total Rooms sold by a Channel is compared to the average proportion over all Channels. This is done through a percentage change (PC) calculation relative to the average proportion of Rooms sold. Furthermore, a scale is derived to project these percentage changes onto a comparative measure, which is done in the following way:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$

Again, the value for n should be replaced with 5 since five Channels are being considered. Using this, it is possible to apply the following adjustments:

Z score	**Adjustment to price**
Greater than 3	Increase by 5%
Between 2 and 3	Increase by 2%
Between 1 and 2	Increase by 1%
Between -1 and 1	No change
Between -2 and -1	Decrease by 1%
Between -3 and -2	Decrease by 2%
Greater than -3	Decrease by 5%

The description given in the above paragraphs covers the general issues and calculations required to adjust the price of a Room for a respective Property.

The following paragraphs go into more detail regarding each step to be carried out in the algorithm and the order in which each of the steps must proceed.

Referring to the Tables mentioned earlier, Tables 1 to 4 are named "Base Case" and represent the situation on each day respectively when a given Channel that has no blocked Rooms is depleted of all of its inventory at the end of Day 1. Thus, a number of Rooms in the respective Channels needs to be adjusted.

Tables 5 to 8 are named "Inventory Depleted before Unblock" and represent the situation on each day respectively when a Channel is depleted of its Rooms on Day 2, prior to when its unsold Rooms in blocked Channels are released for general distribution.

Table 9 to 12 are named "Inventory Depleted after Unblock" and represent the situation when a Channel is depleted of its Rooms after any Rooms that have not been sold during the blocked period are released (on Day 4).

Three steps are to be noted when the subroutine 24 is executed. There are an initial set of steps for a first time period. These are described first. In a second and in subsequent time periods, a number of minor changes are applied depending on if and when Room numbers in respective Channels need to be readjusted. These are described in turn. Thirdly, prior to the blocked Rooms being released to the general domain, a number of steps are required to adjust the number of Rooms in respective Channels at the beginning of the next time period (i.e. at the beginning of Day 4 in this worked example).

Note that the notation used for logical statements in an Excel (such as If) are written below exactly as they would appear in an Excel spreadsheet, except that rather than using Cell Identifiers (for example, A1), a description of what the Cell contains, defined by the notation provided above, is given.

Initial steps to be carried out:

Per Channel, compute the following:

1. Record Rooms Allotted (A) and Rooms Sold (S).
2. If (I = 1, NS_CNR = A-S, 0).
3. If (I = 0, NS_CR = A-S, 0).
4. T = A-S.

Steps 2 and 3 ensure that those Rooms not sold are recorded correctly as to whether they can be redistributed at a later stage or not.

Next,

5. Calculate Sum_S and Sum_NSR using the values from the previous 4 steps.

Per Channel,

6. Calculate P as T/Sum_S.

Compare each of the amounts obtained at part 6 to the average proportion sold per Channel.

7. Compute the average of the P's.

Again, per Channel,

8. Work out the percentage change (%C) of each P relative to the average P.

Now, compute the average percentage change and the standard deviation of this percentage change (see equations above). Using these values, per Channel,

9. Subtract the mean Percentage Change from each %C; and;

10. Divide through by (Standard Deviation of the Percentage Change/Square Root (Number of Channels)).

This returns a Standardised Score for measuring each of the scores to each other and therefore adjusted according to the scales for Z provided above.

Per Channel, the subroutine 24 checks whether any Rooms need to be transferred to other Channels. This will only be the case if the Channel has sold all of its Rooms. Therefore,

11. Check to see if A>S. If so, then NAA = 0 and there are still rooms left to sell for this Channel. If A=S, then multiply the proportion of rooms sold for this Channel (P) by Sum_NSR to get a value for NAA (this should only give a value for where A=S);

12. Compute any relevant adjustment of Room numbers for all other Channels (AAdj) by multiplying NS_CR by each P.

13. Compute the FAA at the next time period by adding AAdj to NS_CNR.

Note that Steps 12 and 13 only need to be carried out if one of the Channels has been depleted of Rooms. Furthermore, note that if a Room is transferred to another Channel and if a Channel has a Room block, it cannot have any Rooms taken away from it, but it is can be allocated more Rooms. However, this step is unavoidable since a transfer of Rooms is based on a ratio of Rooms sold per Channel to all Rooms sold and this total will include those blocked Channels and therefore cannot be ignored. However, any extra Rooms that are allocated to a blocked Channel can be redistributed if another Channel becomes depleted.

Subsequent steps to be carried out:

For further time periods, the following adjustments at steps 2 and 3 must be made:

Per Channel,

at 2. If (I=1, NS_CNR = NS_CNR (Day 1) S (Day 2), 0). After the calculations for Day 1 have taken place initially, this becomes a count over each time period of how many Rooms from the original blocked count are available. Therefore, if (I=0), NS_CNR = 0.

This next step ensures that if all of the Rooms from the block are sold (where it is assumed that if an accommodation provider has a blocked deal, then it will sell Rooms from that block first and then any other Rooms sold at a given time period will come out of its Rooms that CAN be redistributed, as mentioned above), and NS_CNR becomes negative in the step above, then this will not affect the calculation of the total Rooms not sold. The

algorithm is capable of dealing with this. However, it means that the calculation for NS_CR must be altered so that the negative value does not affect totals that are otherwise correct.

Consequently, per Channel,

at 3. If (NS_CNR>0, A-S-NS_CNR, A-S). Therefore, if NS_CNR is negative, the count of Rooms that have not yet been sold and that can be redistributed is simply (A-S) because all Rooms now are available to be redistributed. If NS_CNR is not negative, then the count of rooms that can be redistributed must be (A-S-NS_CNR) as there are still some available from the original blocked amount that cannot be classed as being able to be redistributed.

Note that in the initial loops (times when the algorithm is executed) performed by the subroutine using the algorithm, NS_CNR is unlikely to be negative because not many Rooms will be transferred and therefore, each Channel will keep selling Rooms from its initial allotted amount of Rooms.

However, it will be appreciated that a negative value for NS_CNR is possible since a blocked Channel can be allocated more Rooms when a transfer occurs and therefore sell its original blocked amount of Rooms while still having some Rooms left over to sell. As such, this step needs to be included so as to ensure that all totals are correct for sold and not sold Rooms and consequently prices are adjusted correctly.

<u>The Release of Unsold Blocked Rooms:</u>

Assume that at Day 4 in this artificial example, any Rooms not sold from a block can be redistributed for ALL channels to sell. Therefore, prior to Day 4, at Step 11 a redistribution of the newly available Rooms must be made to all Channels, depending on how well they are currently performing in the market. Therefore, firstly per Channel,

11. A new row must be created that will convert any negative values of NS_CNR to zero. Recall that negative values in NS_CNR indicate that a Room sold has come from a count that CAN be redistributed rather than the blocked count. Next, calculate the total for this new row.

12. The remaining Rooms that have not been sold by the blocked channels can now be redistributed to all of the Channels depending on how well they are performing, measured through P. Therefore, multiply P by the total calculated in part 11 for each Channel. This is defined as RA.

13. Next, the Final Allocation Adjustment after Unblocking (FAA_UB) is determined. This is equal to RA + NS_CR for each Channel.

14. In defining the new Room totals per Channel, this new variable, FAA_UB will flow through into Day 4 to represent the new Room totals per Channel.

Note that after these blocked Rooms have been released, then the only total of Rooms not sold required is the absolute total per Channel and not the breakdown into those that can be redistributed and those that cannot. Therefore, there are two less rows after Day 4 in the tables in Excel.

Three Cases will now be described in more detail:

Three separate scenarios are described to consider a number of eventualities that are represented by the attached Tables.

Tables 1 to 4: Base Case:

In this situation, the algorithm is configured so that only a Channel that has no blocked negotiations can have its Rooms to sell depleted. This is a case where the only complication arises when the total number of Rooms to be reallocated changes from those that can be redistributed to a different term in the spreadsheet after any unblocked Rooms are released into the general domain.

Therefore, prior to Day 4, steps 11 to 13 remain as described above. However, after Day 4, when checking for whether any Room transfers are necessary steps 11 to 13 are altered such that:

11. Check to see if A>S. If so, then NAA = 0 and there are still Rooms left to sell for this Channel. If A=S, then multiply the proportion of Rooms sold per Channel (P) by TNS to get a value for NAA (only for where A=S);

12. Lastly, compute the FAA at the next time period for all other channels by multiplying TNS by each P.

Tables 9 to 12: Inventory Depleted After Unblock:

In this situation, the algorithm is configured for the case when a previously blocked Channel is depleted after the blocked Channels have redistributed their allocations (if they had not sold all of their allocations). Therefore, after Day 4, when checking for whether any Room transfers are necessary, steps 11 to 13 are changed slightly such that:

11. Check to see if A>S. If so, then NAA = 0 and there are still Rooms left to sell for this Channel. If A=S, then multiply the proportion of Rooms sold per Channel (P) by TNS to get a value for NAA (only for where A=S);

12. Lastly, compute the FAA at the next time period for all other Channels by multiplying TNS by each P.

Tables 5 to 9: Inventory Depleted Before Unblock:

In this situation, the algorithm is configured for when a blocked Channel is depleted of its Rooms before the blocked Channels are required to redistribute their Rooms. Therefore, prior to Day 4, when checking for whether any Room transfers are necessary in steps 11 to 13, these are carried out in the same way as described in the initial step

The algorithm is preferably configured to make adjustments once a day. That serves to inhibit frequent fluctuations in price, which could occur in potentially large jumps upwards and/or downwards if the algorithm is used to update the prices more than once a day.

The time of day can be selected to take advantage of yield management theories indicating when a buyer is more likely to make a purchase of a Room over the Internet.

However, the situation arising as a result of a Channel selling all of its Rooms before re-adjustment would mean that the Channel could not sell any more Rooms until any re-adjustment takes place at the specified time.

For this eventuality, a loop is fed in to the algorithm to allow immediate updating and reallocation when a Channel sells all of its Rooms. Therefore, if S=A, then the algorithm updates immediately to reallocate some Rooms to that Channel to maintain the efficacy of the algorithm.

The algorithm is also configured to accommodate a situation where another Channel enters at any stage of a particular time-period. The algorithm incorporates a step that will allow for this to happen and each step in the algorithm can be generalised so that resulting calculations reflecting any new information entered as inputs are correct.

The invention is intended to cover an embodiment in which rather than using the number of Rooms sold to evaluate how a particular re-seller compares to its competitors, the total revenue generated out of the total amount of revenue for that time period is considered.

This can readily be implemented in the framework described in the above paragraphs, in the event that information was made available.

Furthermore, the invention is intended to cover an embodiment in which instead of making comparisons of Channels at time points, comparisons are made over a predetermined time period, 7 days, for example.

Still further, the invention provides a valuable opportunity to process data for the purposes of developing an evaluation tool. That could be done by recording historical data, analyzing the data statistically and monitoring the progress of the algorithm and of the market in general. This would inevitably lead to changes in the process described above and likely deliver a more efficient tool.

A FURTHER EXAMPLE OF A CALCULATION FOR CHANGING A RATE

The first calculation below determines the percentage of rooms booked via the channel out of rooms allocated to the channel for the property. This value is calculated for each day in a 30 day period assessed.

A = the total number of allotments given to the channel for the property per day
S = the number of total sold allotments via the channel for the property per day
Z1 to Z30 = the percentage sold from a channel per day.

Z1 = (A / S) x 100
Z2 = (A / S) x 100
.....
Z29 = (A / S) x 100
Z30 = (A / S) x 100

The second calculation below determines the average percentage of rooms sold over the entire 30 day period for that property via that channel.

M = Average percentage of rooms booked via that channel for the property over 30 days.
M = (Z1+Z2...+Z29+Z30) / 30

The next calculation determines how each day's percentage of rooms sold fair against the average percentage of rooms sold over the whole month. This will return a positive or negative number.

R1 to R30 = a positive or negative number showing how a day's trade fairs against the monthly average of percentage of rooms sold.
R1 = (Z1 – M)
R2 = (Z2 – M)
R3 = (Z3 – M)
R4 = (Z4 – M)
.....
R5 = (Z4 – M)
R6 = (Z4 – M)

The next calculation is designed to get the average number of rooms sold across all Channels using an embodiment of the invention for each day in the 30 day period assessed.

In the case of a property distributing to 3 Channels (i.e Channel 1, Channel 2 and Channel 3) the formula is:

C1 = (Channel 1 - Z1 + Channel 2 - Z1 + Channel 3 - Z1) / 3

C2 = (Channel 1 - Z2 + Channel 2 - Z2 + Channel 3- Z2) / 3

...

C29 = (Channel 1-Z29 + Channel 2-Z29 + Channel 3-Z29) / 3

C30 = (Channel 1-Z30 + Channel 2-Z30 + Channel 3-Z30) / 3

The final calculation is done to determine the number (average percentage sold with controlling factors) between -100 and 100. This calculation is done for each day in the 30 day period assessed. This value is used to increase or decrease the rate according to a ledger of thresholds that can readily be determined by the Property.

N1 = (C1 + R1) / 2

N2 = (C2 + R2) / 2

...

N29 = (C4 + R4) / 2

N30 = (C5 + R5) / 2

Day 1									
Channel	**Notation**	**C1**	**C2**	**C3**	**C4**	**C5**	**Total**	**Av**	**Dev**
Blocked Allocation	**I**	**1**	**1**	**0**	**0**	**0**			
Rooms Allotted	**A**	**50**	**50**	50	50	50	250		
Room Sold	**S**	**8**	**20**	50	10	5	93		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	0	40	45	85		
Total Rooms Not Sold	**TNS**	42	30	0	40	45	157		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.086	0.2151	0.5376	0.1075	0.0538	1	0.2	
Percentage Difference in (P) (relative to average)		-57	7.55	168.8	-46.25	-73.1		-2.8422E-15	99.0986
Scaled Value	**Z**	-1.29	0.17	3.81	-1.04	-1.65			
New Allocation Amount	**NAA**	0	0	46	0	0	46		
New Allocation Adjustment	**Aadj**	7	18	46	9	5	85		
Final Allocation Amount	**FAA**	49	48	46	9	5	157		

TABLE 1 – BASE CASE

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Uber Exhibit 1002 - p. 1174
Uber Technologies, Inc. v. SurgeTech, LLC

Day 2									
Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	49	48	46	9	5	157		
Room Sold	S	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	NS_CR	7	18	42	5	3	75		
Total Rooms Not Sold	TNS	44	28	42	5	3	122		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	%C	-28.55	185.7	-42.85	-42.85	-71.45		-5.6843E-15	104.973
Scaled Value	Z	-0.64	4.19	-0.97	-0.97	-1.61			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		

TABLE 2 – BASE CASE

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Uber Exhibit 1002 - p. 1175
Uber Technologies, Inc. v. SurgeTech, LLC

Day 3									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**44**	**28**	**42**	**5**	**3**	122		
Room Sold	**S**	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	27	6	0	0	0	33		
Indicator Variable for a *negative number of rooms*		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	**NS_CR**	7	18	40	3	1	69		
Total Rooms Not Sold	**TNS**	34	24	40	3	1	102		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.5	0.2	0.1	0.1	0.1	1	0.2	
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42109E-14	86.6025
Scaled Value	**Z**	3.38	0.00	-1.13	-1.13	-1.13			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	**RA**	17	7	3	3	3	33		
Final Allocation Amount_After Unblocking	**FAA_UB**	24	25	43	6	4	102		
In this worked example, after this time point, blocked rooms have been redistributed									

TABLE 3 – BASE CASE

Uber Exhibit 1002 - p. 1176
Uber Technologies, Inc. v. SurgeTech, LLC

Day 4									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**24**	**25**	**43**	**6**	**4**	102		
Room Sold	**S**	4	6	3	6	1	20		
Total Rooms Not Sold	**TNS**	20	19	40	0	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.2	0.3	0.15	0.3	0.05	1	0.2	
Percentage Difference in (P) (relative to average)		0	50	-25	50	-75		-8.5265E-15	53.033
Scaled Value	**Z**	0.00	1.13	-0.56	1.13	-1.69			
New Allocation Amount	**NAA**	0	0	0	25	0	25		
Final Allocation Amount	**FAA**	16	25	12	25	4	82		
Day 5									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**16**	**25**	**12**	**25**	**4**	82		
Room Sold	**S**	10	0	2	2	1	15		
Total Rooms Not Sold	**TNS**	6	25	10	23	3	67		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.6667	0	0.1333	0.1333	0.0667	1	0.2	
Percentage Difference in (P) (relative to average)		233.35	-100	-33.35	-33.35	-66.65		8.52651E-15	133.341
Scaled Value	**Z**	5.27	-2.26	-0.75	-0.75	-1.50			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Would stop here in this example									

TABLE 4 – BASE CASE

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Uber Exhibit 1002 - p. 1177
Uber Technologies, Inc. v. SurgeTech, LLC

Day 1 Channel	Notation	C1	C2	C3	C4	C5	Total	Av.	Dev
Blocked Allocation	I	1	1	0	0	0			
Rooms Allotted	A	50	50	50	50	50	250		
Room Sold	S	8	20	8	10	5	51		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	42	40	45	127		
Total Rooms Not Sold	TNS	42	30	42	40	45	199		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.1569	0.3922	0.1569	0.1961	0.098	1.0001	0.20002	
Percentage Difference in (P) (relative to average)		-21.557844	96.080392	-21.557844	-1.959804	-51.0049		-1.3E-14	56.4939457
Scaled Value	Z	-0.85	3.80	-0.85	-0.08	-2.02			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		

TABLE 5 – INVENTORY DEPLETED BEFORE UNBLOCK

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Uber Exhibit 1002 - p. 1178
Uber Technologies, Inc. v. SurgeTech, LLC

Day 2									
Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	42	30	42	40	45	199		
Room Sold	S	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	38	36	43	117		
Total Rooms Not Sold	TNS	37	10	38	36	43	164		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	%C	-28.55	185.7	-42.85	-42.85	-71.45		-5.7E-15	104.972544
Scaled Value	Z	-1.13	7.35	-1.70	-1.70	-2.83			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		

TABLE 6 – INVENTORY DEPLETED BEFORE UNBLOCK

Uber Exhibit 1002 - p. 1179
Uber Technologies, Inc. v. SurgeTech, LLC

Day 3 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	37	10	38	36	43	164		
Room Sold	S	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	27	6	0	0	0	33		
Indicator Variable for a negative number of rooms		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	36	34	41	111		
Total Rooms Not Sold	TNS	27	6	36	34	41	144		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5	0.2	0.1	0.1	0.1	1	0.2	86.6025404
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42E-14	
Scaled Value	Z	5.94	0.00	-1.98	-1.98	-1.98			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	RA	17	7	3	3	3	33		
Final Allocation Amount_After Unblocking	FAA_UB	17	7	39	37	44	144		

TABLE 7 – INVENTORY DEPLETED BEFORE UNBLOCK

In this worked example, after this time point, blocked rooms have been redistributed

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Uber Exhibit 1002 - p. 1180
Uber Technologies, Inc. v. SurgeTech, LLC

Day 4 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	17	7	39	37	44	144		
Room Sold	S	17	6	3	2	1	29		
Total Rooms Not Sold	TNS	0	1	36	35	43	115		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5862	0.2069	0.1034	0.069	0.0345	1	0.2	
Percentage Difference in (P) (relative to average)		193.1	3.45	-48.3	-65.5	-82.75		0	112.661234
Scaled Value	Z	7.64	0.14	-1.91	-2.59	-3.28			
New Allocation Amount	NAA	67	0	0	0	0	67		
Final Allocation Amount	FAA	67	24	12	8	4	115		
Day 5 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	67	24	12	8	4	115		
Room Sold	S	10	18	2	2	1	33		
Total Rooms Not Sold	TNS	57	6	10	6	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.303	0.5455	0.0606	0.0606	0.0303	1	0.2	
Percentage Difference in (P) (relative to average)		51.5	172.75	-69.7	-69.7	-84.85		-1.1E-14	111.142381
Scaled Value	Z	2.04	6.84	-2.76	-2.76	-3.36			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		

TABLE 8 – INVENTORY DEPLETED BEFORE UNBLOCK

Uber Exhibit 1002 - p. 1181
Uber Technologies, Inc. v. SurgeTech, LLC

Day 1 Channel	Notation	C1	C2	C3	C4	C5	Total	Av.	Dev
Blocked Allocation	**I**	**1**	**1**	**0**	**0**	**0**			
Rooms Allotted	**A**	**50**	**50**	50	50	50	250		
Room Sold	**S**	**8**	**20**	8	10	5	51		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	42	40	45	127		
Total Rooms Not Sold	**TNS**	42	30	42	40	45	199		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1569	0.3922	0.1569	0.1961	0.098	1.0001	0.20002	
Percentage Difference in (P) (relative to average)		-21.557844	96.080392	-21.557844	-1.959804	-51.0049		-1.3E-14	56.4939457
Scaled Value	**Z**	-0.85	3.80	-0.85	-0.08	-2.02			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 9 – INVENTORY DEPLETED AFTER UNBLOCK

Uber Exhibit 1002 - p. 1182
Uber Technologies, Inc. v. SurgeTech, LLC

Day 2									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**42**	**30**	**42**	**40**	**45**	199		
Room Sold	**S**	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	38	36	43	117		
Total Rooms Not Sold	**TNS**	37	10	38	36	43	164		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	**%C**	-28.55	185.7	-42.85	-42.85	-71.45		-5.7E-15	104.972544
Scaled Value	**Z**	-1.13	7.35	-1.70	-1.70	-2.83			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 10 – INVENTORY DEPLETED AFTER UNBLOCK

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Uber Exhibit 1002 - p. 1183
Uber Technologies, Inc. v. SurgeTech, LLC

Day 3 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	37	10	38	36	43	164		
Room Sold	S	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	27	6	0	0	0	33		-
Indicator Variable for a negative number of rooms		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	36	34	41	111		
Total Rooms Not Sold	TNS	27	6	36	34	41	144		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5	0.2	0.1	0.1	0.1	1	0.2	
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42E-14	86.6025404
Scaled Value	Z	5.94	0.00	-1.98	-1.98	-1.98			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	RA	17	7	3	3	3	33		
Final Allocation Amount_After Unblocking	FAA_UB	17	7	39	37	44	144		

TABLE 11 – INVENTORY DEPLETED AFTER UNBLOCK

In this worked example, after this time point, blocked rooms have been redistributed

Uber Exhibit 1002 - p. 1184
Uber Technologies, Inc. v. SurgeTech, LLC

Day 4 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	17	7	39	37	44	144		
Room Sold	S	17	6	3	2	1	29		
Total Rooms Not Sold	TNS	0	1	36	35	43	115		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5862	0.2069	0.1034	0.069	0.0345	1	0.2	
Percentage Difference in (P) (relative to average)		193.1	3.45	-48.3	-65.5	-82.75		0	112.661234
Scaled Value	Z	7.64	0.14	-1.91	-2.59	-3.28			
New Allocation Amount	NAA	67	0	0	0	0	67		
Final Allocation Amount	FAA	67	24	12	8	4	115		
Day 5 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	67	24	12	8	4	115		
Room Sold	S	10	18	2	2	1	33		
Total Rooms Not Sold	TNS	57	6	10	6	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.303	0.5455	0.0606	0.0606	0.0303	1	0.2	
Percentage Difference in (P) (relative to average)		51.5	172.75	-69.7	-69.7	-84.85		-1.1E-14	111.142381
Scaled Value	Z	2.04	6.84	-2.76	-2.76	-3.36			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		

TABLE 12 – INVENTORY DEPLETED AFTER UNBLOCK

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Uber Exhibit 1002 - p. 1185
Uber Technologies, Inc. v. SurgeTech, LLC

EMBODIMENT FOR APPLICATION WITHOUT A PREDETERMINED PERIOD

The following paragraphs relate to the schematic flowchart set out in Figure 5 and referred to generally with reference numeral 100. The schematic flowchart 100 represents an embodiment, in accordance with the invention, of a software product and a method for managing inventory allocated to respective re-sellers. In particular, when executed by a data processing apparatus exemplified by the data processing apparatus or computer 12, the product provides flexibility in the application of the generated performance indicator referred to with the variable Z in the previous embodiment to current and future "Yield Management" techniques (i.e. techniques relating to maximizing the financial yield from inventory allocations).

In the following description, the variable symbols used correspond with those defined in the description of the previous embodiment, unless otherwise indicated.

The software product 100 is also configured to separate various processes and calculations into stages to limit the amount of processing needed when applying the indicator (Z) to "Yield Management" techniques and to cache the data for appropriate re-use (e.g. statistical analysis). This allows operations to be performed on the indicator without the need to calculate it every time.

For convenience, the allocation of inventory will be referred to as a Room, with the understanding that this embodiment can be applied to any allocation of inventory. Furthermore, the Rooms can be associated with a particular property to envisage the situation of, for example, a resort attempting to obtain the best yield from the Rooms it has available. "Property" could also be understood to be more than particular geographical location. For example, it could be a certain category of properties, or a chain of resorts. In other words, the Rooms are grouped into Properties to provide a meaningful comparison between performances achieved by different Channels.

Each logical progression is numbered and explained below and refers to the program flow depicted by Figure 5.

Processes Initiated by a Channel / Booking Engine

The software product 100 defines a remote booking engine 102 that uses a suitable communications protocol to receive booking data at 104 for a property and room type when made via a Channel.

The remote booking engine 102 is configured to receive cancellation data at 106 for a property and a room type when made via a Channel.

Processes that Feed Data into a Data Storage Function.

When a booking is processed and the booking data is entered into the system, the software product 100 calls a data storage function 108 for storing the booking data in a Data Processing Table 110. The function 108 writes an appropriate date range (arrival date and departure date less one day) and associated room identification data (Room ID) to the table 110.

When a cancellation is processed at 106, the software product 100 calls the function 108 for storing a record in the table 110. The function 108 stores the date and Room ID in the table 110.

Allocation allotment changes are processed at 112 in a suitable allotment interface. The function 108 is called and the appropriate date range (Date Range) and associated Room ID is passed to the function 108 which stores the Date Range and Room ID in the table 110. If more than one Room is chosen for allocation changes then more than one record of the change is created in the table 110.

It will be understood that certain Rooms in a particular property could be locked or unlocked from processing by the software product 100 due to a previous negotiation with a specific Channel, as envisaged in the previous embodiment. When Rooms for a Channel are locked or unlocked at 114 via an interface referred to as a Channel Connection Interface, a section of the Rooms available on a given date for the associated Channel is removed from or added to a re-distribution pool of Rooms by the function 108. When this occurs, all cached records for Rooms from an associated property are re-calculated based on a resultant re-

distributable pool. The appropriate date ranges (from a day the Rooms are locked until a last allotment date for that Property), as well as all the Room ID's for that Property, are passed to the function 108 which stores the records in the table 110.

Calculating a Performance Indicator from the Data Processing Table

This is a process that runs constantly. Steps 1 and 2 below are repeated as long as there is data to select from the table 110.

1. The records are selected by a function 116 consecutively from the table 110 in the order of entry.

2. An algorithm defined by the function 116 is then processed for each day and associated Room ID in the date range stored in the table 110.

A difference between this embodiment and the previous embodiment for a predetermined timeline is that a concept of a "re-distribution timeline" (the five days in the Tables) is not introduced at this stage. This means that a value of "Sum_A" only includes the allotments from Channels participating in the re-distribution process for a Room Type (i.e. a Room in a particular Property) and date of a particular record.

In order to participate in this embodiment, a Channel must not be holding blocked inventory. Also the Channel must at least have an "allotment value" for the Room via the Channel on the given date in the record. An "allotment value" is an entry in a database table used by the product 100 to associate Channels with Rooms, Room types, available dates and other characteristics usually associated with a booking.

"Sum_NSR" therefore only includes rooms that are sold from a re-distributable pool.

Per Channel, the function 116 computes the following:

1. Record Rooms Allotted (A) and Rooms Sold (S).
2. NS_R = A-S (The C is dropped since C & CN are indicators of whether or not a particular Room can be sold, as that differentiator is not applicable in this embodiment).

3. T = A-S.

Next,

4. Calculate Sum_S and Sum_NSR using the values from the previous 3 steps.

Per Channel,

5. Calculate P as S/Sum_S.

Now, the function 116 compares each of the amounts obtained at step 5 to the average proportion sold per Channel.

6. Compute the average of the P's.

Again, per Channel,

7. Compute a percentage change (%C) of each *P* relative to the average *P*.

8. Compute the average percentage change and the standard deviation of this percentage change.

Using these values, per Channel,

9. Subtract the mean Percentage Change from each %C; and;

10. Divide the result returned by the previous step through by (Standard Deviation of the Percentage Change)(Square Root (Number of Channels)).

The results of these calculations are then recorded or updated for each date processed and for each Channel that has a Room allocated on the respective date, for the Room Type being processed, into a cache table 118.

Re-Distributing Rooms Triggered by Booking and Cancellation Processes

When the booking processing is complete and it has been calculated that a Channel has run out of Rooms for a Room Type then an Allotment Re-Distribution Date Storage function 120 is called to store the Room ID and date where re-allocation is required into an Allotment Re-Distribution Table 122.

If it is determined that there are no more Rooms to re-distribute for a particular Room ID and date then the data is not entered into the table 122 as no re-distribution is required.

When the cancellation processing is complete and a new Room exists for the Room Type then an Allotment Re-Distribution Date Storage function 124 is called to store the Room ID and date where re-allocation is required in the table 122.

Each record is selected from the table 122 and processed by the function 122 one by one in order of entry into the table 122.

The Channels that participate in a re-distribution process described above for a particular Room Type and date are selected from a Channels table 126. To satisfy "participation" criteria they must not be holding inventory that is "locked" in the Channel. They must also at least have an allotment value, as described above for the Room via the Channel on the given date. In other words there must be an entry in the table 126 that associates the Channel and the Room.

They must also be currently linked to the Property via an active ClientChannels table record. An active ClientChannels table record is a record in a ClientChannels table that links to an interface used by a vendor to select a particular Channel. Thus, the table record contains a list of Channels available for selection by the vendor. In order for the particular record to be active, that Channel should have been selected by a vendor to participate in the reselling of the vendor's inventory (Rooms for this particular example). It will be appreciated that "vendor" is used broadly and can be interchanged with "Property" as that word has been defined earlier.

Once the participant Channels have been determined, the function 120 uses the performance indicator (Z) for the Channel, to order a list in the Channel table 126 from

highest performing Channel first to lowest performing Channel last. If there are Channels in the list that have the same performance rating then the function 120 uses a randomizing algorithm to order those Channels.

After the order has been determined, the function 120 counts the number of Rooms in the re-distributable pool for the day in question and loops through the list of Channels assigning one Room to each channel in the list in turn until the number of re-distributable Rooms is exhausted. If the list of Channels is exhausted and there are still Rooms to be distributed the looping process is repeated until there are no more Rooms to distribute.

Once a count of Rooms to be allotted has been determined, the function 120 generates the necessary script to facilitate allotment with OTA XML and communicates it to the Channels via the protocol used by OTA. OTA stands for the Open Travel Alliance. That organisation has developed an XML standard (OTA XML) that facilitates online bookings and allocations.

Price Modification

A price or rate calculation function 128 is called and executed every 24 hours by a time-based scheduling device or cron. The function 128 adjusts prices for 30 days into the future from the date on which it is executed for all Channels that have rooms with allotments on the days in question.

The function 128 initiates by uploading a list of the dates to process. Next it selects all the Room and Channel combinations from the table 122 that actually have an allotment value for the respective dates. The allotment value must be greater than 0 as there is no reason to increase the price of a room if there is nothing to sell.

Then it selects a performance indicator Z for a Room and Channel combination from the cache 118.

The function 128 then selects a current price for the room via that Channel on the date it is executed as well as a minimum rate (the rate it cannot go below) for that date / Room / Channel combination.

It then carries out an adjustment on the rate according to Z and the corresponding adjustment value from an adjustment table referred to in the previous embodiment making sure it does not drop below the minimum rate.

A Rates table 130 is then adjusted accordingly and the OTA XML created for transfer of the respective rate to the Channel.

Linking and Unlinking Rooms

At 136, the software product 100 provides an interface to permit the Property to lock inventory (Rooms) out of the algorithms of the software product in the event that a Property has negotiated a block of the Rooms with a particular vendor. In the event that Rooms are to be released back for participation in the software product 100, the interface 100 allows the Rooms to be "unlocked".

Statistical Analysis

A particular advantage of the invention is that it provides the cache 118 that is accessible with a statistical analysis engine 132. The engine 132 is configured to perform statistical analyses on the data collected in the cache 118 to assess the performance of the algorithms used by the software product of the invention.

The statistical assessment can be carried out manually. However, it is preferable that the assessment be carried out with a suitable application such as that known as a genetic or self-learning algorithm.

In order to achieve that, a statistics table 134 is provided to receive data from the statistical analysis engine 132.

Applicant believes that the invention provides a means whereby a highly efficient distribution of inventory such as accommodation allotments can be made between various distribution channels for that inventory. This is particularly important in the online reseller market where property holders are simply not in a position to investigate the performance of various distribution channels. In short, the invention provides a means whereby the accommodation

allotment resellers can simply subscribe to a provider of the invention in return for having their inventory or accommodation allotments sold as efficiently as possible.

It is to be understood that the present invention, in accordance with at least one presently preferred embodiment, includes a system for managing inventory allocations, a method of managing inventory allocations, and a software product for managing inventory allocations. Together, these elements may be implemented on at least one general-purpose computer running suitable computer programs including the preferred embodiment of the software product. They may also be implemented on at least one integrated circuit or part of at least one integrated circuit. Thus, it is to be understood that the invention may be implemented in hardware, software, or a combination of both.

Although illustrative embodiments of the present invention have been described herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to those precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention.

CLAIMS

1. A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carrying out at least one of the following steps in the data processing apparatus:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

2. A method as claimed in claim 1, in which the step of processing the data includes the step of calculating a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

3. A method as claimed in claim 2, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

4. A method as claimed in claim 3, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

5. A method as claimed in claim 4, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

6. A method as claimed in claim 4, which includes the step of adjusting a price of the inventory allocated to said particular re-seller by a factor of Z.

7. A method as claimed in claim 2, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

8. A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of items of inventory allocated to respective re-sellers;

processing said data to obtain data relating to sales performance of at least one of the respective re-sellers; and

carrying out at least one of the following steps:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

9. A system as claimed in claim 8, in which the data processing apparatus is configured to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

10. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

11. A system as claimed in claim 10, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

12. A system as claimed in claim 11, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular

re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

13. A system as claimed in claim 12, in which the data processing apparatus is configured to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

14. A system as claimed in claim 9, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

15. A software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives data relating to the sale of items of inventory allocated to respective re-sellers;

processes said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carries out at least one of the following steps:

adjusts a price for which inventory allocated to at least that respective re-sellers is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocates inventory items from at least that said respective re-seller to other respective re-sellers.

16. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the date processing apparatus to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

17. A software product as claimed in claim 16, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-

sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

18. A software product as claimed in claim 17, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

19. A software product as claimed in claim 18, which, when executed by a the data processing apparatus, causes the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

20. A software product as claimed in claim 19, which, when executed by a data processing apparatus, causes the data processing apparatus to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

21. A software product as claimed in claim 9, which, when executed by a data processing apparatus, causes the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

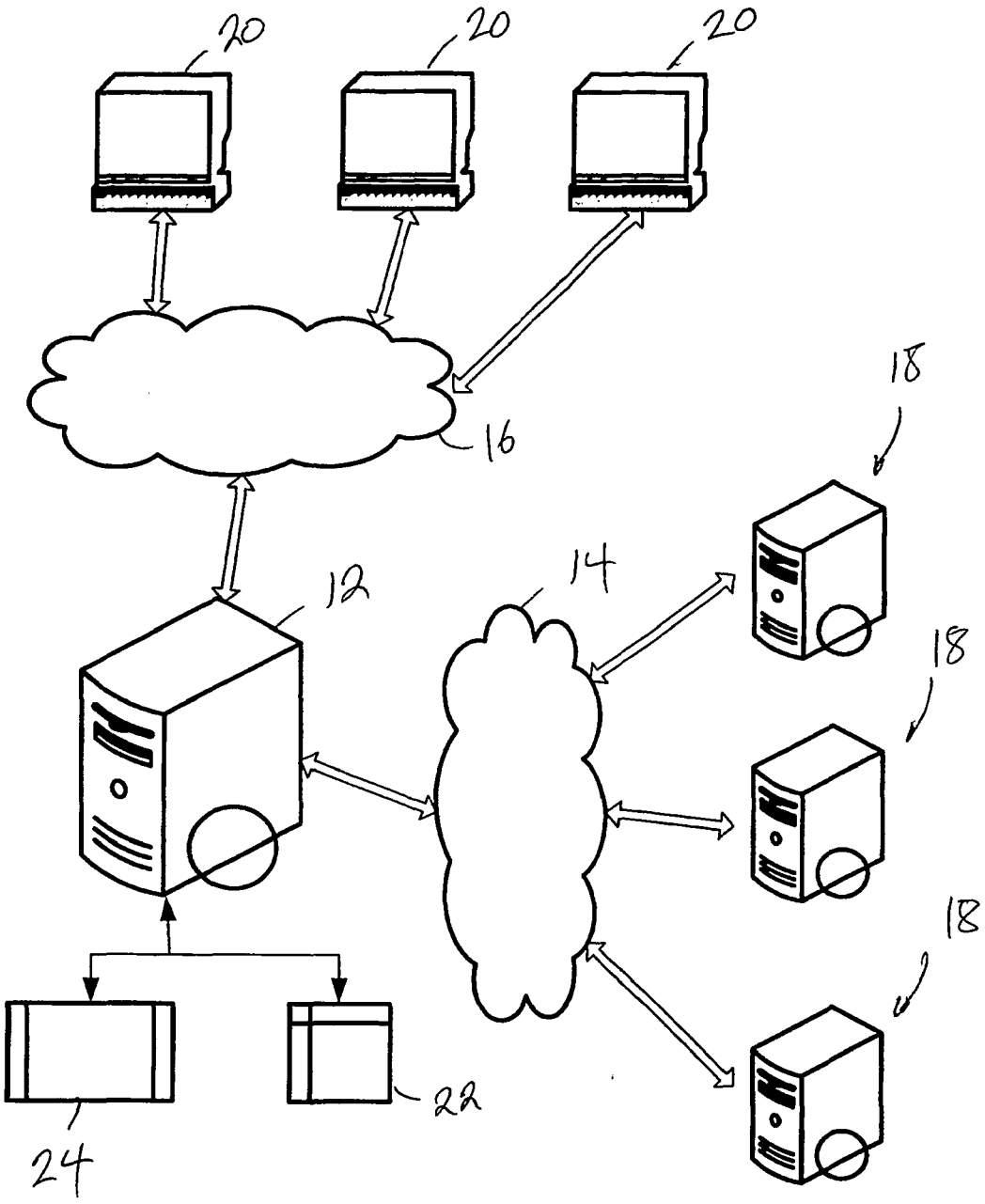


FIGURE 1

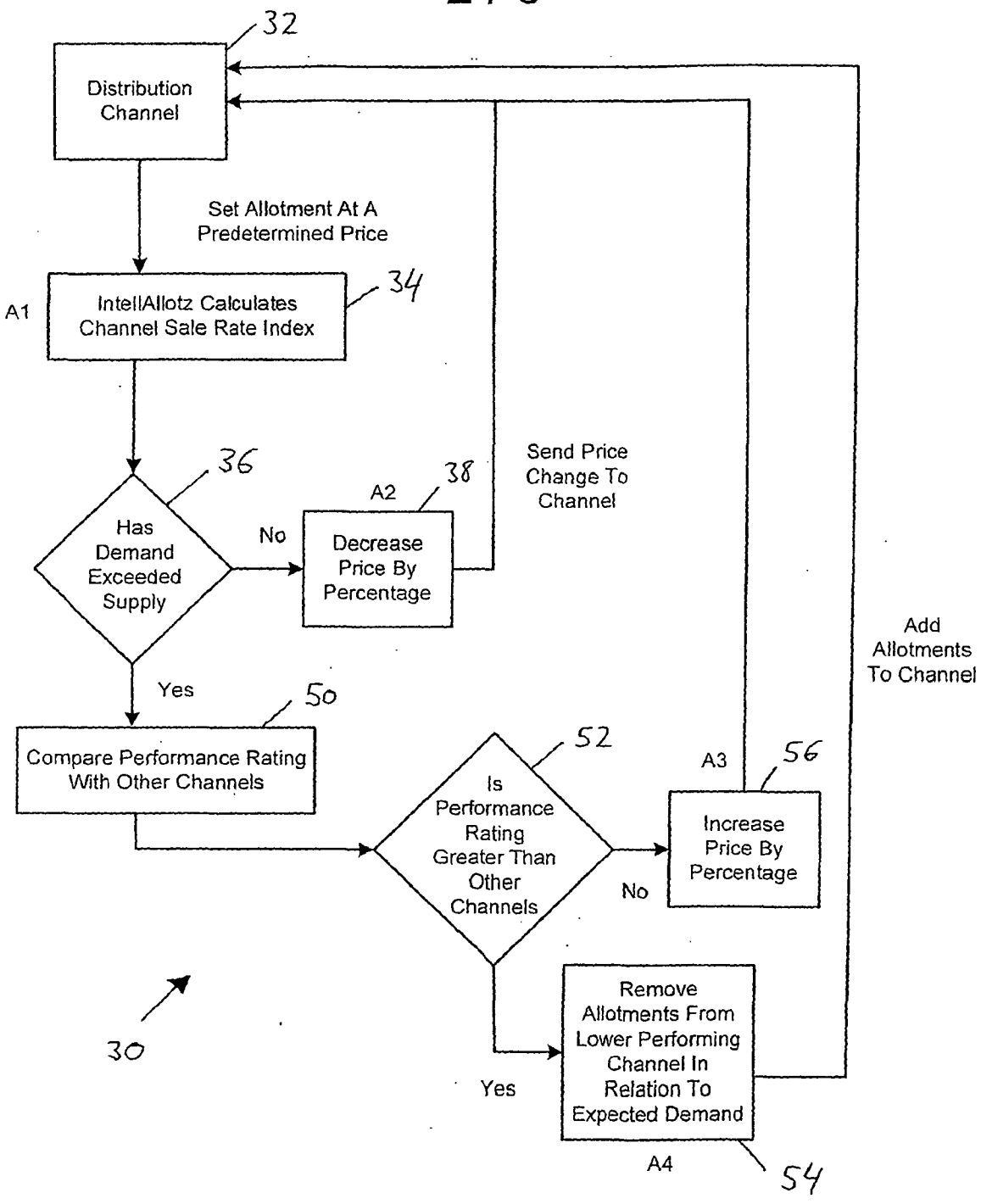


Figure 2

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Uber Technologies, Inc. v. SurgeTech, LLC

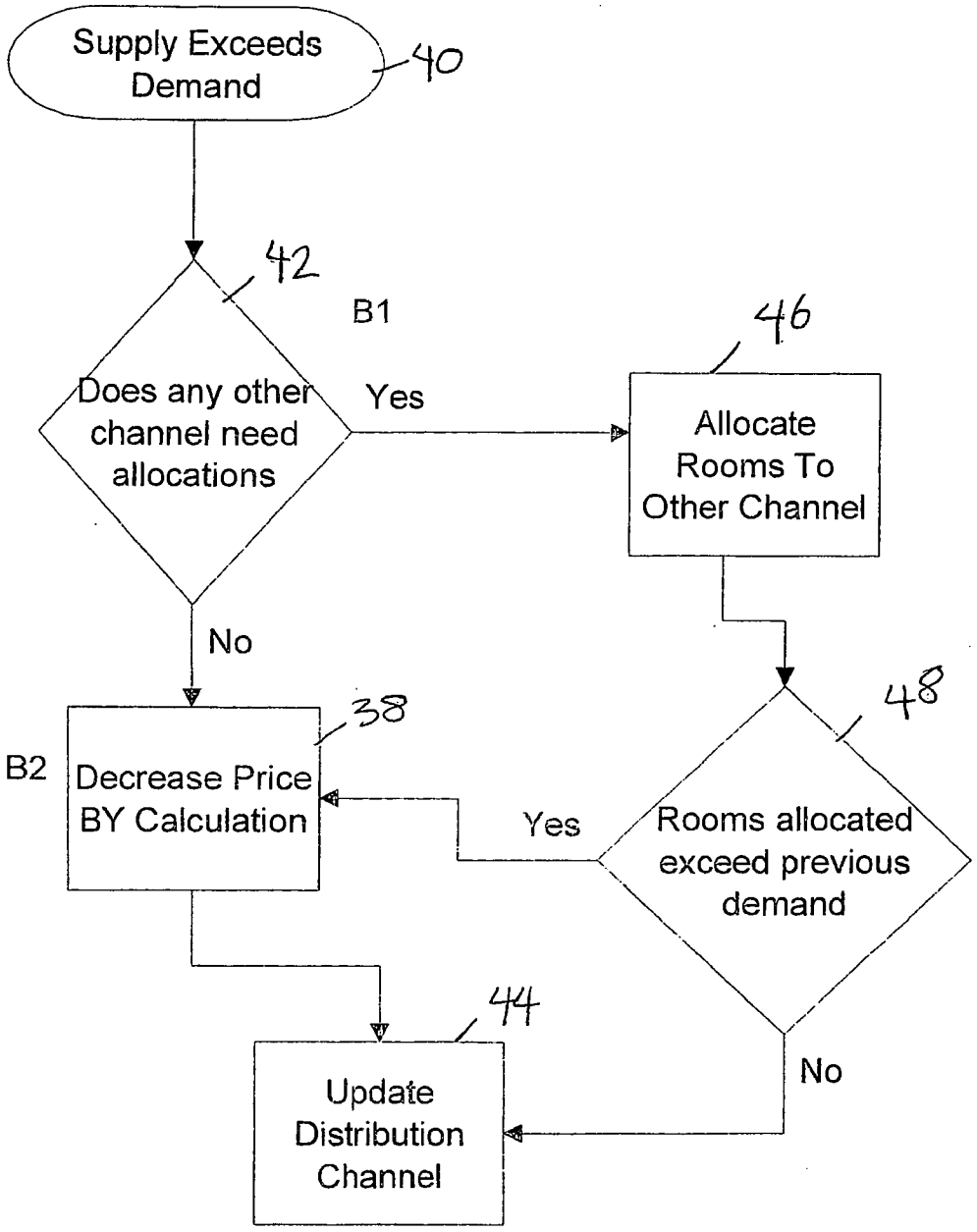

Supply Exceeds Demand
40
42
B1
Does any other channel need allocations
Yes
46
Allocate Rooms To Other Channel
No
48
38
B2
Decrease Price BY Calculation
Yes
Rooms allocated exceed previous demand
44
No
Update Distribution Channel

FIGURE. 3

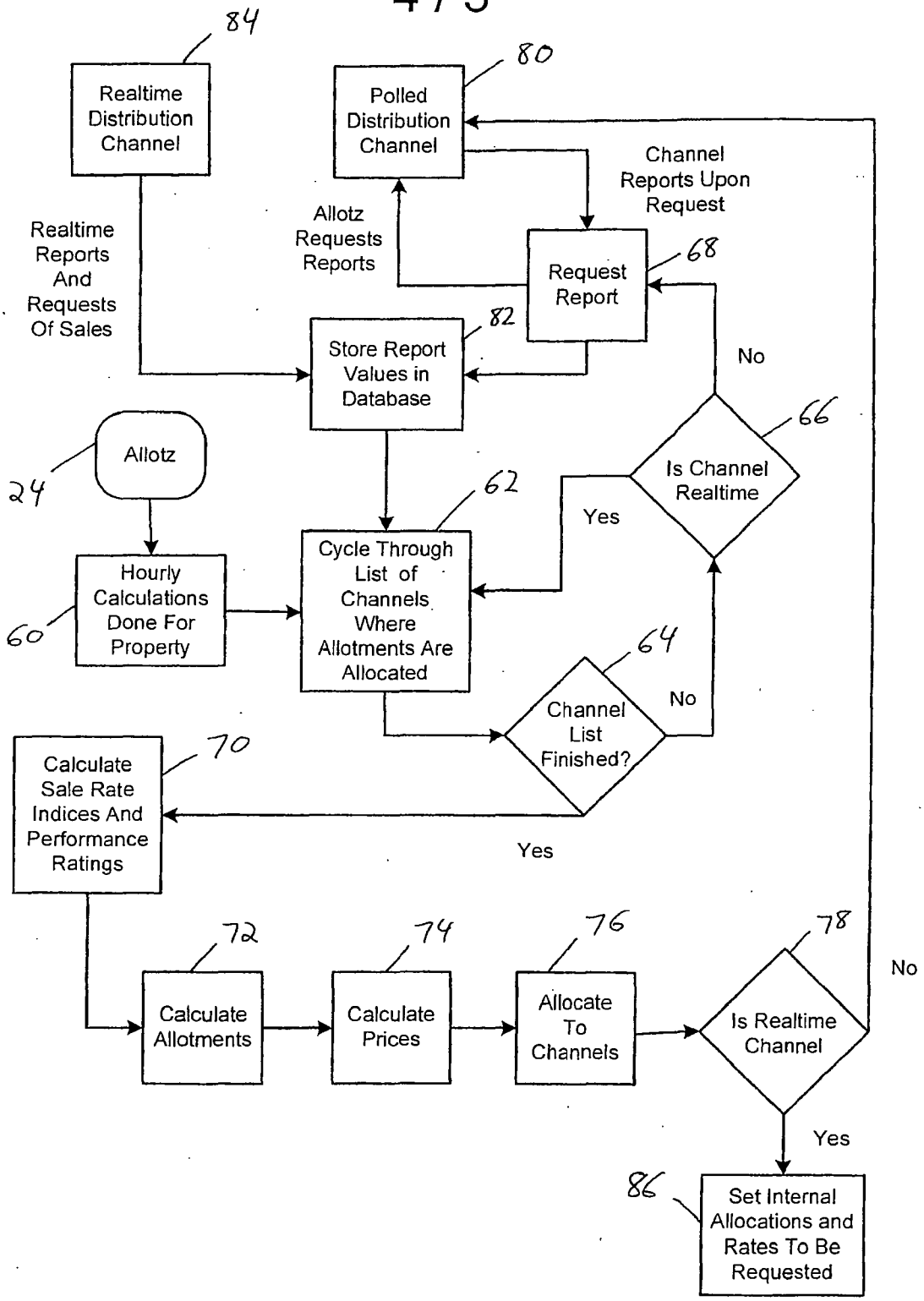


Figure 4

Uber Exhibit 1002 - p. 1201
Uber Technologies, Inc. v. SurgeTech, LLC

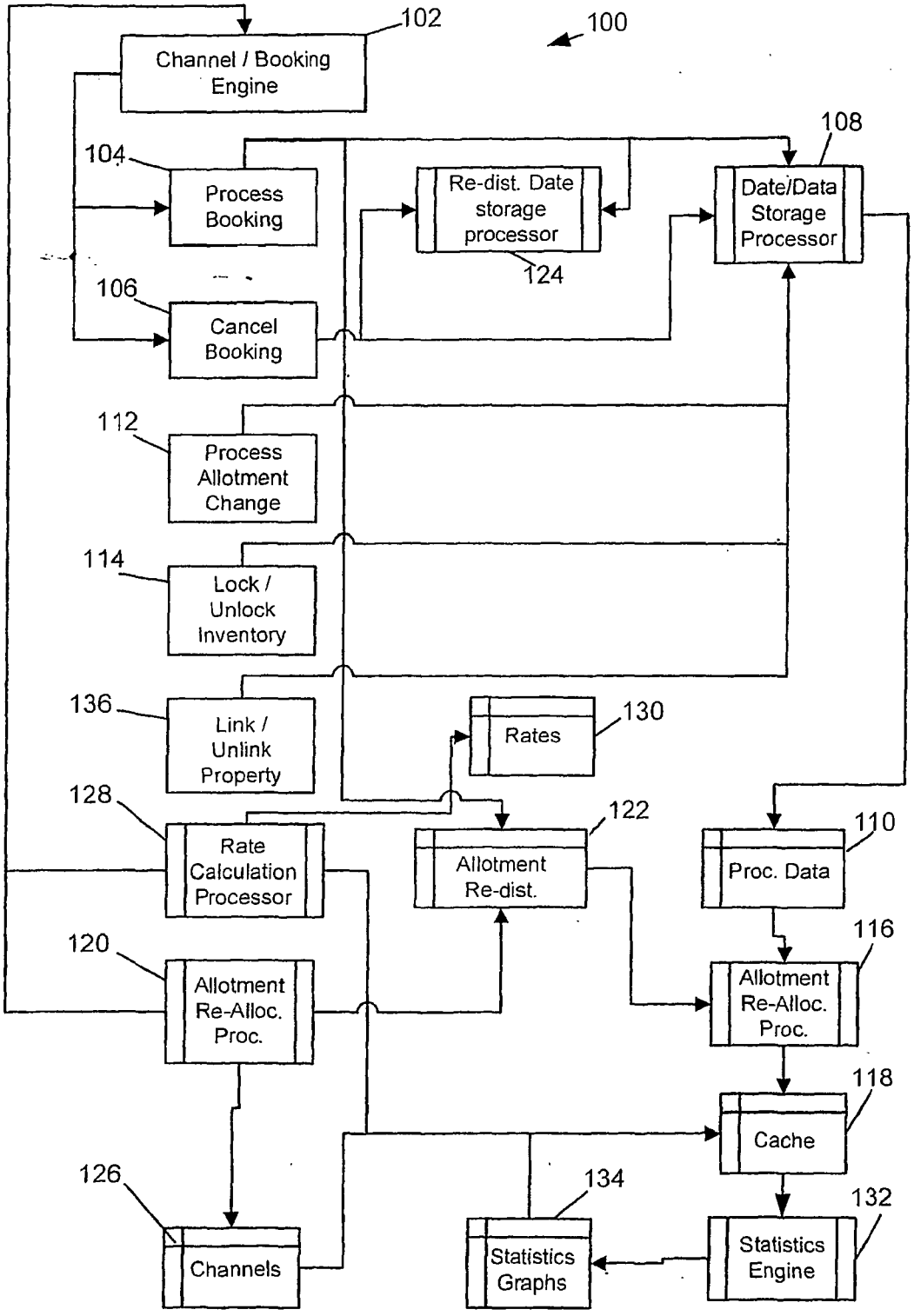


FIGURE 5

Uber Exhibit 1002 - p. 1202
Uber Technologies, Inc. v. SurgeTech, LLC

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2007/000684

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

G06Q 30/00 (2006.01) *G06Q 10/00* (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
DWPI + keywords: stock+, inventory(ies), supply chain+, retail+, wholesal+, warehous+, manage+, control+, transact+, vendor+, +sell+, +buy+, pric+, +allocat+, Vendor Managed Inventory (VMI), adjust+, updat+, upgrad+, statistical analysis

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, Y	WO 2001/067356 A (INVINITY SYSTEMS CORPORATION) 13 September 2001 Entire document. See in particular: abstract, page 1 to page 4 line 2; page 8 lines 3 to the penultimate paragraph; page 12 paragraph 3 to page 17 paragraph 1; page 32 2nd table; and drawings.	1-21
X, Y	WO 2001/084278 A (ASSETTRADE) 8 November 2001 Entire document. See in particular : abstract, page 4 line 16 to page 5 line 1; page 6 line 25 to page 10 line 30, page 13 line 11 to page 22 line 1; and drawings.	1-21
Y	WO 2005/010675 A (PROFITLOGIC, INC.) 3 February 2005 Entire document. See in particular: abstract, pages 1-4, page 8 last paragraph to page 10 paragraph 1, and drawings.	1-21

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 July 2007	- 3 AUG 2007
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer **CHARLES BERKO** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : (02) 6283

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2007/000684

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2005/001615 A (PROFITLOGIC, INC) 6 January 2005 Entire document. See in particular: abstract, pages 6-10, claims 10, 13, 14	1-21
Y	GB 2302427 A (i2 TECHNOLOGIES INC) 15 January 1997 Entire document. See in particular: abstract, drawings, page 6 lines 2-33, page 7 lines 17-33, page 14 line 28 to page 16 line 13.	1-21
Y	WO 2001/082135 A (SCIENCE APPLICATIONS INTERNATIONAL CORPORATION) 1 November 2001. Entire document. See in particular : abstract, page 2 lines 3-13, page 3 lines 1-10 and 20-22; page 12 lines 1-17, 13 lines 16-26, page 23 lines 3-16.	1-21
Y	US 20040153359 A (HO et al.) 5 August 2004 Entire document. See in particular: abstract, drawings paragraphs: [2] to [11]; [34], [65] to [71]; [77] to [85], [91], [92].	1-21
Y	US 20030088616 A (ETESSAMI ET AL.) 8 May 2003 Entire document. See in particular: abstract, drawings, paragraphs: [5], [9] to [11], [16], [31] to [33].	1-21
A	Marketing Management. http://en.wikipedia.org/wiki/Marketing_management [Retrieved: 23 July 2007]	1-21
A	Inventory. http://en.wikipedia.org/wiki/Marketing_management. [Retrieved: 23 July 2007]	1-21
A	Statistics. http://en.wikipedia.org/wiki/Statistical_analysis. [Retrieved: 23 July 2007]	1-21

Uber Exhibit 1002 - p. 1204
Uber Technologies, Inc. v. SurgeTech, LLC

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/AU2007/000684

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
WO	0167356	AU	49104/01	BR	0109095	CA	2402350
		CN	1427974	EP	1281142	EP	1766330
		MX	PA02008814	US	6996538	US	2001051905
		US	2004230503	US	2005197929	US	2006020512
		US	2006038010	US	2006041329	US	2006100937
		US	2006116936	US	2007055586	US	2007124216
		WO	2006007414				
WO	0184278	AU	61127/01	US	2002116281		
WO	2005010675	CA	2527796	EP	1652141	US	7171376
		US	2005060270				
WO	2005001615	CA	2527720	EP	1636670	US	2005027621
GB	2302427	AU	55990/96	BR	9608946	CA	2176530
		EP	776590	JP	9006862	US	6167380
		US	6188989	US	7085729	WO	199700489
WO	0182135	AU	57154/01				
US	2004153359	AU	2003293446	WO	2004070518		
US	2003088616	NONE					

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX

Uber Exhibit 1002 - p. 1205
Uber Technologies, Inc. v. SurgeTech, LLC

PATENT COOPERATION TREATY

From the:
INTERNAT AL PRELIMINARY EXAMINING AUTHORITY

To:

Eagar & Buck
PO Box 509 Spring Hill
QLD 4004 Australia

PCT

NOTIFICATION OF TRANSMITTAL OF INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing *(day/month/year)*	28 APR 2008
Applicant's or agent's file reference ALL02.001I	IMPORTANT NOTIFICATION

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/AU2007/000684	18 May 2007	18 May 2006

Applicant
ALLOTZ.COM LIMITED et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translations to those Offices.

4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	CHARLES BERKO AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. (02) 6283 2169

Form PCT/IPEA/416 (January 2004)

Uber Exhibit 1002 - p. 1206
Uber Technologies, Inc. v. SurgeTech, LLC

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ALL02.001I	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/AU2007/000684	International filing date *(day/month/year)* 18 May 2007	Priority date *(day/month/year)* 18 May 2006

International Patent Classification (IPC) or national classification and IPC

Int. Cl. ***G06Q 30/00*** (2006.01) ***G06Q 10/00*** (2006.01)

Applicant

ALLOTZ.COM LIMITED et al

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. [X] *(sent to the applicant and to the International Bureau)* a total of 5 sheets, as follows:
      [X] sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      [ ] sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. [ ] *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

[X]	Box No. I	Basis of the report
[ ]	Box No. II	Priority
[ ]	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
[ ]	Box No. IV	Lack of unity of invention
[X]	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
[ ]	Box No. VI	Certain documents cited
[ ]	Box No. VII	Certain defects in the international application
[ ]	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
20 November 2007	21 April 2008
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized Officer **CHARLES BERKO** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. (02) 6283

Form PCT/IPEA/409 (Cover sheet) (April 2007)

Uber Exhibit 1002 - p. 1207
Uber Technologies, Inc. v. SurgeTech, LLC

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/AU2007/000684

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

[X] The international application in the language in which it was filed

[ ] A translation of the international application into , which is the language of a translation furnished for the purposes of:

[ ] international search (under Rules 12.3(a) and 23.1 (b))

[ ] publication of the international application (under Rule 12.4(a))

[ ] international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

[ ] the international application as originally filed/furnished

[X] the description:

pages **1-45** as originally filed/furnished
pages* received by this Authority on with the letter of
pages* received by this Authority on with the letter of

[X] the claims:

pages as originally filed/furnished
pages* as amended (together with any statement) under Article 19
pages* **46-50** received by this Authority on **20 November 2007** with the letter of **the same**
pages* received by this Authority on with the letter of

[X] the drawings:

pages **1-5** as originally filed/furnished
pages* received by this Authority on with the letter of
pages* received by this Authority on with the letter of

[ ] a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages
[ ] the claims, Nos.
[ ] the drawings, sheets/figs
[ ] the sequence listing *(specify)*:
[ ] any table(s) related to the sequence listing *(specify)*:

4. [ ] This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

[ ] the description, pages
[ ] the claims, Nos.
[ ] the drawings, sheets/figs
[ ] the sequence listing *(specify)*:
[ ] any table(s) related to the sequence listing *(specify)*:

5. [ ] This report has been established taking into account **the rectification of an obvious mistake** authorized by or notified to the Authority under Rule 91 (Rule 70.2(e)).

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Uber Exhibit 1002 - p. 1208
Uber Technologies, Inc. v. SurgeTech, LLC

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/AU2007/000684

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims **1-21**	**YES**
	Claims	**NO**
Inventive step (IS)	Claims **1-21**	**YES**
	Claims	**NO**
Industrial applicability (IA)	Claims **1-21**	**YES**
	Claims	**NO**

2. Citations and explanations (Rule 70.7)

Relevant documents cited in the search report:

D1: WO 2001/067356 A (INVINITY SYSTEMS CORPORATION)
D2 WO 2001/084278 A (ASSETTRADE)
D3 WO 2005/010675 A (PROFITLOGIC, INC.)
D4 WO 2005/001615 A (PROFITLOGIC, INC.)
D5 GB 2302427 A (i2 TECHNOLOGIES INC.)
D6 WO 2001/082135 A (SCIENCE APPLICATIONS INTERNATIONAL CORPORATION)
D7 US 20040153359 A (HO et al.)
D8 US 20030088616 A (ETESSAMI ET AL.)

NOVELTY (N).& INVENTIVE STEP (IS). Claims 1-21

None of the cited art individually or in any combination obvious to a person skilled in the art, discloses all of the combination of features/integers of the claimed invention as amended. The closest D1 (INVINITY), for example, is directed to an inventory control system that allows a third-party tracking capability in a concept commonly referred to as Vendor Managed Inventory (VMI). In particular, none of the documents disclose a system for managing inventory allocations in which price of inventory allotments are adjusted based on sales performance from data received and re-allocated to re-sellers according to sales performance data involving calculation of performance indicators in the form of a function that includes a ratio of number of allotments sold to at least a number allocated and a number available for sale, as claimed.

INDUSTRIAL APPLICABILITY

The claimed invention is industrially applicable

Uber Exhibit 1002 - p. 1209
Uber Technologies, Inc. v. SurgeTech, LLC

PCT/AU2007//000684
Received 20 November 2007

IAP20Rec'd PCT 18 NOV 2008

CLAIMS

1. A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

2. A method as claimed in claim 1, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

3. A method as claimed in claim 1, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

4. A method as claimed in claim 3, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

5. A method as claimed in claim 4, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

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$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

6. A method as claimed in claim 5, which includes the step of adjusting a price of the inventory allotments allocated to said particular re-seller by a factor of Z.

7. A method as claimed in claim 1, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

8. A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of such allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

9. A system as claimed in claim 8, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

10. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller to the performance indicators

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of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

11. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

12. A system as claimed in claim 11, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

13. A system as claimed in claim 12, in which the data processing apparatus is configured to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

14. A system as claimed in claim 8, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

15. A software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processes, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carries out at least the following steps in the data processing apparatus:

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adjusts a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocates inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

16. A software product as claimed in claim 15, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

17. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

18. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

19. A software product as claimed in claim 18, which, when executed by the data processing apparatus, causes the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

20. A software product as claimed in claim 19, which, when executed by a data processing apparatus, causes the data processing apparatus to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

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21. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

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12/227451

APPLICATION DATA SHEET

Application Information

Application Type::	Regular
Subject Matter::	Utility
CD-ROM or CD-R?::	None
Title::	THE MANAGEMENT OF INVENTORY ALLOCATIONS
Attorney Docket Number::	2900.004US1
Request for Early Publication?::	No
Request for Non-Publication?::	No
Total Drawing Sheets::	0
Small Entity::	No
Petition included?::	No
Secrecy Order in Parent Appl.?::	No

Applicant Information

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Uber Exhibit 1002 - p. 1215
Uber Technologies, Inc. v. SurgeTech, LLC

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Initial 11/18/08

Uber Exhibit 1002 - p. 1216
Uber Technologies, Inc. v. SurgeTech, LLC

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Uber Exhibit 1002 - p. 1217
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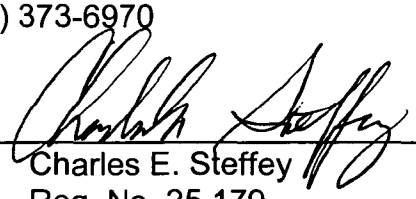
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Respectfully submitted,

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Date: November 18, 2008

By 
Charles E. Steffey
Reg. No. 25,179

Express Mail mailing label number: EM162908473US
Date of Deposit: November 18, 2008
This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to MAIL STOP PCT, P.O. Box 1450, Alexandria, VA 22313-1450.

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SCHWEGMAN ■ LUNDBERG ■ WOESSNER

12/227451

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: **THE MANAGEMENT OF INVENTORY ALLOCATIONS**,

the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability of this application in accordance with 37 C.F.R. § 1.56 (attached hereto). I also acknowledge my duty to disclose all information known to be material to patentability which became available between a filing date of a prior application and the national or PCT international filing date in the event this is a Continuation-In-Part application in accordance with 37 C.F.R. § 1.63(e).

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

Foreign application(s), if any, claiming priority under 35 U.S.C. § 119:

Application Number	Country	Day/Month/Year Filed
2006902685	Australia	18/05/2006

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

No such claim for priority is being made at this time.

I hereby claim the benefit under 35 U.S.C. § 120 or 365(c) of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. § 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application Number	Filing Date	Status
PCT/AU2007/000684	May 18, 2007	Published as WO 2007/134379 A1 on November 29, 2007

I hereby appoint the attorneys associated with the customer number listed below to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Customer Number: 21186

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization/who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct Schwegman, Lundberg & Woessner, P.A. to the contrary.

Please direct all correspondence in this case to **Schwegman, Lundberg & Woessner, P.A. at** the address indicated below:
Customer Number. 21186

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Geoffrey Toogood

X Additional inventors are being named on separately numbered sheets, attached hereto.

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Signature: _____ Date: _____
Daniel Paul Ruul

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application:

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

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S/NUnknown

12/227451 PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Andrew LOCH et al.	Examiner:	Unknown
Serial No.:	Unknown	Group Art Unit:	Unknown
Filed:	Herewith	Docket No:	2900.004US1
Title:	THE MANAGEMENT OF INVENTORY ALLOCATIONS		

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Prior to taking up this application for examination, please enter the following amendments:

IN THE SPECIFICATION

Page 1, line 3 please insert the following:

RELATED APPLICATIONS

This application is a nationalization under 35 U.S.C. 371 of PCT/AU2007/000684, filed May 18, 2007 and published as WO 2007/134379 A1, on November 29, 2007, which claimed priority under 35 U.S.C. 119 to Australian Patent Application Serial No. 2006902685, filed May 18, 2006; which applications and publication are incorporated herein by reference and made a part hereof.

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-21 (Canceled)

22. (New) A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

23. (New) A method as claimed in claim 22, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

24. (New) A method as claimed in claim 22, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having

at least one common characteristic.

25. (New) A method as claimed in claim 24, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

26. (New) A method as claimed in claim 25, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

27. (New) A method as claimed in claim 26, which includes the step of adjusting a price of the inventory allotments allocated to said particular re-seller by a factor of Z.

28. (New) A method as claimed in claim 22, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

29. (New) A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of such allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

30. (New) A system as claimed in claim 29, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

31. (New) A system as claimed in claim 29, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

32. (New) A system as claimed in claim 29, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

33. (New) A system as claimed in claim 32, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

34. (New) A system as claimed in claim 33, in which the data processing apparatus is configured to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

35. (New) A system as claimed in claim 29, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

36. (New) A software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processes, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carries out at least the following steps in the data processing apparatus:

adjusts a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocates inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

37. (New) A software product as claimed in claim 36, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

38. (New) A software product as claimed in claim 36, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

39. (New) A software product as claimed in claim 36, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

40. (New) A software product as claimed in claim 39, which, when executed by the data processing apparatus, causes the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

41. (New) A software product as claimed in claim 40, which, when executed by a data processing apparatus, causes the data processing apparatus to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

42. (New) A software product as claimed in claim 36, which, when executed by a data processing apparatus, causes the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

CONCLUSION

Applicant herein amends the specification to include the priority information. Applicant further amends the claim to bring them into closer accord with US practice, including removing multiple dependencies. Entry of the amendments prior to calculating the filing fee is requested. Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6970 to facilitate prosecution of this application.

Respectfully Submitted,

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Date: November 18, 2008

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Express Mail mailing label number: EM 162 908 473 US
Date of Deposit: November 18, 2008
This paper or fee is being deposited on the date indicated above with the United States Postal Service pursuant to 37 CFR 1.10, and is addressed to The Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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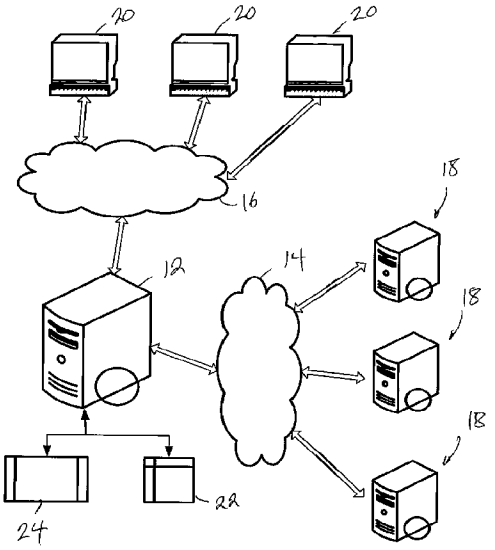
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(54) Title: THE MANAGEMENT OF INVENTORY ALLOCATIONS



(57) Abstract: A method of managing inventory allocations includes the step of receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers. The data is processed to obtain data relating to sales performance of one or more of the respective re-sellers. The method includes adjusting a price for which inventory allocated to that respective re-seller is to be sold by depending on said data relating to the sales performance of the respective re-sellers and / or re-allocating inventory items from that said respective re-seller to other respective re-sellers. The invention extends to a software product and to a system.

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THE MANAGEMENT OF INVENTORY ALLOCATIONS

FIELD OF THE INVENTION

This invention relates to the management of inventory allocations. More particularly, this invention relates to a system, to a method and to a software product for managing inventory allocations.

BACKGROUND OF THE INVENTION

Applicant has identified a particular problem when selling inventory, such as travel services including accommodation allotments, flights and other transport services. The problem is a result of the manner in which such inventory is allocated to various re-sellers, referred to as distribution channels ("Channels"), which can be *ad hoc* and thus inefficient.

It will be appreciated that efficient selection of Channels for such inventory can allow vendors to achieve a selling price that corresponds with demand for the inventory in the Channels. In this way, an optimum price for, and supply of the inventory in each Channel could be achieved with such correct selection.

While this invention is intended to cover a wide variety of inventory-types, Applicant has discovered that particularly the travel and accommodation industries would benefit greatly from efficient allocations of inventory to various Channels. A primary reason for this is that the traveling public is now able to book and pay online for practically all of its travel and accommodation needs via various online travel / accommodation reseller portals and agencies, which can be regarded as Channels. The online reseller market is particularly large in this field and the various Channels have the potential to be extremely successful.

The particular problem discovered by the Applicant is that the market has forced vendors to commit physical inventory to particular Channels in a relatively *ad hoc* manner. Furthermore, where the inventory is accommodation which needs to be sold between particular dates, any attempt to achieve efficiency by selecting the most efficient Channels can become extremely difficult. In particular, Applicant has found that most independent hotels and accommodation properties lack the resources to have members of staff dedicated

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to managing allocations to Channels. Applicant has found that it is practically impossible for them to manage this inventory in multiple Channels while still maintaining their businesses.

SUMMARY OF THE INVENTION

According to a first aspect of the invention, there is provided a method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carrying out at least one of the following steps in the data processing apparatus:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

The step of processing the data may include the step of calculating a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The step of processing the data may include the step of comparing the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The step of comparing the performance indicators may include the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The step of comparing the performance indicators may include the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The method may include the step of adjusting a price of the inventory allocated to said particular re-seller by a factor of Z.

The step of processing said data may include the step of carrying out a statistical analysis of said data relating to sales performance.

According to a second aspect of the invention, there is provided a system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of items of inventory allocated to respective re-sellers;

processing said data to obtain data relating to sales performance of at least one of the respective re-sellers; and

carrying out at least one of the following steps:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

The data processing apparatus may be configured to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The data processing apparatus may be configured to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The data processing apparatus may be configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The data processing apparatus may be configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The data processing apparatus may be configured to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

The data processing apparatus may be configured to carry out a statistical analysis of said data relating to sales performance.

According to a third aspect of the invention, there is provided a software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives data relating to the sale of items of inventory allocated to respective re-sellers;

processes said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carries out at least one of the following steps:

adjusts a price for which inventory allocated to at least that respective re-sellers is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocates inventory items from at least that said respective re-seller to other respective re-sellers.

The software product, when executed by a data processing apparatus, may cause the date processing apparatus to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

The software product may, when executed by a the data processing apparatus, cause the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

The software product, when executed by a data processing apparatus, may cause the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

The invention is now described, by way of example, with reference to the accompanying drawings. The following description is intended to illustrate particular embodiments of the invention and to permit a person skilled in the art to put those embodiments of the invention into effect. Accordingly, the following description is not intended to limit the scope of the preceding paragraphs in any way.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

Figure 1 shows a schematic view of an embodiment of a system, in accordance with the invention, for managing inventory allocations.

Figure 2 shows a flowchart indicating one embodiment, in accordance with the invention, of a method and a software product for managing inventory allocations.

Figure 3 shows a flowchart indicating a subroutine of the software product that is executed by a data processing apparatus of the system in the event that supply to a particular re-seller exceeds demand.

Figure 4 shows a flowchart indicating a further subroutine of the software product for collecting data relating to different re-sellers.

Figure 5 shows a schematic flowchart of another embodiment, in accordance with the invention, of a method and a software product for managing inventory allocations.

DETAILED DESCRIPTION OF THE INVENTION

In Figure 1, reference numeral 10 broadly illustrates an embodiment of a system, in accordance with the invention, for managing inventory allocated to respective re-sellers, according to an embodiment of a method, also in accordance with the invention.

At this point, it should be noted that Figure 1 also broadly illustrates a system that encompasses the remaining embodiments of the system, all in accordance with the invention.

In the following description, reference is made to the inventory items in the form of accommodation allotments and in further descriptions as Rooms. It is to be understood that such accommodation allotments or Rooms are allotments of property for the purposes of short term rental, such as holiday apartments, hotel rooms, etc.

However, Applicant emphasizes that the items of inventory can be any other items which are capable of being allocated to a re-seller.

Accordingly, reference to accommodation allotments or "Rooms" is not to be construed as limiting the scope of the invention as set out in the preceding summary.

The system 10 includes a data processing apparatus in the form of a computer 12 that is connectable to a network. In this case, the network can be the Internet indicated at 14 or a private network indicated at 16. It will readily be appreciated that the private network 16 can be a virtually private network (VPN) which could form part of the World Wide Web indicated at 14.

The computer 12 is programmed with a software product, in accordance with the invention. As such, the computer 12 is configured to receive sale data relating to accommodation allotments allocated to respective re-sellers, referred to as distribution channels ("Channels"), indicated schematically at 18, via the World Wide Web 14. It is to be appreciated that the Channels 18 can more specifically be servers associated with the Channels 18. This is particularly the case where the Channels 18 are online re-sellers.

The software product is such that, when executed by the computer 12, the computer 12 is able to process the sale data to obtain data relating to sales performance in each Channel (Performance Data). On receipt of the Performance Data, the computer is configured to adjust the price of accommodation allotments in respective Channels 18 depending on the Performance Data and / or re-allocate accommodation allotments in respective Channels 18 to other Channels 18.

The computer 12 is configured to store data representing accommodation allotments (Accommodation Allotment Data) required to be sold online by third party online resellers through the Channels 18. The system 10 allows a vendor of the inventory, in the form of a member or subscriber, indicated at 20, to place all or part of their accommodation allotment inventory required to be sold online in a database 22 of the computer 12. Thus, the software product of the invention is configured so that, when executed, it generates a database 22 and a subroutine 24 to manipulate the Accommodation Allotment Data, as described below.

In particular, the computer 12 is configured by the software to associate Channels 18 with accommodation allotments in the database 22. The computer 12 receives data relating to the sale of accommodation allotments (Sale Data) in the form of data relating to one or more of the following: sale price of each accommodation allotment, rate of commission and number of accommodation allotments sold over a pre-determined length of time. Subroutine 24 calculates an index (Sale Rate Index) for each Channel 18 in the form of a ratio of the number of accommodation allotments sold in a pre-determined time to the number of accommodation allotments available in that distribution channel 18 ("S"/"A").

The computer processes the Sale Data by calculating a performance rating for each distribution channel 18. The performance rating can include a determination of whether or not supply of accommodation allotments exceeds demand or vice versa per Channel.

By using the performance rating and the calculated Sale Rate Index, S/A, the subroutine 24 can calculate the number of accommodation allotments to allocate to a particular Channel 18 and the price at which those allotments can be sold to maximize a profit for the accommodation allotments.

A particular benefit of the invention is that the subroutine 24 allows for the setting of a minimum rate and can adjust prices up from or back to that rate based on the Channel Performance in which the relevant accommodation allotment is placed. Thus, if an accommodation allotment is a room and the particular Channel 18 has a higher demand than availability, the subroutine can automatically increase the room rate to maximize profit.

Furthermore, the subroutine is configured also to increase the rate in Channels with a high selling rate and that have a high rate of agents' commission so that their performance rating can be equal to or higher than other Channels 18 with lower agents' commission. It follows that the system 10 can be used to maximize profit on a range of competing Channels. It follows also that a rate at which a particular Channel is selling compared to its performance rating is directly proportional to a surplus of supply and the rate at which the accommodation allotments are being sold in that channel.

It is to be understood that supply of accommodation allotments and extent of commission control, at a basic level, the rate at which an accommodation allotment is sold in each Channel 18. It follows that if a shortage of supply should occur, a price of accommodation

allotments in all Channels 18 will increase. However, in the event that there is over-supply, the price will decrease relative to the performance rating.

It follows that the vendors or an administrator of the system of the invention can set a rate of change that could be used to increase or decrease a rate at which an accommodation allotment is sold. An example of a suitable rate is 10%. In a particular example, performance of the Channels 18 will be calculated per hour and related to previous statistical analysis of a particular targeted date range. That analysis can provide a tool for adjusting the rate upwardly or downwardly.

In the next embodiment described, there is provided a manner in which a suitable rate can be determined using a statistical equation. For the purposes of this example, it is assumed that a rate is set and subsequently adjusted as necessary.

In Figure 2, reference numeral 30 generally indicates a broad overview of the operation of the system 10 as a result of the execution of the software product of the invention.

In the system 30, reference numeral 32 indicates any Channel 18 in the form of a user-selected third party re-seller that stocks real-time property availabilities. The subroutine 24 is configured to utilize an XML standard to dynamically allocate or reallocate or update or query accommodation allotments associated with the Channel 32.

The system 30 is initiated with accommodation allotments being sold through the Channel 32 at a predetermined price. At 34, the subroutine 24 calculates a Sale Rate Index, as explained above. In particular, the subroutine 24 is configured to calculate the index by calculating an amount sold in a predetermined period of time divided by the amount allocated to that Channel (A/S). The value returned is then multiplied by 100 to get a percentage. The percentage is used as a parameter by the subroutine 24 to calculate whether or not particular Channels are allocated accommodation allotments. It will be appreciated that the parameter is used in a function to make that calculation. It will further be appreciated that Channels could be performing equally well, even though the value (A/S) is higher for one than the other. This would occur where one of the Channels has been allocated more than the other.

In that case, imaginary accommodation allotments are made to equalize. Alternatively, a suitable statistical equation (described in more detail in the following embodiment) can be

applied using a comparison to average values for A/S over the Channels being compared. The statistical equation can use a Standard Deviation parameter to adjust for the different starting amounts.

At 36, the subroutine 24 queries whether or not demand has exceeded supply in the Channel 32. If a negative answer is returned, the subroutine decreases the price by 10% at 38 and updates data representing the Channel 32.

This step is more clearly shown in Figure 3. In the event that supply exceeds demand at 40, the subroutine 24 queries at 42 whether any other Channel requires allocation of accommodation allotments. In the event that a negative answer is returned, the price can then be decreased as at 38. Once the price has been decreased, the subroutine 24 updates the data relating to the Channel 32, at 44.

In the event that the query at 42 is positive, the subroutine 24 allocates accommodation allotments, at 46, to another Channel. Subsequently, the subroutine 24 queries whether or not the rooms allocated to the other Channel exceed a previous demand at 48. In the event that that query returns a positive, the subroutine 24 carries out the step of decreasing the price, at 38. In the event that the query returns a negative, the Channel 32 is updated, as at 44.

The subroutine 24 includes a calculation at 38 that involves what is known as "Minimum Rack Rate", a "Current Rate" and a "Surplus Percentage". As is known in the accommodation industry, the term "rack rate" is used to refer to a fixed rate for a room. It follows that a Minimum Rack Rate would be a minimum price for a particular accommodation allotment. The current rate would be a rate at a particular snap shot in time. The Surplus Percentage would indicate a percentage of surplus accommodation allotments in a particular distribution channel.

The step of decreasing a price by the calculation at 38 is effectively a step of decreasing the performance rating of that particular channel. Accordingly, in this example, the subroutine 24 adjusts the performance rating down by 10%. Thus, if the Channel had a performance rating of X allotments selling at $Y each with a commission of $Z and the performance rating is to be reduced by 10%, the following calculation is carried out by the subroutine 24 to obtain the rate (R):

$$0.9X + Z = R$$

If the Minimum Rack Rate was below the R, then $R would be the new sale price per allotment. Otherwise, the minimum rack rate would be the price. It is thus to be appreciated that the subroutine 24 would not continually lower the prices of accommodation allotments beyond a predetermined minimum.

Reverting back now to Figure 2, if the query at 36 returns a positive, the subroutine 24 compares the performance rating of the Channel 32 with other channels. As set out earlier, the performance rating can be in the form of a number of parameters. For example, it could be related to a surplus or deficit percentage related to supply and demand of particular accommodation allotments. At 52, the subroutine 24 queries whether or not the performance rating of the Channel 32 is greater than the other Channels. This can be done using the "imaginary rooms" or the statistical analysis mentioned above.

If the query returns a positive, the subroutine 24 removes accommodation allotments from the lower performing Channels and adds them to the Channel 32. Alternatively, if the query at 52 returns a negative result, the subroutine 24 serves to increase the accommodation allotment price by a particular percentage. In this case, the percentage is 10%.

Using a calculation similar to the one used for decreasing the price, if a Channel with a performance rate of X allotments selling at $Y with a commission of $Z is increased by 10% the following calculation would be used to obtain the rate (R):

$$1.1X + Z = R$$

As can be seen in Figure 2, once the steps at 54 and 56 are completed, the subroutine 24 returns to 32 where the data relating to that Channel is updated.

It is important that the subroutine 24 collects the necessary data in an efficient manner.

Applicant has conceived two methods in which the data can be received from respective Channels 18. These are referred to as the "real-time" and "request-based" methods.

In this particular example, all calculations are done hourly per accommodation allotment and each allotment calculation is started apart from the others' calculations. It follows that property A calculations would for example start at 12:00 and property B calculations would start at 12:01 and so on. The subroutine 24 is configured such that the interval is decided by the amount of properties and servers on which the properties reside, where the servers communicate with the computer 12 via the World Wide Web 14. As set out above, the servers can also be represented by reference numeral 18.

Channels that report in real-time back to the subroutine 24 store their figures in the database 22 until they are needed by the subroutine 24. On the other hand, request-based Channels are polled by the subroutine 24 before the calculations are made.

An example of the manner in which the figures are collected from servers for the Channels is shown in Figure 4. In Figure 4, the subroutine 24 carries out hourly calculations at 60 for each accommodation allotment in the various distribution channels. At 62, the subroutine 24 cycles through a list of Channels where the accommodation allotments are stored in the data base 22.

The subroutine 24 then queries, at 64, whether or not the list of Channel has been cycled through. In the event that a negative response is returned, the subroutine 24 queries whether or not the Channel is "real-time". In the event that the response is negative, the subroutine 24 requests a report at 68 from the relevant server. On the other hand, if the query at 66 is positive, the subroutine 24 continues to cycle through the list of Channels at 62.

If the query at 64 is positive, the subroutine 24 carries out various calculations to obtain the sale rate indices and performance rating, at 70, as described earlier. At 72, the allotments are calculated. At 74, the subroutine 24 calculates the prices for the accommodation allotments in the various Channels. At 76, the subroutine 24 allocates accommodation allotments to various Channels, in accordance with the tests and parameters described with reference to Figures 2 and 3. At 78, the subroutine 24 queries whether or not the respective Channel is a real-time Channel. In the event that this query returns a negative result, the subroutine 24 polls the relevant server of the Channel at 80. The server for the Channel then transmits the report to the database 22. The subroutine 24 stores the report values in the database 22 at 82.

At 84 there is schematically indicated a real-time Channel. The Channel 84 provides, on a regular basis, real-time reports and requests of sales to the data base at 82.

In the event that the query at 78 returns a positive, the subroutine 24 serves to re-set allocations of accommodation allotments to various Channels 18 and the respective prices at 86.

EMBODIMENT FOR APPLICATION OVER A PREDETERMINED PERIOD

A further embodiment, in accordance with the invention, is now described with reference to an algorithm defined by the subroutine 24. The algorithm can be applied in the framework of the system 10, described above. However, this algorithm is an alternative to the algorithmic process described above, while still falling within the broader scope of the preceding material.

The description is with reference to the operation of the algorithm over a 5 day period. Reference is made to Tables 1 to 5 which appear at the end of the description of this embodiment. It is to be appreciated that the embodiment can readily be applied to longer or shorter periods without technical difficulty.

In this example, it is assumed that there are five Channels. This example takes into account that two of the Channels have negotiated blocks of 50 allotments, something which is conventional in the field. The negotiated blocks are indicated by the row entitled "blocked allocation" in the tables. It is to be understood that since those allotment allocations have been negotiated, it is not possible for the system 10 to act freely on those allocations.

For ease of reference only, the allotments are referred to as "Rooms".

It should be noted that the Rooms are those associated with a particular property (Property). The Property is to be understood as a characteristic of the Rooms that makes comparison between the Rooms meaningful. For example, the Rooms could be sourced from a common hotel franchise or from a particular geographical area or from a particular star rating etc.

Set out below is a list of Notations used with their meanings in the Tables and in the following description:

Notation	Definition
A	Number of Rooms Allotted
S	Number of Rooms Sold
I	An indicator variable to depict whether a Channel has a negotiated blocked allocation
T	Total Number of Rooms Sold
P	Proportion of Rooms Sold
NS_CR	Number of Rooms that are Not sold and CAN be redistributed
NS_CNR	Number Rooms that are Not sold and CANNOT be redistributed
TNS	Total Number of Rooms Not Sold
NAA	New Allocation Amount
Aadj	Allocation Adjustment Amount
FAA	Final Allocation Amount
RA	Redistribution Adjustment from Unblocked Rooms
FAA_UB	Final Allocation Amount After Unblocking

The following totals are used throughout and are calculated over all the Channels during a predetermined time period:

Notation	Definition
Sum_S	Total Rooms Sold Overall (per stated time period)
Sum_NSR	Total Rooms Not Sold (per time period) that CAN be redistributed

If a blocked allocation of Rooms has been negotiated (i.e. it is not possible to transfer those Rooms from one Channel to another), wholesalers generally release unsold Rooms back to the associated Property, usually 7 days from the end of a negotiated time-period.

It is thus necessary to monitor each of the Rooms within each step of the algorithm to ensure that any adjustments are made using only those Rooms that are free to be sold through Channels and transferred from one Channel to another. The reason is that the blocked Rooms can be considered as sold.

This five day example assumes that on day four, any Rooms obtained in a previously negotiated blocked sale that are not sold are then released into a general domain for selling in any of the other Channels to sell, and re-allocated accordingly. This reallocation will be a function of a Channel's relative performance in the market.

Day 4 is therefore analogous to the start of a final 7-day period when rooms are released to the general domain as mentioned above.

Furthermore, it is assumed that adjustments are made only once a day.

For each Channel, the number of Rooms sold is recorded and a total is calculated in the final column. In order to obtain a measure of how well a re-seller is performing in the market, a ratio between the Rooms sold per Channel and the total number of Rooms sold at each time point is calculated. This provides a measure of how well a Channel is selling the Rooms for a predetermined time period. This is then used to ascertain any price adjustments that should be made for the associated Channel.

For j = 1, ..., n, where j represents the Channel Number, the ratio is defined by

$P_j = \frac{S_j}{\sum_{j=1}^{n} S_i}$, S_j being the number sold per Channel. In this case, $n = 5$.

In order to evaluate any redistribution of room allocations (when necessary), it is also necessary to record the number of rooms that are not sold. In general, if there are some Channels that have negotiated room blocks for a given room type in a given property (as is the case in this example), then this amount needs to be further broken down into a count of rooms that can be redistributed to other channels and a count of rooms that cannot be redistributed to other channels.

However, it is assumed that if a Room is sold from a Channel with a negotiated allocation, this will be deducted from their initial block of Rooms rather than any redistributed allocation that may occur at a stage when a Channel is depleted of all Rooms. This will be discussed in more detail below.

In order to set up the algorithm in the subroutine 24, Rooms are artificially allocated to each Channel depending on each P calculated above. This allocation is considered to be artificial since the main consideration is not whether a Channel is selling a large proportion of its Rooms, only that it is selling a larger proportion of Rooms relative to its competitors in that Property.

However, it is necessary for the number of Rooms to be factored into the algorithm used by the subroutine 24. The reason is that an accommodation provider can choose to allocate, at the outset, a block of Rooms (through negotiation based on a business decision) to a Channel or even select Channels through which to sell Rooms.

In any event, the following example illustrates why the number of Rooms should not play a role in price adjustments.

Assume there are only two Channels for Rooms in a particular Property. Assume that Channel 1 has 20 Rooms and Channel 2 has 10 Rooms and they each sell 5 Rooms. Comparatively, they are performing equally well, but if the price changes are based on a ratio of sold Rooms to allocated Rooms, then Channel 1 appears to be doing worse and its prices would be required to drop compared to Channel 2 that appears to be doing better and its prices would invariably go up.

Consequently, in order to calculate any price adjustments, the proportion of total Rooms sold by a Channel is compared to the average proportion over all Channels. This is done through a percentage change (PC) calculation relative to the average proportion of Rooms sold. Furthermore, a scale is derived to project these percentage changes onto a comparative measure, which is done in the following way:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$

Again, the value for n should be replaced with 5 since five Channels are being considered. Using this, it is possible to apply the following adjustments:

Z score	**Adjustment to price**
Greater than 3	Increase by 5%
Between 2 and 3	Increase by 2%
Between 1 and 2	Increase by 1%
Between -1 and 1	No change
Between -2 and -1	Decrease by 1%
Between -3 and -2	Decrease by 2%
Greater than -3	Decrease by 5%

The description given in the above paragraphs covers the general issues and calculations required to adjust the price of a Room for a respective Property.

The following paragraphs go into more detail regarding each step to be carried out in the algorithm and the order in which each of the steps must proceed.

Referring to the Tables mentioned earlier, Tables 1 to 4 are named "Base Case" and represent the situation on each day respectively when a given Channel that has no blocked Rooms is depleted of all of its inventory at the end of Day 1. Thus, a number of Rooms in the respective Channels needs to be adjusted.

Tables 5 to 8 are named "Inventory Depleted before Unblock" and represent the situation on each day respectively when a Channel is depleted of its Rooms on Day 2, prior to when its unsold Rooms in blocked Channels are released for general distribution.

Table 9 to 12 are named "Inventory Depleted after Unblock" and represent the situation when a Channel is depleted of its Rooms after any Rooms that have not been sold during the blocked period are released (on Day 4).

Three steps are to be noted when the subroutine 24 is executed. There are an initial set of steps for a first time period. These are described first. In a second and in subsequent time periods, a number of minor changes are applied depending on if and when Room numbers in respective Channels need to be readjusted. These are described in turn. Thirdly, prior to the blocked Rooms being released to the general domain, a number of steps are required to adjust the number of Rooms in respective Channels at the beginning of the next time period (i.e. at the beginning of Day 4 in this worked example).

Note that the notation used for logical statements in an Excel (such as If) are written below exactly as they would appear in an Excel spreadsheet, except that rather than using Cell Identifiers (for example, A1), a description of what the Cell contains, defined by the notation provided above, is given.

Initial steps to be carried out:

Per Channel, compute the following:

1. Record Rooms Allotted (A) and Rooms Sold (S).
2. If (I = 1, NS_CNR = A-S, 0).
3. If (I = 0, NS_CR = A-S, 0).
4. T = A-S.

Steps 2 and 3 ensure that those Rooms not sold are recorded correctly as to whether they can be redistributed at a later stage or not.

Next,

5. Calculate Sum_S and Sum_NSR using the values from the previous 4 steps.

Per Channel,

6. Calculate P as T/Sum_S.

Compare each of the amounts obtained at part 6 to the average proportion sold per Channel.

7. Compute the average of the P's.

Again, per Channel,

8. Work out the percentage change (%C) of each P relative to the average P.

Now, compute the average percentage change and the standard deviation of this percentage change (see equations above). Using these values, per Channel,

9. Subtract the mean Percentage Change from each %C; and;

10. Divide through by (Standard Deviation of the Percentage Change/Square Root (Number of Channels)).

This returns a Standardised Score for measuring each of the scores to each other and therefore adjusted according to the scales for Z provided above.

Per Channel, the subroutine 24 checks whether any Rooms need to be transferred to other Channels. This will only be the case if the Channel has sold all of its Rooms. Therefore,

11. Check to see if A>S. If so, then NAA = 0 and there are still rooms left to sell for this Channel. If A=S, then multiply the proportion of rooms sold for this Channel (P) by Sum_NSR to get a value for NAA (this should only give a value for where A=S);

12. Compute any relevant adjustment of Room numbers for all other Channels (AAdj) by multiplying NS_CR by each P.

13. Compute the FAA at the next time period by adding AAdj to NS_CNR.

Note that Steps 12 and 13 only need to be carried out if one of the Channels has been depleted of Rooms. Furthermore, note that if a Room is transferred to another Channel and if a Channel has a Room block, it cannot have any Rooms taken away from it, but it is can be allocated more Rooms. However, this step is unavoidable since a transfer of Rooms is based on a ratio of Rooms sold per Channel to all Rooms sold and this total will include those blocked Channels and therefore cannot be ignored. However, any extra Rooms that are allocated to a blocked Channel can be redistributed if another Channel becomes depleted.

Subsequent steps to be carried out:

For further time periods, the following adjustments at steps 2 and 3 must be made:

Per Channel,

at 2. If (I=1, NS_CNR = NS_CNR (Day 1) S (Day 2), 0). After the calculations for Day 1 have taken place initially, this becomes a count over each time period of how many Rooms from the original blocked count are available. Therefore, if (I=0), NS_CNR = 0.

This next step ensures that if all of the Rooms from the block are sold (where it is assumed that if an accommodation provider has a blocked deal, then it will sell Rooms from that block first and then any other Rooms sold at a given time period will come out of its Rooms that CAN be redistributed, as mentioned above), and NS_CNR becomes negative in the step above, then this will not affect the calculation of the total Rooms not sold. The

algorithm is capable of dealing with this. However, it means that the calculation for NS_CR must be altered so that the negative value does not affect totals that are otherwise correct.

Consequently, per Channel,

at 3. If (NS_CNR>0, A-S-NS_CNR, A-S). Therefore, if NS_CNR is negative, the count of Rooms that have not yet been sold and that can be redistributed is simply (A-S) because all Rooms now are available to be redistributed. If NS_CNR is not negative, then the count of rooms that can be redistributed must be (A-S-NS_CNR) as there are still some available from the original blocked amount that cannot be classed as being able to be redistributed.

Note that in the initial loops (times when the algorithm is executed) performed by the subroutine using the algorithm, NS_CNR is unlikely to be negative because not many Rooms will be transferred and therefore, each Channel will keep selling Rooms from its initial allotted amount of Rooms.

However, it will be appreciated that a negative value for NS_CNR is possible since a blocked Channel can be allocated more Rooms when a transfer occurs and therefore sell its original blocked amount of Rooms while still having some Rooms left over to sell. As such, this step needs to be included so as to ensure that all totals are correct for sold and not sold Rooms and consequently prices are adjusted correctly.

The Release of Unsold Blocked Rooms:

Assume that at Day 4 in this artificial example, any Rooms not sold from a block can be redistributed for ALL channels to sell. Therefore, prior to Day 4, at Step 11 a redistribution of the newly available Rooms must be made to all Channels, depending on how well they are currently performing in the market. Therefore, firstly per Channel,

11. A new row must be created that will convert any negative values of NS_CNR to zero. Recall that negative values in NS_CNR indicate that a Room sold has come from a count that CAN be redistributed rather than the blocked count. Next, calculate the total for this new row.

12. The remaining Rooms that have not been sold by the blocked channels can now be redistributed to all of the Channels depending on how well they are performing, measured through P. Therefore, multiply P by the total calculated in part 11 for each Channel. This is defined as RA.

13. Next, the Final Allocation Adjustment after Unblocking (FAA_UB) is determined. This is equal to RA + NS_CR for each Channel.

14. In defining the new Room totals per Channel, this new variable, FAA_UB will flow through into Day 4 to represent the new Room totals per Channel.

Note that after these blocked Rooms have been released, then the only total of Rooms not sold required is the absolute total per Channel and not the breakdown into those that can be redistributed and those that cannot. Therefore, there are two less rows after Day 4 in the tables in Excel.

Three Cases will now be described in more detail:

Three separate scenarios are described to consider a number of eventualities that are represented by the attached Tables.

Tables 1 to 4: Base Case:

In this situation, the algorithm is configured so that only a Channel that has no blocked negotiations can have its Rooms to sell depleted. This is a case where the only complication arises when the total number of Rooms to be reallocated changes from those that can be redistributed to a different term in the spreadsheet after any unblocked Rooms are released into the general domain.

Therefore, prior to Day 4, steps 11 to 13 remain as described above. However, after Day 4, when checking for whether any Room transfers are necessary steps 11 to 13 are altered such that:

11. Check to see if A>S. If so, then NAA = 0 and there are still Rooms left to sell for this Channel. If A=S, then multiply the proportion of Rooms sold per Channel (P) by TNS to get a value for NAA (only for where A=S);

12. Lastly, compute the FAA at the next time period for all other channels by multiplying TNS by each P.

Tables 9 to 12: Inventory Depleted After Unblock:

In this situation, the algorithm is configured for the case when a previously blocked Channel is depleted after the blocked Channels have redistributed their allocations (if they had not sold all of their allocations). Therefore, after Day 4, when checking for whether any Room transfers are necessary, steps 11 to 13 are changed slightly such that:

11. Check to see if A>S. If so, then NAA = 0 and there are still Rooms left to sell for this Channel. If A=S, then multiply the proportion of Rooms sold per Channel (P) by TNS to get a value for NAA (only for where A=S);

12. Lastly, compute the FAA at the next time period for all other Channels by multiplying TNS by each P.

Tables 5 to 9: Inventory Depleted Before Unblock:

In this situation, the algorithm is configured for when a blocked Channel is depleted of its Rooms before the blocked Channels are required to redistribute their Rooms. Therefore, prior to Day 4, when checking for whether any Room transfers are necessary in steps 11 to 13, these are carried out in the same way as described in the initial step

The algorithm is preferably configured to make adjustments once a day. That serves to inhibit frequent fluctuations in price, which could occur in potentially large jumps upwards and/or downwards if the algorithm is used to update the prices more than once a day.

The time of day can be selected to take advantage of yield management theories indicating when a buyer is more likely to make a purchase of a Room over the Internet.

However, the situation arising as a result of a Channel selling all of its Rooms before re-adjustment would mean that the Channel could not sell any more Rooms until any re-adjustment takes place at the specified time.

For this eventuality, a loop is fed in to the algorithm to allow immediate updating and reallocation when a Channel sells all of its Rooms. Therefore, if S=A, then the algorithm updates immediately to reallocate some Rooms to that Channel to maintain the efficacy of the algorithm.

The algorithm is also configured to accommodate a situation where another Channel enters at any stage of a particular time-period. The algorithm incorporates a step that will allow for this to happen and each step in the algorithm can be generalised so that resulting calculations reflecting any new information entered as inputs are correct.

The invention is intended to cover an embodiment in which rather than using the number of Rooms sold to evaluate how a particular re-seller compares to its competitors, the total revenue generated out of the total amount of revenue for that time period is considered.

This can readily be implemented in the framework described in the above paragraphs, in the event that information was made available.

Furthermore, the invention is intended to cover an embodiment in which instead of making comparisons of Channels at time points, comparisons are made over a predetermined time period, 7 days, for example.

Still further, the invention provides a valuable opportunity to process data for the purposes of developing an evaluation tool. That could be done by recording historical data, analyzing the data statistically and monitoring the progress of the algorithm and of the market in general. This would inevitably lead to changes in the process described above and likely deliver a more efficient tool.

A FURTHER EXAMPLE OF A CALCULATION FOR CHANGING A RATE

The first calculation below determines the percentage of rooms booked via the channel out of rooms allocated to the channel for the property. This value is calculated for each day in a 30 day period assessed.

A = the total number of allotments given to the channel for the property per day
S = the number of total sold allotments via the channel for the property per day
Z1 to Z30 = the percentage sold from a channel per day.

Z1 = (A / S) x 100
Z2 = (A / S) x 100
.....
Z29 = (A / S) x 100
Z30 = (A / S) x 100

The second calculation below determines the average percentage of rooms sold over the entire 30 day period for that property via that channel.

M = Average percentage of rooms booked via that channel for the property over 30 days.
M = (Z1+Z2...+Z29+Z30) / 30

The next calculation determines how each day's percentage of rooms sold fair against the average percentage of rooms sold over the whole month. This will return a positive or negative number.

R1 to R30 = a positive or negative number showing how a day's trade fairs against the monthly average of percentage of rooms sold.
R1 = (Z1 – M)
R2 = (Z2 – M)
R3 = (Z3 – M)
R4 = (Z4 – M)
.....
R5 = (Z4 – M)
R6 = (Z4 – M)

The next calculation is designed to get the average number of rooms sold across all Channels using an embodiment of the invention for each day in the 30 day period assessed.

In the case of a property distributing to 3 Channels (i.e Channel 1, Channel 2 and Channel 3) the formula is:

C1 = (Channel 1 - Z1 + Channel 2 - Z1 + Channel 3 - Z1) / 3

C2 = (Channel 1 - Z2 + Channel 2 - Z2 + Channel 3- Z2) / 3

...

C29 = (Channel 1-Z29 + Channel 2-Z29 + Channel 3-Z29) / 3

C30 = (Channel 1-Z30 + Channel 2-Z30 + Channel 3-Z30) / 3

The final calculation is done to determine the number (average percentage sold with controlling factors) between -100 and 100. This calculation is done for each day in the 30 day period assessed. This value is used to increase or decrease the rate according to a ledger of thresholds that can readily be determined by the Property.

N1 = (C1 + R1) / 2

N2 = (C2 + R2) / 2

...

N29 = (C4 + R4) / 2

N30 = (C5 + R5) / 2

Day 1									
Channel	**Notation**	**C1**	**C2**	**C3**	**C4**	**C5**	**Total**	**Av**	**Dev**
Blocked Allocation	**I**	**1**	**1**	**0**	**0**	**0**			
Rooms Allotted	**A**	**50**	**50**	50	50	50	250		
Room Sold	**S**	**8**	**20**	50	10	5	93		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	0	40	45	85		
Total Rooms Not Sold	**TNS**	42	30	0	40	45	157		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.086	0.2151	0.5376	0.1075	0.0538	1	0.2	
Percentage Difference in (P) (relative to average)		-57	7.55	168.8	-46.25	-73.1		-2.8422E-15	99.0986
Scaled Value	**Z**	-1.29	0.17	3.81	-1.04	-1.65			
New Allocation Amount	**NAA**	0	0	46	0	0	46		
New Allocation Adjustment	**Aadj**	7	18	46	9	5	85		
Final Allocation Amount	**FAA**	49	48	46	9	5	157		

TABLE 1 – BASE CASE

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Day 2									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**49**	**48**	**46**	**9**	**5**	157		
Room Sold	**S**	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	**NS_CR**	7	18	42	5	3	75		
Total Rooms Not Sold	**TNS**	44	28	42	5	3	122		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	**%C**	-28.55	185.7	-42.85	-42.85	-71.45		-5.6843E-15	104.973
Scaled Value	**Z**	-0.64	4.19	-0.97	-0.97	-1.61			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
***Final* Allocation Amount**	**FAA**	0	0	0	0	0	0		

TABLE 2 – BASE CASE

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Uber Technologies, Inc. v. SurgeTech, LLC

Day 3									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**44**	**28**	**42**	**5**	**3**	122		
Room Sold	**S**	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	27	6	0	0	0	33		
Indicator Variable for a *negative number of rooms*		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	**NS_CR**	7	18	40	3	1	69		
Total Rooms Not Sold	**TNS**	34	24	40	3	1	102		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.5	0.2	0.1	0.1	0.1	1	0.2	
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42109E-14	86.6025
Scaled Value	**Z**	3.38	0.00	-1.13	-1.13	-1.13			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	**RA**	17	7	3	3	3	33		
Final Allocation Amount_After Unblocking	**FAA_UB**	24	25	43	6	4	102		
In this worked example, after this time point, blocked rooms have been redistributed									

TABLE 3 – BASE CASE

Uber Exhibit 1002 - p. 1259
Uber Technologies, Inc. v. SurgeTech, LLC

Day 4									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**24**	**25**	**43**	**6**	**4**	102		
Room Sold	**S**	4	6	3	6	1	20		
Total Rooms Not Sold	**TNS**	20	19	40	0	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.2	0.3	0.15	0.3	0.05	1	0.2	
Percentage Difference in (P) (relative to average)		0	50	-25	50	-75		-8.5265E-15	53.033
Scaled Value	**Z**	0.00	1.13	-0.56	1.13	-1.69			
New Allocation Amount	**NAA**	0	0	0	25	0	25		
Final Allocation Amount	**FAA**	16	25	12	25	4	82		
Day 5									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**16**	**25**	**12**	**25**	**4**	82		
Room Sold	**S**	10	0	2	2	1	15		
Total Rooms Not Sold	**TNS**	6	25	10	23	3	67		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.6667	0	0.1333	0.1333	0.0667	1	0.2	
Percentage Difference in (P) (relative to average)		233.35	-100	-33.35	-33.35	-66.65		8.52651E-15	133.341
Scaled Value	**Z**	5.27	-2.26	-0.75	-0.75	-1.50			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Would stop here in this example									

TABLE 4 – BASE CASE

Uber Exhibit 1002 - p. 1260
Uber Technologies, Inc. v. SurgeTech, LLC

Day 1 Channel	Notation	C1	C2	C3	C4	C5	Total	Av.	Dev
Blocked Allocation	**I**	**1**	**1**	**0**	**0**	**0**			
Rooms Allotted	**A**	**50**	**50**	50	50	50	250		
Room Sold	**S**	**8**	**20**	8	10	5	51		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	42	40	45	127		
Total Rooms Not Sold	**TNS**	42	30	42	40	45	199		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1569	0.3922	0.1569	0.1961	0.098	1.0001	0.20002	
Percentage Difference in (P) (relative to average)		-21.557844	96.080392	-21.557844	-1.959804	-51.0049		-1.3E-14	56.4939457
Scaled Value	**Z**	-0.85	3.80	-0.85	-0.08	-2.02			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 5 – INVENTORY DEPLETED BEFORE UNBLOCK

Uber Exhibit 1002 - p. 1261
Uber Technologies, Inc. v. SurgeTech, LLC

Day 2									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**42**	**30**	**42**	**40**	**45**	199		
Room Sold	**S**	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	38	36	43	117		
Total Rooms Not Sold	**TNS**	37	10	38	36	43	164		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	**%C**	-28.55	185.7	-42.85	-42.85	-71.45		-5.7E-15	104.972544
Scaled Value	**Z**	-1.13	7.35	-1.70	-1.70	-2.83			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 6 – INVENTORY DEPLETED BEFORE UNBLOCK

Uber Exhibit 1002 - p. 1262
Uber Technologies, Inc. v. SurgeTech, LLC

Day 3 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	37	10	38	36	43	164		
Room Sold	S	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	27	6	0	0	0	33		
Indicator Variable for a negative number of rooms		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	36	34	41	111		
Total Rooms Not Sold	TNS	27	6	36	34	41	144		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5	0.2	0.1	0.1	0.1	1	0.2	86.6025404
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42E-14	
Scaled Value	Z	5.94	0.00	-1.98	-1.98	-1.98			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	RA	17	7	3	3	3	33		
Final Allocation Amount_After Unblocking	FAA_UB	17	7	39	37	44	144		

TABLE 7 – INVENTORY DEPLETED BEFORE UNBLOCK

In this worked example, after this time point, blocked rooms have been redistributed

Uber Exhibit 1002 - p. 1263
Uber Technologies, Inc. v. SurgeTech, LLC

Day 4 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	17	7	39	37	44	144		
Room Sold	S	17	6	3	2	1	29		
Total Rooms Not Sold	TNS	0	1	36	35	43	115		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5862	0.2069	0.1034	0.069	0.0345	1	0.2	
Percentage Difference in (P) (relative to average)		193.1	3.45	-48.3	-65.5	-82.75		0	112.661234
Scaled Value	Z	7.64	0.14	-1.91	-2.59	-3.28			
New Allocation Amount	NAA	67	0	0	0	0	67		
Final Allocation Amount	FAA	67	24	12	8	4	115		
Day 5 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	67	24	12	8	4	115		
Room Sold	S	10	18	2	2	1	33		
Total Rooms Not Sold	TNS	57	6	10	6	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.303	0.5455	0.0606	0.0606	0.0303	1	0.2	
Percentage Difference in (P) (relative to average)		51.5	172.75	-69.7	-69.7	-84.85		-1.1E-14	111.142381
Scaled Value	Z	2.04	6.84	-2.76	-2.76	-3.36			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		

TABLE 8 – INVENTORY DEPLETED BEFORE UNBLOCK

Uber Exhibit 1002 - p. 1264
Uber Technologies, Inc. v. SurgeTech, LLC

Day 1 Channel	Notation	C1	C2	C3	C4	C5	Total	Av.	Dev
Blocked Allocation	**I**	**1**	**1**	**0**	**0**	**0**			
Rooms Allotted	**A**	**50**	**50**	50	50	50	250		
Room Sold	**S**	**8**	**20**	8	10	5	51		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	42	30	0	0	0	72		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	42	40	45	127		
Total Rooms Not Sold	**TNS**	42	30	42	40	45	199		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1569	0.3922	0.1569	0.1961	0.098	1.0001	0.20002	
Percentage Difference in (P) (relative to average)		-21.557844	96.080392	-21.557844	-1.959804	-51.0049		-1.3E-14	56.4939457
Scaled Value	**Z**	-0.85	3.80	-0.85	-0.08	-2.02			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 9 – INVENTORY DEPLETED AFTER UNBLOCK

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Day 2									
Channel		**C1**	**C2**	**C3**	**C4**	**C5**	**Total**		
Rooms Allotted	**A**	**42**	**30**	**42**	**40**	**45**	199		
Room Sold	**S**	5	20	4	4	2	35		
Rooms Not Sold (that cannot be redistributed)	**NS_CNR**	37	10	0	0	0	47		
Rooms Not Sold (that can be redistributed)	**NS_CR**	0	0	38	36	43	117		
Total Rooms Not Sold	**TNS**	37	10	38	36	43	164		
Rooms Sold per Channel/Total Rooms Sold (P)**	**P**	0.1429	0.5714	0.1143	0.1143	0.0571	1	0.2	
Percentage Difference in (P) (relative to average)	**%C**	-28.55	185.7	-42.85	-42.85	-71.45		-5.7E-15	104.972544
Scaled Value	**Z**	-1.13	7.35	-1.70	-1.70	-2.83			
New Allocation Amount	**NAA**	0	0	0	0	0	0		
New Allocation Adjustment	**Aadj**	0	0	0	0	0	0		
Final Allocation Amount	**FAA**	0	0	0	0	0	0		

TABLE 10 – INVENTORY DEPLETED AFTER UNBLOCK

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Day 3 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	37	10	38	36	43	164		
Room Sold	S	10	4	2	2	2	20		
Rooms Not Sold (that cannot be redistributed)	NS_CNR	27	6	0	0	0	33		
Indicator Variable for a negative number of rooms		27	6	0	0	0	33		
Rooms Not Sold (that can be redistributed)	NS_CR	0	0	36	34	41	111		
Total Rooms Not Sold	TNS	27	6	36	34	41	144		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5	0.2	0.1	0.1	0.1	1	0.2	
Percentage Difference in (P) (relative to average)		150	1.388E-14	-50	-50	-50		1.42E-14	86.6025404
Scaled Value	Z	5.94	0.00	-1.98	-1.98	-1.98			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		
Final Allocation Amount	FAA	0	0	0	0	0	0		
Redistribution adjustment from unblocked rooms	RA	17	7	3	3	3	33		
Final Allocation Amount After Unblocking	FAA_UB	17	7	39	37	44	144		

TABLE 11 – INVENTORY DEPLETED AFTER UNBLOCK

In this worked example, after this time point, blocked rooms have been redistributed

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Day 4 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	17	7	39	37	44	144		
Room Sold	S	17	6	3	2	1	29		
Total Rooms Not Sold	TNS	0	1	36	35	43	115		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.5862	0.2069	0.1034	0.069	0.0345	1	0.2	
Percentage Difference in (P) (relative to average)		193.1	3.45	-48.3	-65.5	-82.75		0	112.661234
Scaled Value	Z	7.64	0.14	-1.91	-2.59	-3.28			
New Allocation Amount	NAA	67	0	0	0	0	67		
Final Allocation Amount	FAA	67	24	12	8	4	115		
Day 5 Channel		C1	C2	C3	C4	C5	Total		
Rooms Allotted	A	67	24	12	8	4	115		
Room Sold	S	10	18	2	2	1	33		
Total Rooms Not Sold	TNS	57	6	10	6	3	82		
Rooms Sold per Channel/Total Rooms Sold (P)**	P	0.303	0.5455	0.0606	0.0606	0.0303	1	0.2	
Percentage Difference in (P) (relative to average)		51.5	172.75	-69.7	-69.7	-84.85		-1.1E-14	111.142381
Scaled Value	Z	2.04	6.84	-2.76	-2.76	-3.36			
New Allocation Amount	NAA	0	0	0	0	0	0		
New Allocation Adjustment	Aadj	0	0	0	0	0	0		

TABLE 12 – INVENTORY DEPLETED AFTER UNBLOCK

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EMBODIMENT FOR APPLICATION WITHOUT A PREDETERMINED PERIOD

The following paragraphs relate to the schematic flowchart set out in Figure 5 and referred to generally with reference numeral 100. The schematic flowchart 100 represents an embodiment, in accordance with the invention, of a software product and a method for managing inventory allocated to respective re-sellers. In particular, when executed by a data processing apparatus exemplified by the data processing apparatus or computer 12, the product provides flexibility in the application of the generated performance indicator referred to with the variable Z in the previous embodiment to current and future "Yield Management" techniques (i.e. techniques relating to maximizing the financial yield from inventory allocations).

In the following description, the variable symbols used correspond with those defined in the description of the previous embodiment, unless otherwise indicated.

The software product 100 is also configured to separate various processes and calculations into stages to limit the amount of processing needed when applying the indicator (Z) to "Yield Management" techniques and to cache the data for appropriate re-use (e.g. statistical analysis). This allows operations to be performed on the indicator without the need to calculate it every time.

For convenience, the allocation of inventory will be referred to as a Room, with the understanding that this embodiment can be applied to any allocation of inventory. Furthermore, the Rooms can be associated with a particular property to envisage the situation of, for example, a resort attempting to obtain the best yield from the Rooms it has available. "Property" could also be understood to be more than particular geographical location. For example, it could be a certain category of properties, or a chain of resorts. In other words, the Rooms are grouped into Properties to provide a meaningful comparison between performances achieved by different Channels.

Each logical progression is numbered and explained below and refers to the program flow depicted by Figure 5.

Processes Initiated by a Channel / Booking Engine

The software product 100 defines a remote booking engine 102 that uses a suitable communications protocol to receive booking data at 104 for a property and room type when made via a Channel.

The remote booking engine 102 is configured to receive cancellation data at 106 for a property and a room type when made via a Channel.

Processes that Feed Data into a Data Storage Function.

When a booking is processed and the booking data is entered into the system, the software product 100 calls a data storage function 108 for storing the booking data in a Data Processing Table 110. The function 108 writes an appropriate date range (arrival date and departure date less one day) and associated room identification data (Room ID) to the table 110.

When a cancellation is processed at 106, the software product 100 calls the function 108 for storing a record in the table 110. The function 108 stores the date and Room ID in the table 110.

Allocation allotment changes are processed at 112 in a suitable allotment interface. The function 108 is called and the appropriate date range (Date Range) and associated Room ID is passed to the function 108 which stores the Date Range and Room ID in the table 110. If more than one Room is chosen for allocation changes then more than one record of the change is created in the table 110.

It will be understood that certain Rooms in a particular property could be locked or unlocked from processing by the software product 100 due to a previous negotiation with a specific Channel, as envisaged in the previous embodiment. When Rooms for a Channel are locked or unlocked at 114 via an interface referred to as a Channel Connection Interface, a section of the Rooms available on a given date for the associated Channel is removed from or added to a re-distribution pool of Rooms by the function 108. When this occurs, all cached records for Rooms from an associated property are re-calculated based on a resultant re-

distributable pool. The appropriate date ranges (from a day the Rooms are locked until a last allotment date for that Property), as well as all the Room ID's for that Property, are passed to the function 108 which stores the records in the table 110.

Calculating a Performance Indicator from the Data Processing Table

This is a process that runs constantly. Steps 1 and 2 below are repeated as long as there is data to select from the table 110.

1. The records are selected by a function 116 consecutively from the table 110 in the order of entry.

2. An algorithm defined by the function 116 is then processed for each day and associated Room ID in the date range stored in the table 110.

A difference between this embodiment and the previous embodiment for a predetermined timeline is that a concept of a "re-distribution timeline" (the five days in the Tables) is not introduced at this stage. This means that a value of "Sum_A" only includes the allotments from Channels participating in the re-distribution process for a Room Type (i.e. a Room in a particular Property) and date of a particular record.

In order to participate in this embodiment, a Channel must not be holding blocked inventory. Also the Channel must at least have an "allotment value" for the Room via the Channel on the given date in the record. An "allotment value" is an entry in a database table used by the product 100 to associate Channels with Rooms, Room types, available dates and other characteristics usually associated with a booking.

"Sum_NSR" therefore only includes rooms that are sold from a re-distributable pool.

Per Channel, the function 116 computes the following:

1. Record Rooms Allotted (A) and Rooms Sold (S).
2. NS_R = A-S (The C is dropped since C & CN are indicators of whether or not a particular Room can be sold, as that differentiator is not applicable in this embodiment).

3. T = A-S.

Next,

4. Calculate Sum_S and Sum_NSR using the values from the previous 3 steps.

Per Channel,

5. Calculate P as S/Sum_S.

Now, the function 116 compares each of the amounts obtained at step 5 to the average proportion sold per Channel.

6. Compute the average of the P's.

Again, per Channel,

7. Compute a percentage change (%C) of each *P* relative to the average *P*.

8. Compute the average percentage change and the standard deviation of this percentage change.

Using these values, per Channel,

9. Subtract the mean Percentage Change from each %C; and;

10. Divide the result returned by the previous step through by (Standard Deviation of the Percentage Change)(Square Root (Number of Channels)).

The results of these calculations are then recorded or updated for each date processed and for each Channel that has a Room allocated on the respective date, for the Room Type being processed, into a cache table 118.

Re-Distributing Rooms Triggered by Booking and Cancellation Processes

When the booking processing is complete and it has been calculated that a Channel has run out of Rooms for a Room Type then an Allotment Re-Distribution Date Storage function 120 is called to store the Room ID and date where re-allocation is required into an Allotment Re-Distribution Table 122.

If it is determined that there are no more Rooms to re-distribute for a particular Room ID and date then the data is not entered into the table 122 as no re-distribution is required.

When the cancellation processing is complete and a new Room exists for the Room Type then an Allotment Re-Distribution Date Storage function 124 is called to store the Room ID and date where re-allocation is required in the table 122.

Each record is selected from the table 122 and processed by the function 122 one by one in order of entry into the table 122.

The Channels that participate in a re-distribution process described above for a particular Room Type and date are selected from a Channels table 126. To satisfy "participation" criteria they must not be holding inventory that is "locked" in the Channel. They must also at least have an allotment value, as described above for the Room via the Channel on the given date. In other words there must be an entry in the table 126 that associates the Channel and the Room.

They must also be currently linked to the Property via an active ClientChannels table record. An active ClientChannels table record is a record in a ClientChannels table that links to an interface used by a vendor to select a particular Channel. Thus, the table record contains a list of Channels available for selection by the vendor. In order for the particular record to be active, that Channel should have been selected by a vendor to participate in the reselling of the vendor's inventory (Rooms for this particular example). It will be appreciated that "vendor" is used broadly and can be interchanged with "Property" as that word has been defined earlier.

Once the participant Channels have been determined, the function 120 uses the performance indicator (Z) for the Channel, to order a list in the Channel table 126 from

highest performing Channel first to lowest performing Channel last. If there are Channels in the list that have the same performance rating then the function 120 uses a randomizing algorithm to order those Channels.

After the order has been determined, the function 120 counts the number of Rooms in the re-distributable pool for the day in question and loops through the list of Channels assigning one Room to each channel in the list in turn until the number of re-distributable Rooms is exhausted. If the list of Channels is exhausted and there are still Rooms to be distributed the looping process is repeated until there are no more Rooms to distribute.

Once a count of Rooms to be allotted has been determined, the function 120 generates the necessary script to facilitate allotment with OTA XML and communicates it to the Channels via the protocol used by OTA. OTA stands for the Open Travel Alliance. That organisation has developed an XML standard (OTA XML) that facilitates online bookings and allocations.

Price Modification

A price or rate calculation function 128 is called and executed every 24 hours by a time-based scheduling device or cron. The function 128 adjusts prices for 30 days into the future from the date on which it is executed for all Channels that have rooms with allotments on the days in question.

The function 128 initiates by uploading a list of the dates to process. Next it selects all the Room and Channel combinations from the table 122 that actually have an allotment value for the respective dates. The allotment value must be greater than 0 as there is no reason to increase the price of a room if there is nothing to sell.

Then it selects a performance indicator Z for a Room and Channel combination from the cache 118.

The function 128 then selects a current price for the room via that Channel on the date it is executed as well as a minimum rate (the rate it cannot go below) for that date / Room / Channel combination.

It then carries out an adjustment on the rate according to Z and the corresponding adjustment value from an adjustment table referred to in the previous embodiment making sure it does not drop below the minimum rate.

A Rates table 130 is then adjusted accordingly and the OTA XML created for transfer of the respective rate to the Channel.

Linking and Unlinking Rooms

At 136, the software product 100 provides an interface to permit the Property to lock inventory (Rooms) out of the algorithms of the software product in the event that a Property has negotiated a block of the Rooms with a particular vendor. In the event that Rooms are to be released back for participation in the software product 100, the interface 100 allows the Rooms to be "unlocked".

Statistical Analysis

A particular advantage of the invention is that it provides the cache 118 that is accessible with a statistical analysis engine 132. The engine 132 is configured to perform statistical analyses on the data collected in the cache 118 to assess the performance of the algorithms used by the software product of the invention.

The statistical assessment can be carried out manually. However, it is preferable that the assessment be carried out with a suitable application such as that known as a genetic or self-learning algorithm.

In order to achieve that, a statistics table 134 is provided to receive data from the statistical analysis engine 132.

Applicant believes that the invention provides a means whereby a highly efficient distribution of inventory such as accommodation allotments can be made between various distribution channels for that inventory. This is particularly important in the online reseller market where property holders are simply not in a position to investigate the performance of various distribution channels. In short, the invention provides a means whereby the accommodation

allotment resellers can simply subscribe to a provider of the invention in return for having their inventory or accommodation allotments sold as efficiently as possible.

It is to be understood that the present invention, in accordance with at least one presently preferred embodiment, includes a system for managing inventory allocations, a method of managing inventory allocations, and a software product for managing inventory allocations. Together, these elements may be implemented on at least one general-purpose computer running suitable computer programs including the preferred embodiment of the software product. They may also be implemented on at least one integrated circuit or part of at least one integrated circuit. Thus, it is to be understood that the invention may be implemented in hardware, software, or a combination of both.

Although illustrative embodiments of the present invention have been described herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to those precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention.

CLAIMS

1. A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of items of inventory allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carrying out at least one of the following steps in the data processing apparatus:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

2. A method as claimed in claim 1, in which the step of processing the data includes the step of calculating a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

3. A method as claimed in claim 2, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

4. A method as claimed in claim 3, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

5. A method as claimed in claim 4, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

6. A method as claimed in claim 4, which includes the step of adjusting a price of the inventory allocated to said particular re-seller by a factor of Z.

7. A method as claimed in claim 2, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

8. A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of items of inventory allocated to respective re-sellers;

processing said data to obtain data relating to sales performance of at least one of the respective re-sellers; and

carrying out at least one of the following steps:

adjusting a price for which inventory allocated to at least that said respective re-seller is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocating inventory items from at least that said respective re-seller to other respective re-sellers.

9. A system as claimed in claim 8, in which the data processing apparatus is configured to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

10. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

11. A system as claimed in claim 10, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

12. A system as claimed in claim 11, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular

re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

13. A system as claimed in claim 12, in which the data processing apparatus is configured to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

14. A system as claimed in claim 9, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

15. A software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives data relating to the sale of items of inventory allocated to respective re-sellers;

processes said data to obtain data relating to sales performance of at least one of said respective re-sellers; and

carries out at least one of the following steps:

adjusts a price for which inventory allocated to at least that respective re-sellers is to be sold by that respective re-seller depending on said data relating to the sales performance of the respective re-sellers; and

re-allocates inventory items from at least that said respective re-seller to other respective re-sellers.

16. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the date processing apparatus to calculate a performance indicator for each re-seller in the form of a function of a ratio of a number of items sold to the number of items allocated to the re-seller for sale.

17. A software product as claimed in claim 16, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator for a particular re-seller of inventory items to the performance indicators of other re-

sellers of inventory items, the inventory items associated with respective re-sellers having at least one common characteristic.

18. A software product as claimed in claim 17, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

19. A software product as claimed in claim 18, which, when executed by a the data processing apparatus, causes the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory item.

20. A software product as claimed in claim 19, which, when executed by a data processing apparatus, causes the data processing apparatus to adjust a price of the inventory allocated to said particular re-seller by a factor of Z.

21. A software product as claimed in claim 9, which, when executed by a data processing apparatus, causes the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

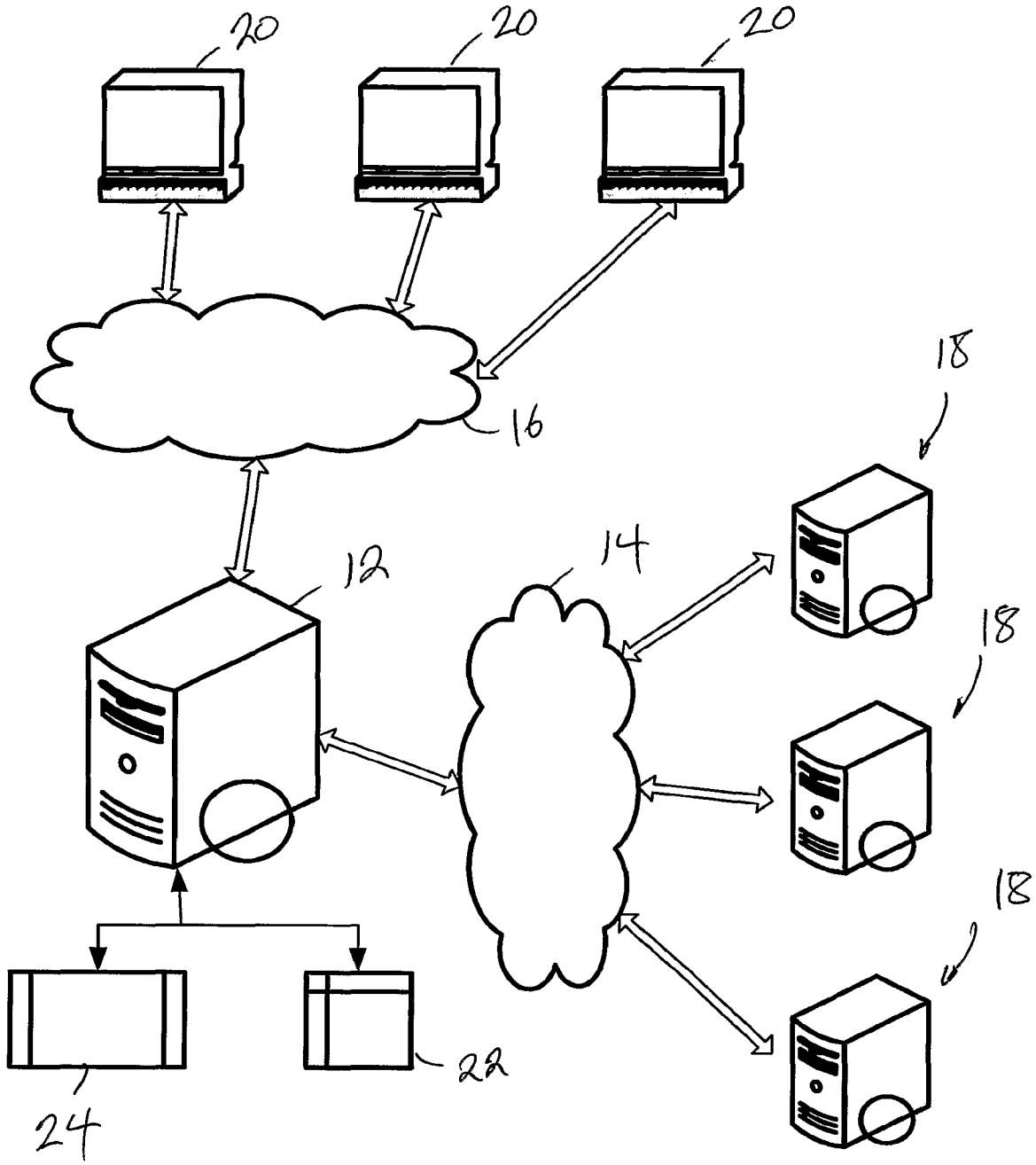


FIGURE 1

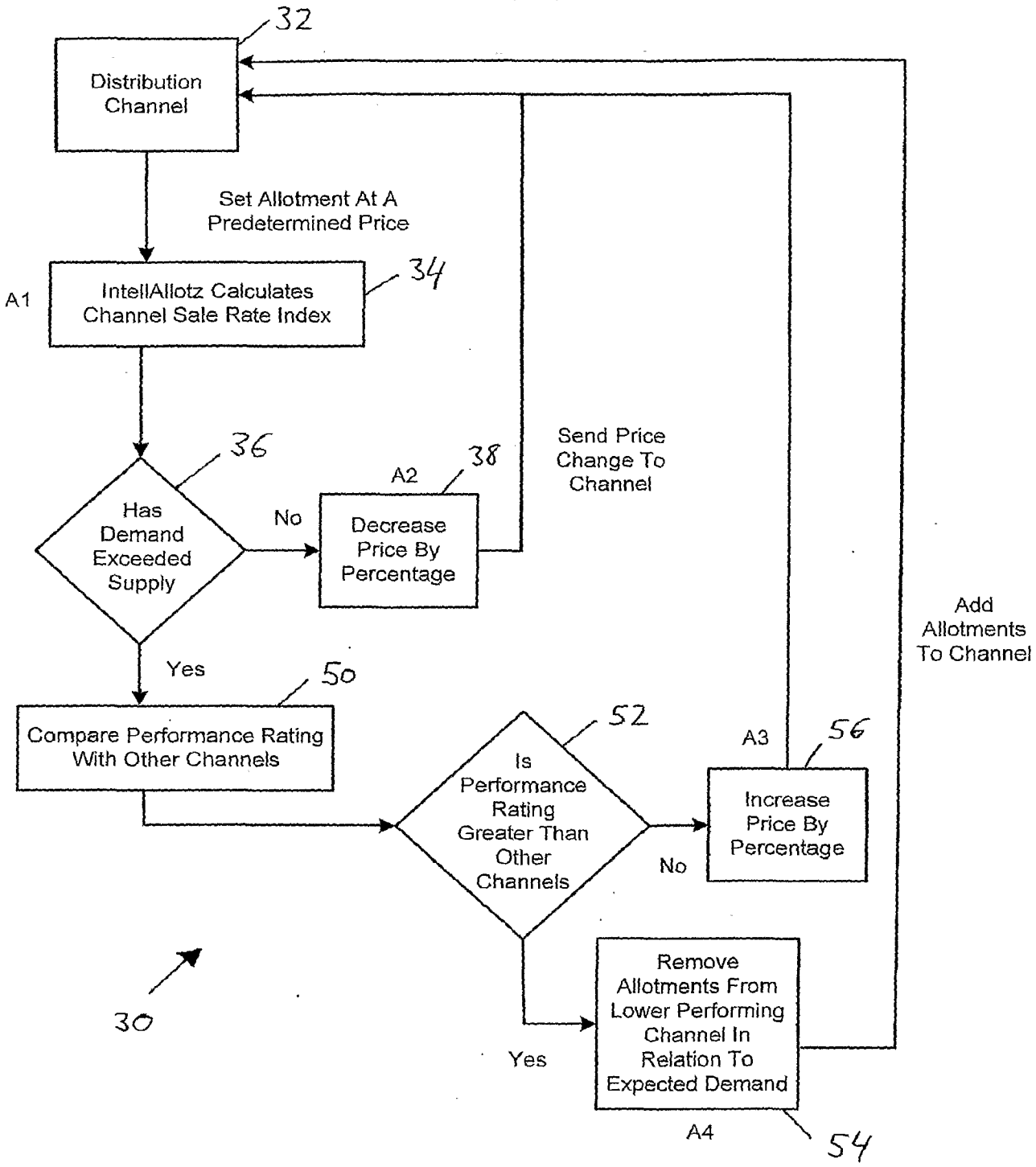


Figure 2

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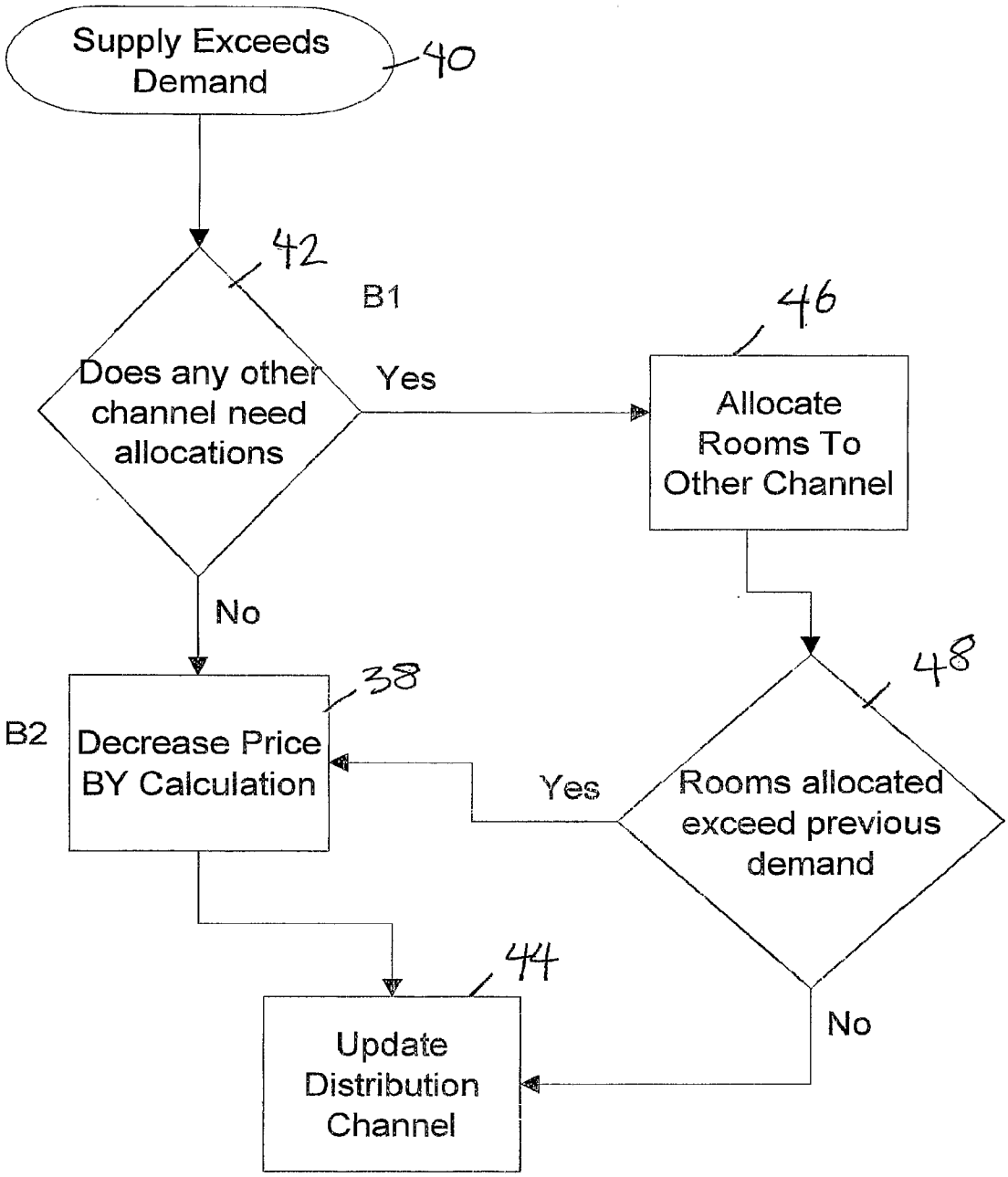

Supply Exceeds Demand
40
42
B1
Does any other channel need allocations
Yes
46
Allocate Rooms To Other Channel
No
48
38
B2
Decrease Price BY Calculation
Yes
Rooms allocated exceed previous demand
44
No
Update Distribution Channel

FIGURE. 3

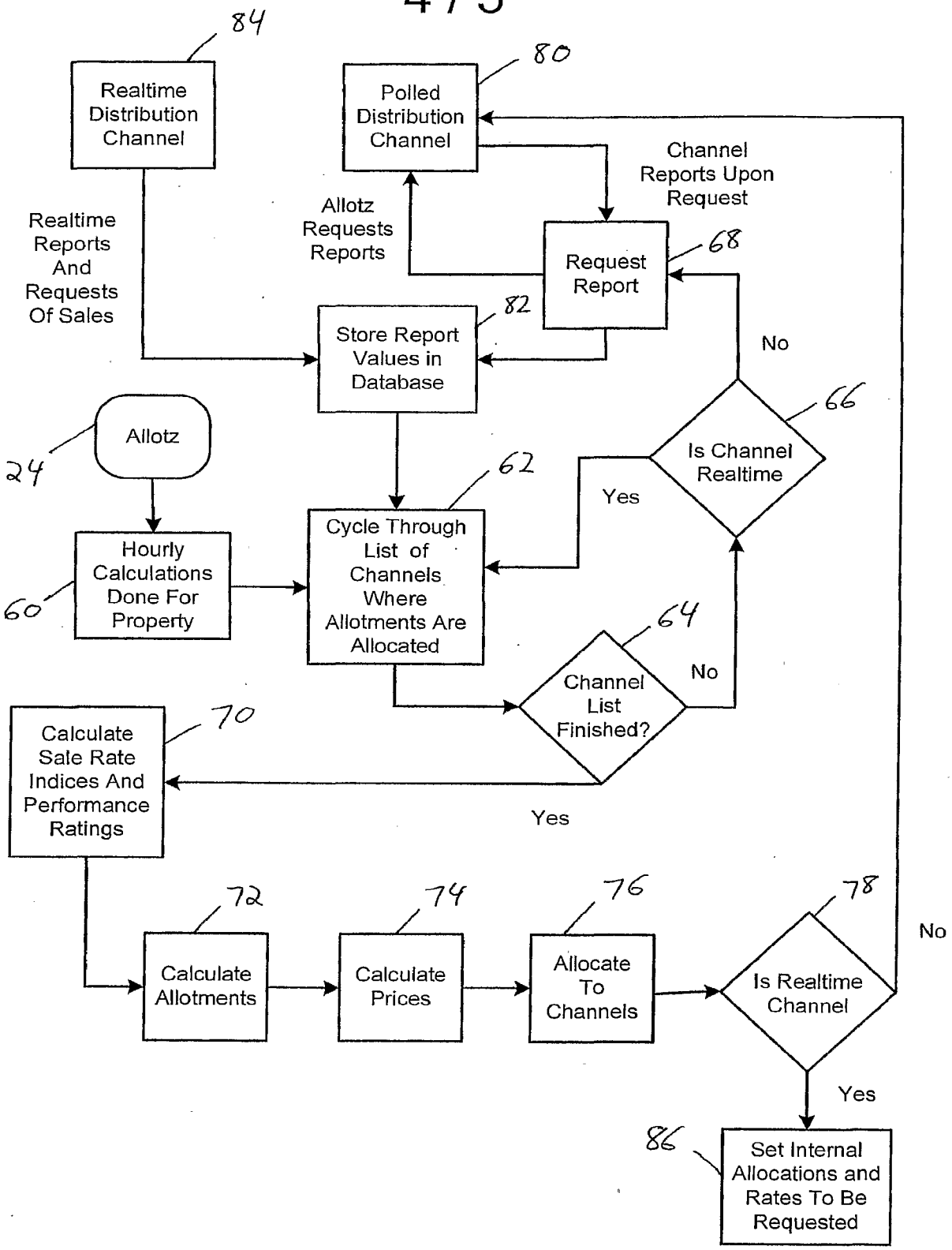


Figure 4

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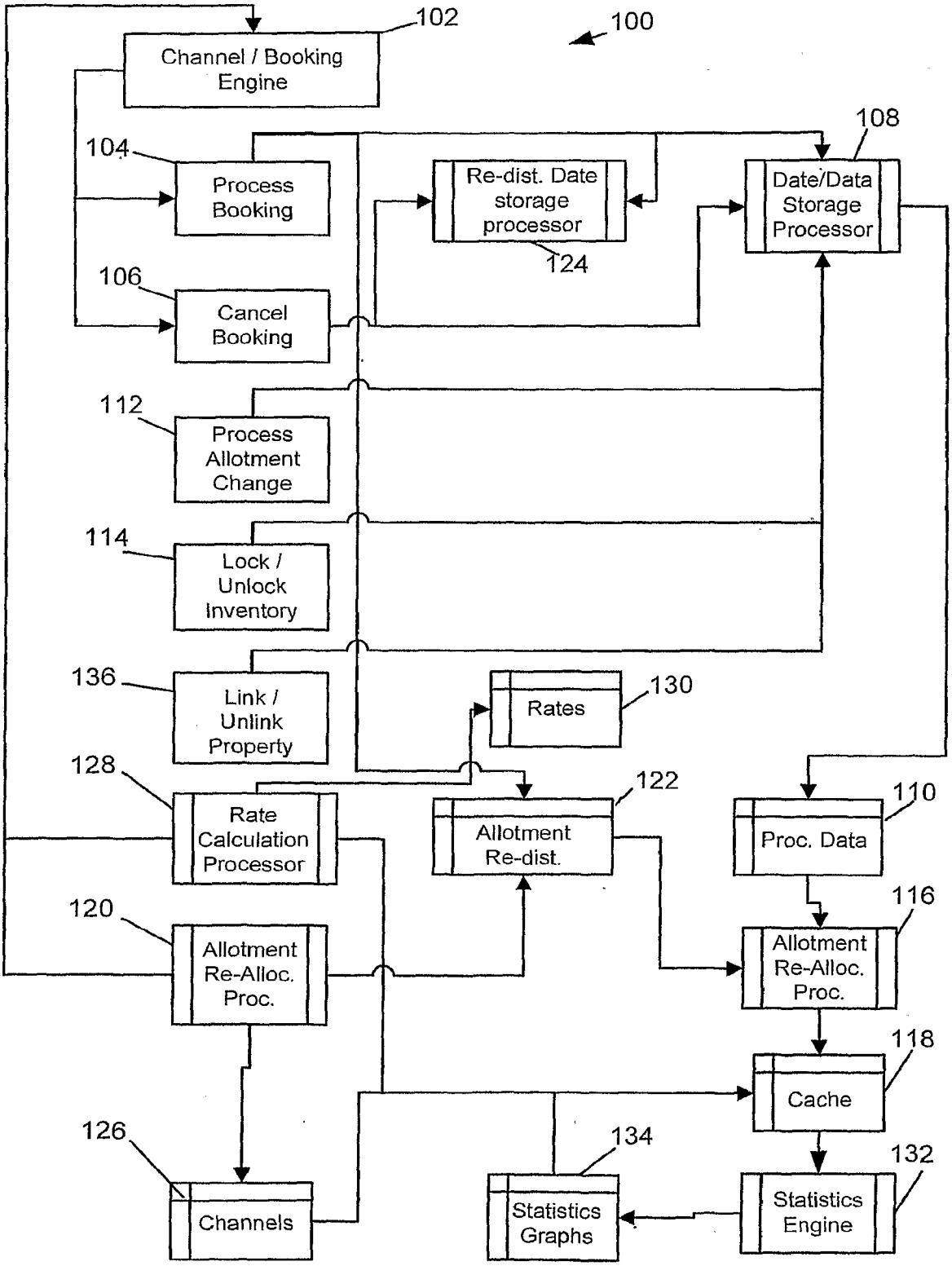


FIGURE 5

Uber Exhibit 1002 - p. 1285
Uber Technologies, Inc. v. SurgeTech, LLC

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PCT/AU2007/000684

Australian Government

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I, LEANNE MYNOTT, MANAGER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2006902685 for a patent by ALLOTZ.COM LIMITED as filed on 18 May 2006.



WITNESS my hand this
Twenty-ninth day of June 2007

LEANNE MYNOTT
MANAGER EXAMINATION SUPPORT
AND SALES

2006902685 18 May 2006

P/00/009
Regulation 3.2

AUSTRALIA
PATENTS ACT 1990

Provisional Specification

Invention Title:

THE MANAGEMENT OF INVENTORY IN DISTRIBUTION CHANNELS

The invention is described in the following statement:

2006902685 18 May 2006

THE MANAGEMENT OF INVENTORY IN DISTRIBUTION CHANNELS

Field of the Invention

This invention relates to the management of inventory in distribution channels. More particularly, this invention relates to a method of managing inventory in distribution channels, a system for managing inventory in distribution channels and a software product for use in the system.

Background of the Invention

Applicant has identified a particular problem when selling inventory, such as travel services including accommodation allotments, flights and other transport services. The problem is a result of the manner in which such inventory is allocated to various distribution channels, which can be *ad hoc* and thus inefficient.

It will be appreciated that efficient selection of distribution channels for such inventory can allow vendors or resellers to achieve a selling price that corresponds with demand for the inventory in respect of such distribution channels. In this way, an optimum price for the inventory in each distribution channel could be achieved with such correct selection.

While this invention can relate to a wide variety of inventory-types, Applicant has discovered that particularly the travel and accommodation industries would benefit greatly from efficient selection of distribution channels. A primary reason for this is that the traveling public is now able to book and pay online for practically all of its travel and accommodation needs via various online travel reseller portals and agencies, which can be regarded as distribution channels. The online reseller market is particularly large in this field and the various distribution channels have the potential to be extremely successful.

The particular problem discovered by the applicant is that this enormous market has forced resellers to commit physical inventory to particular distribution channels in a relatively *ad hoc* manner. Furthermore, where the inventory is accommodation

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which needs to be sold between particular dates, any attempt to achieve efficiency by selecting the most efficient distribution channels can become extremely difficult. In particular, Applicant has found that most independent hotels and accommodation properties lack the resources to have members of staff dedicated to managing allocation to distribution channels online. Applicants have found that it is practically impossible for them to manage this inventory in multiple distribution channels while still maintaining their businesses. Applicant has therefore conceived the present invention in order to address this problem.

Definitions

In this specification the following words are to be understood as having the associated meanings.

"Inventory": Any goods or services capable of being sold through a number of different distribution channels.

"Distribution Channel": At least one reseller of goods or services, where the goods or services are subjected to a particular selling procedure, such as through an agent, where commission is payable, where the characteristics of that procedure are unique to the distribution channel.

"Channel Performance": Characteristics of a particular distribution channel related to how successful or unsuccessful sales have been through that particular distribution channel. These could include such characteristics as the rate of sales through that particular channel and the level of demand for the goods or services in that channel.

"Computer": Any computational device or group of two or more computational devices. Where there are two or more computational devices, it is to be understood that they may be located in geographically remote positions.

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Summary of the Invention

According to a first aspect of the invention, there is provided a method of managing inventory in distribution channels, the method including the steps of:

receiving, in a computer, sale data relating to inventory items allocated to respective distribution channels;

processing, in the computer, the sale data to obtain channel performance data; and

carrying out at least one of the following steps in the computer:

adjusting a price of inventory in respective channels depending on the channel performance data; and

re-allocating inventory items in respective distribution channels to other distribution channels.

The method may include the steps of storing inventory item data and distribution channel data in a database. The method may also include the step of associating distribution channels with items of inventory.

The step of receiving the inventory sale data may include the step of receiving data relating to one or more of the following: sale price of each item, rate of commission and number of inventory items sold over a predetermined length of time.

The step of processing the sale data may include the step of calculating a sale rate index for each distribution channel, in the form of a ratio of the number of items sold in a predetermined time to the number of items available for sale in that distribution channel. Furthermore, the step of processing the sale data may include the step of calculating, in the computer, a performance rating for each distribution channel. The step of calculating the performance rating may include the step of determining whether supply of items exceeds demand or vice versa.

The step of processing the sale data may include the step of decreasing a price of items in a first channel in the event that it is determined that supply for items in the first channel have exceeded demand. Instead, the method may include the step of

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allocating, in the computer, items in the first channel to a second channel, where demand exceeds supply in the second channel.

In the event that it is determined, by the computer, that demand in the first channel has exceeded supply; the method may include the step of comparing, in the computer, the performance rating of the first channel with the performance rating of other channels. The method may then include the step of transferring items from said other channels to the first channel In the event that said other channels have a lower performance rating than the first channel. The method may include the step of increasing a price of items in the first channel in the event that said other channels have a higher performance rating than the first channel.

According to a second aspect of the invention, there is provided a system for managing inventory in distribution channels, the system including

a computer that is connectable to a network, the computer being configured to carry out the following steps:

receive, from the network, sale data relating to inventory items allocated to respective distribution channels;

process the sale data to obtain channel performance data; and

carry out at least one of the following steps:

adjust a price of inventory in respective channels depending on the channel performance data; and

re-allocate inventory items in respective distribution channels to other distribution channels.

The computer may be configured to store inventory item data and distribution channel data in a database. It follows that the computer may be programmed to define the database. The computer may further be configured to associate distribution channels with items of inventory in the database.

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The computer may be configured to receive the inventory sale data relating to one or more of the following: sale price of each item, rate of commission and number of inventory items sold over a predetermined length of time.

The computer may be configured to process the sale data by calculating a sale rate index for each distribution channel, in the form of a ratio of the number of items sold in a predetermined time to the number of items available for sale in that distribution channel. Furthermore, the computer may be configured to calculate a performance rating for each distribution channel from the sale data. In particular, the computer may be configured to calculate whether supply of items exceeds demand or vice versa.

The computer may be configured to decrease a price of items in a first channel in the event that it is determined that supply for items in the first channel have exceeded demand. The computer may also be configured to allocate items in the first channel to a second channel, where demand exceeds supply in the second channel.

The computer may be configured to compare the performance rating of the first channel with the performance rating of other channels in the event that the computer has determined that demand in the first channel has exceeded supply. The computer may then be configured to transfer items from the other channels to the first channel in the event that said other channels have a lower performance rating than the first channel. The computer may also be configured to increase the price of items in the first channel in the event that said other channels have a higher performance rating that the first channel.

According to a third aspect of the invention, there is provided a software product for managing inventory in distribution channels, the software product being executable by a computer such that the computer is enabled to carry out the following steps:

receive, from a network, sale data relating to inventory items allocated to respective distribution channels;

process the sale data to obtain channel performance data; and

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carry out at least one of the following steps:

adjust a price of inventory in respective channels depending on the channel performance data; and

re-allocate inventory items in respective distribution channels to other distribution channels.

The invention is now described, by way of example, with reference to the accompanying drawings. The following description is intended to illustrate one particular embodiment of the invention and to permit a person skilled in the art to put that embodiment of the invention into effect. Accordingly, the following description is not intended to limit the scope of the preceding paragraphs in any way.

Brief Description of the Drawings

In the drawings:

Figure 1 shows a schematic view of a system, in accordance with the invention, for managing inventory in distribution channels according to a method, also in accordance with the invention.

Figure 2 shows a flowchart indicating the method of the invention and operation of a software product, in accordance with the invention, for managing inventory in distribution channels.

Figure 3 shows a flowchart indicating a procedure carried out by the software product in the event that supply to a particular distribution channel exceeds demand.

Figure 4 shows a flowchart indicating how the software product of the invention collects data relating to different distribution channels.

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Detailed Description of the Invention

In Figure 1, reference numeral 10 broadly illustrates a system, in accordance with the invention, for managing inventory in distribution channels, according to a method, also in accordance with the invention.

In the following description, reference is made to the inventory items in the form of accommodation allotments. It is to be understood that such accommodation allotments are allotments of property for the purposes of short term rental, such as holiday apartments, hotel rooms, etc. However, Applicant emphasizes that the items of inventory can be any other items, as set out in the definition above. Accordingly, reference to accommodation allotments is not to be construed as limiting the scope of the invention as set out in the preceding summary.

The system 10 includes a computer 12 that is connectable to a network. In this case, the network can be the Internet indicated at 14 or a private network indicated at 16. It will readily be appreciated that the private network 16 can be a virtually private network (VPN) which would form part of the World Wide Web indicated at 14.

The computer 12 is programmed with a software product, in accordance with the invention. As such, the computer 12 is configured to receive sale data relating to accommodation allotments allocated to respective distribution channels, indicated schematically at 18, via the World Wide Web 14. It is to be appreciated that the distribution channels 18 can more specifically be servers associated with the distribution channels.

The software is such that, when executed by the computer 12, the computer is able to process the sale data to obtain channel performance data. On receipt of the channel performance data, the computer is configured to either adjust the price of accommodation allotments in respective distribution channels 18 depending on the channel performance data or re-allocate accommodation allotments in respective distribution channels 18 to other distribution channels 18.

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The computer 12 is configured to store data representing accommodation allotments required to be sold online by third party online resellers through the distribution channels 18. The system 10 allows a member or subscriber, indicated at 20, to place their entire accommodation allotment inventory required to be sold online in a database 22 of the computer 12. Thus, the software product of the invention is configured so that, when executed, it generates a database 22 and an application 24 to manipulate the accommodation allotment data, as described below.

In particular, the computer 12 is configured by the software to associate distribution channels 18 with accommodation allotments in the database 22. The computer 12 receives accommodation allotment sale data in the form of data relating to one or more of the following: sale price of each accommodation allotment, rate of commission and number of accommodation allotments sold over a pre-determined length of time. Application 24 calculates a sale rate index for each distribution channel 18 in the form of a ratio of the number of accommodation allotments sold in a pre-determined time to the number of accommodation allotments available in that distribution channel.

The computer processes the sale data by calculating a performance rating for each distribution channel 18. The performance rating can include a determination on whether or not supply of accommodation allotments exceeds demand or vice versa per distribution channel.

By using the performance rating and the calculated sale rate index, the application 24 can calculate the number of accommodation allotments to allocate to a particular distribution channel and the price at which those allotments can be sold to maximize a profit for the accommodation allotments.

A particular benefit of the invention is that the application 24 allows for the setting of a minimum rate and can adjust prices up from or back to that rate based on the channel performance in which the relevant accommodation allotment is placed. Thus, if the particular distribution channel has a higher demand than availability, the

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application can automatically increase the room rate to maximize profit. Furthermore, the application is configured also to increase the rate in channels with a high selling rate and that have a high rate of agents' commission so that their performance rating can be equal to or higher than other distribution channels with lower agents' commission. It follows that the system 10 can be used to maximize profit on a range of competing channels. It follows that a rate at which a particular channel is selling compared to its performance rating is directly proportional to a surplus of supply and the rate at which the accommodation allotments are being sold in that channel.

It is to be understood that supply of accommodation allotments and extent of commission control, at a basic level, the rate at which an accommodation allotment is sold in each distribution channel. It follows that if a shortage of supply should occur, a price of accommodation allotments in all channels will increase. However, in the event that there is over-supply, the price will decrease relative to the performance rating.

It follows that the property providers or the provider of the system could set a rate of change that could be used to increase or decrease a rate at which an accommodation allotment is sold. An example of a suitable rate is 10%. In a particular example, performance of the distribution channels will be calculated per hour and related to previous statistical analysis of a particular targeted date range. In Figure 2, reference numeral 30 generally indicates a broad overview of the operation of the system as a result of the execution of the software product of the invention.

In the system 30, reference numeral 32 indicates any distribution channel 18 in the form of a user-selected third party reseller that stocks real-time property availabilities. The application 24 is configured to utilize an XML standard to dynamically allocate or reallocate or update or query accommodation allotments associated with the channel 32.

The system 30 is put in motion with accommodation allotments being sold through the distribution channel 32 at a predetermined price. At 34, the application 24

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calculates a channel sale rate index, as explained above. In particular, the application 24 is configured to calculate the channel rate index by calculating an amount sold in a predetermined period of time divided by the amount allocated to that channel. The value returned is then multiplied by 100 to get a percentage. The percentage is used as a parameter by the application 24 to calculate whether or not particular distribution channels are allocated accommodation allotments.

At 36, the application 24 queries whether or not demand has exceeded supply in the distribution channel 32. If a negative answer is returned, the application decreases the price by 10% at 38 and updates data representing the distribution channel 32.

This step is more clearly shown in Figure 3. In the event that supply exceeds demand at 40, the application 24 queries at 42, whether any other distribution channel requires allocation of accommodation allotments. In the event that a negative answer is returned, the price can then be decreased as at 38. Once the price has been decreased, the application 24 updates the data relating to the distribution channel 32, at 44.

In the event that the query at 42 is positive, the application 24 allocates accommodation allotments, at 46 to another distribution channel. Subsequently, the application 24 queries whether or not the rooms allocated to the other channel exceed a previous demand at 48. In the event that that query returns a positive, the application 24 carries out the step of decreasing the price, at 38. In the event that the query returns a negative, the distribution channel 32 is updated, as at 44.

The application 24 includes a calculation at 38 that involves what is known as "minimum rack rate", a "current rate" and a "surplus percentage". As is known in the accommodation industry, the term "rack rate" is used to refer to a fixed rate for a room. It follows that a minimum rack rate would be a minimum price for a particular accommodation allotment. The current rate would be a rate at a particular snap shot in time. The "surplus percentage" would indicate a percentage of surplus accommodation allotments in a particular distribution channel.

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The step of decreasing a price by the calculation at 38 is effectively a step of decreasing the performance rating of that particular channel. Accordingly, in this example, the application 24 adjusts the performance rating down by 10%. Thus, if the distribution channel had a performance rating of X allotments selling at $Y each with a commission of $Z and the performance rating is to be reduced by 10%, the following calculation is carried out by the application 24 to obtain the rate (R):

$$0.9X + Z = R$$

If the minimum rack rate was below the R, then $R would be the new sale price per allotment. Otherwise, the minimum rack rate would be the price. It is thus to be appreciated that the application 24 would not continually lower the prices of accommodation allotments beyond a predetermined minimum.

Reverting back now to Figure 2, if the query at 36 returns a positive, the application 24 compares the performance rating of the distribution channel 32 with other channels. As set out earlier, the performance rating can be in the form of a number of parameters. For example, it could be related to a surplus or deficit percentage related to supply and demand of particular accommodation allotments. At 52, the application 24 queries whether or not the performance rating of the distribution channel 32 is greater than the other channels. If the query returns a positive, the application 24 removes accommodation allotments from the lower performing channels and adds them to the distribution channel 32. Alternatively, if the query at 52 returns a negative result, the application 24 serves to increase the accommodation allotment price by a particular percentage. In this case, the percentage is 10%.

Using a calculation similar to the one used for decreasing the price, if a channel with a performance rate of X allotments selling at $Y with a commission of $Z is increased by 10% the following calculation would be used to obtain the rate (R):

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$$1.1X + Z = R$$

As can be seen in Figure 2, once the steps at 54 and 56 are completed, the application 24 returns to 32 where the data relating to that distribution channel is updated.

It is important that the application 24 collects the necessary data in an efficient manner.

Applicant has conceived two methods in which the data can be received from respective distribution channels 18. These are referred to as the "real-time" and "request-based" methods.

In this particular example, all calculations are done hourly per accommodation allotment and each allotment calculation is started apart from the others' calculations. It follows that property A calculations would for example start at 12:00 and property B calculations would start at 12:01 and so on. The application 24 is configured such that the interval is decided by the amount of properties and servers on which the properties reside, where the servers communicate with the computer 12 via the World Wide Web 14. As set out above, the servers can also be represented by reference numeral 18.

Distribution channels that report in real-time back to the application 24 store their figures in the database 22 until they are needed by the application 24. On the other hand, request-based distribution channels are polled by the application 24 before the calculations are made.

An example of the manner in which the figures are collected from servers for the distribution channels is shown in Figure 4. In Figure 4, the application 24 carries out hourly calculations at 60 for each accommodation allotment in the various distribution channels. At 62, the application 24 cycles through a list of channels where the accommodation allotments are stored in the data base 22.

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The application 24 then queries, at 64, whether or not the channel list is finished. In the event that a negative response is returned, the application 24 queries whether or not the channel is "real-time". In the event that the response is negative, the application 24 requests a report at 68 from the relevant server. On the other hand, if the query at 66 is positive, the application 24 continues to cycle through the list of channels at 62.

If the query at 64 is positive, the application 24 carries out various calculations to obtain the sale rate indices and performance rating, at 70, as described earlier. At 72, the allotments are calculated. At 74, the application 24 calculates the prices for the accommodation allotments in the various channels. At 76, the application 24 allocates accommodation allotments to various channels, in accordance with the tests and parameters described with reference to Figures 2 and 3. At 78, the application 24 queries whether or not the respective distribution channel is a real-time channel. In the event that this query returns a negative result, the application 24 polls the relevant server of the distribution channel at 80. The server for the distribution channel then transmits the report to the database 22. The application 24 stores the report values in the database 22 at 82.

At 84 there is schematically indicated a real-time distribution channel. The distribution channel 84 provides, on a regular basis, real-time reports and requests of sales to the data base at 82.

In the event that the query at 78 returns a positive, the application 24 serves to re-set allocations of accommodation allotments to various distribution channels 18 and the respective prices at 86.

Applicant believes that the invention provides a means whereby a highly efficient distribution of inventory such as accommodation allotments can be made between various distribution channels for that inventory. This is particularly important in the online reseller market where property holders are simply not in a position to

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investigate the performance of various distribution channels. In short, the invention provides a means whereby the accommodation allotment resellers can simply subscribe to a provider of the invention in return for having their inventory or accommodation allotments sold as efficiently as possible.

In compliance with the statute, the invention has been described in language more or less specific to structural or mechanical features. It is to be understood that the invention is not limited to specific features shown or described since the means herein described comprises preferred forms of putting the invention into effect.

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CLAIMS

1. A method of managing inventory in distribution channels, the method including the steps of:

receiving, in a computer, sale data relating to inventory items allocated to respective distribution channels;

processing, in the computer, the sale data to obtain channel performance data; and

carrying out at least one of the following steps in the computer:

adjusting a price of inventory in respective channels depending on the channel performance data; and

re-allocating inventory items in respective distribution channels to other distribution channels.

2. A system for managing inventory in distribution channels, the system including a computer that is connectable to a network, the computer being configured to carry out the following steps:

receive, from the network, sale data relating to inventory items allocated to respective distribution channels;

process the sale data to obtain channel performance data; and

carry out at least one of the following steps:

adjust a price of inventory in respective channels depending on the channel performance data; and

re-allocate inventory items in respective distribution channels to other distribution channels.

3. A software product for managing inventory in distribution channels, the software product being executable by a computer such that the computer is enabled to carry out the following steps:

receive, from a network, sale data relating to inventory items allocated to respective distribution channels;

process the sale data to obtain channel performance data; and

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carry out at least one of the following steps:

adjust a price of inventory in respective channels depending on the channel performance data; and

re-allocate inventory items in respective distribution channels to other distribution channels.

DATED THIS 18TH DAY OF MAY 2006

ALLOTZ.COM LIMITED

By my Patent Attorneys

EAGAR & BUCK

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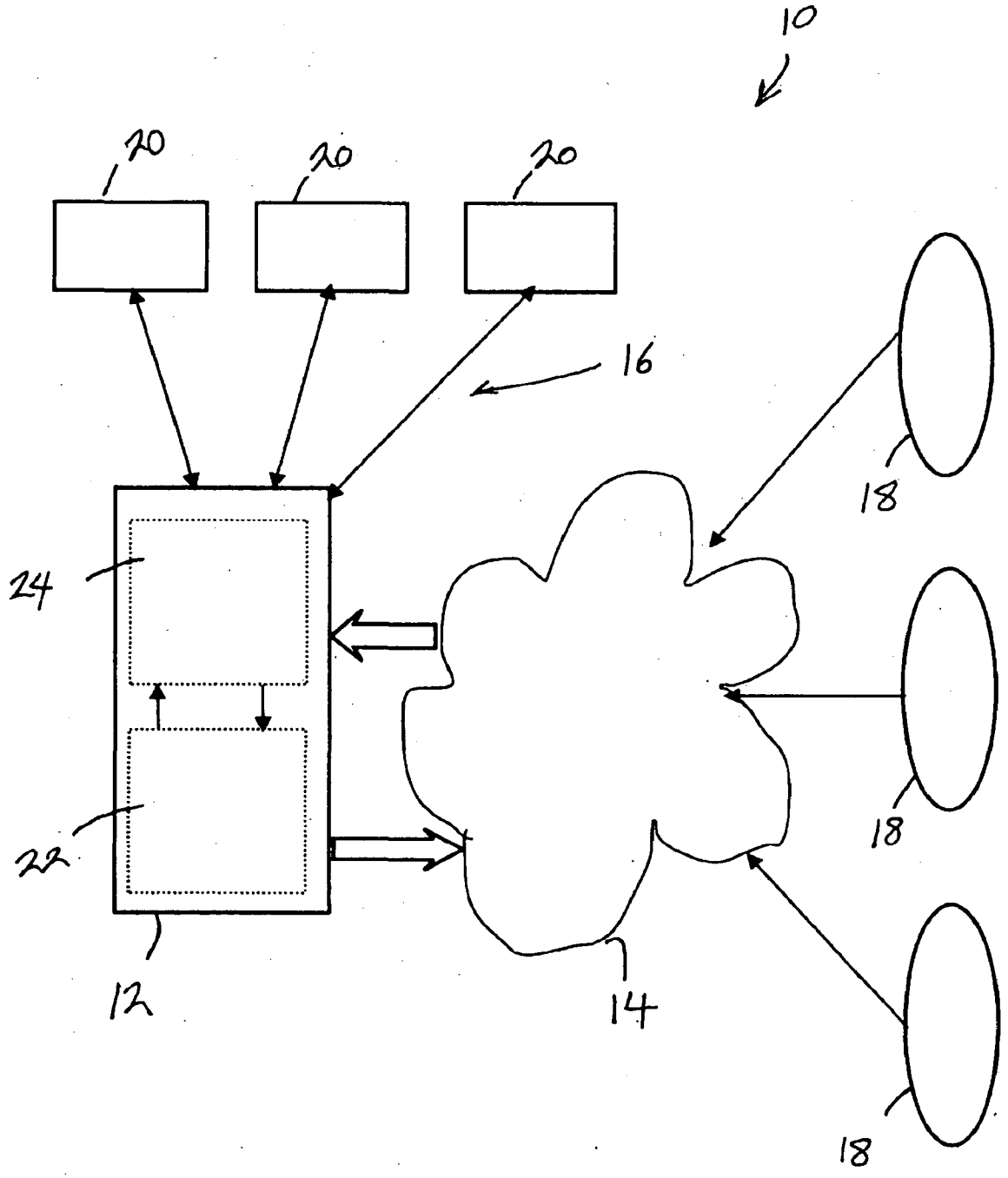


FIGURE. 1

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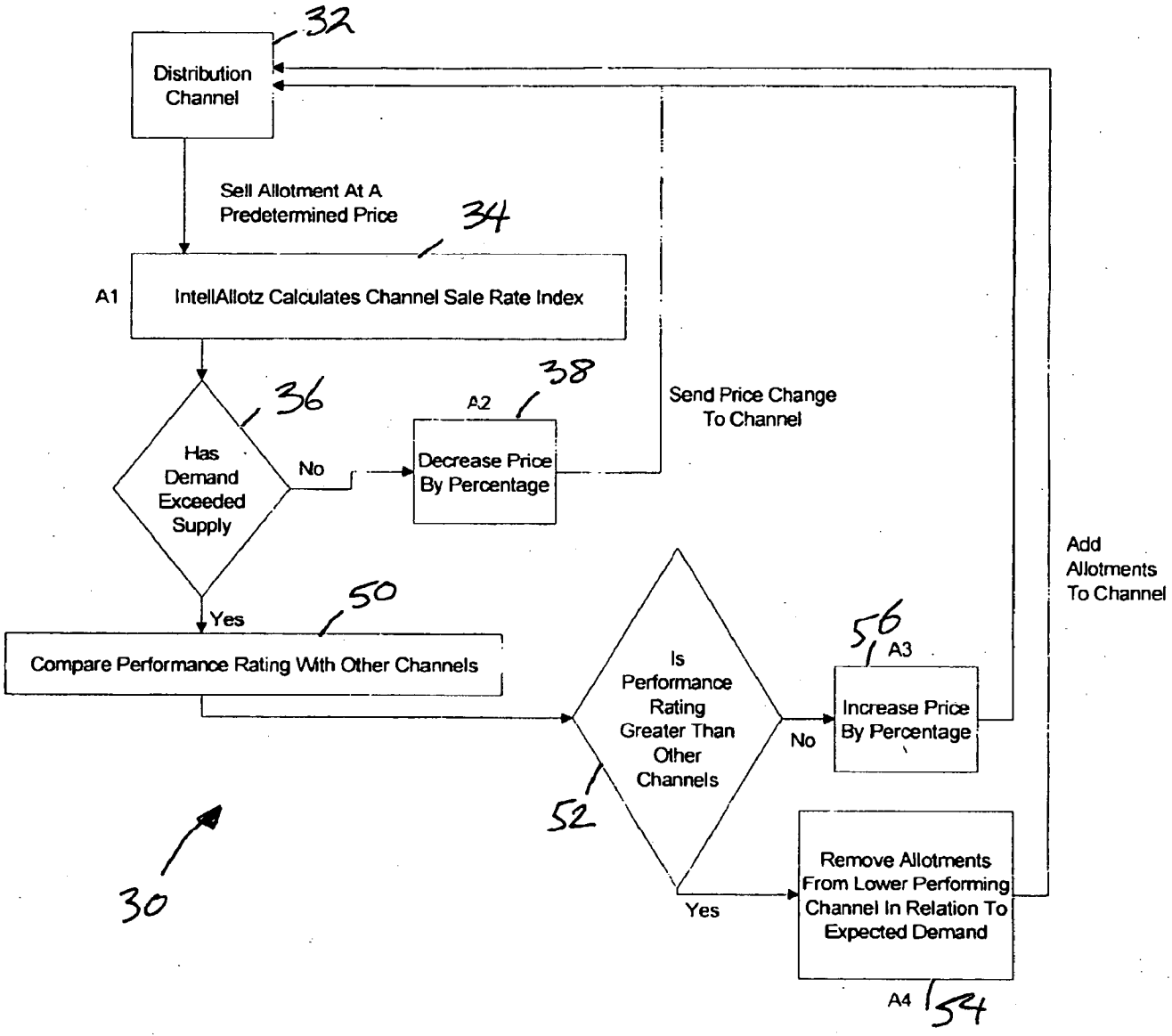


FIGURE 2

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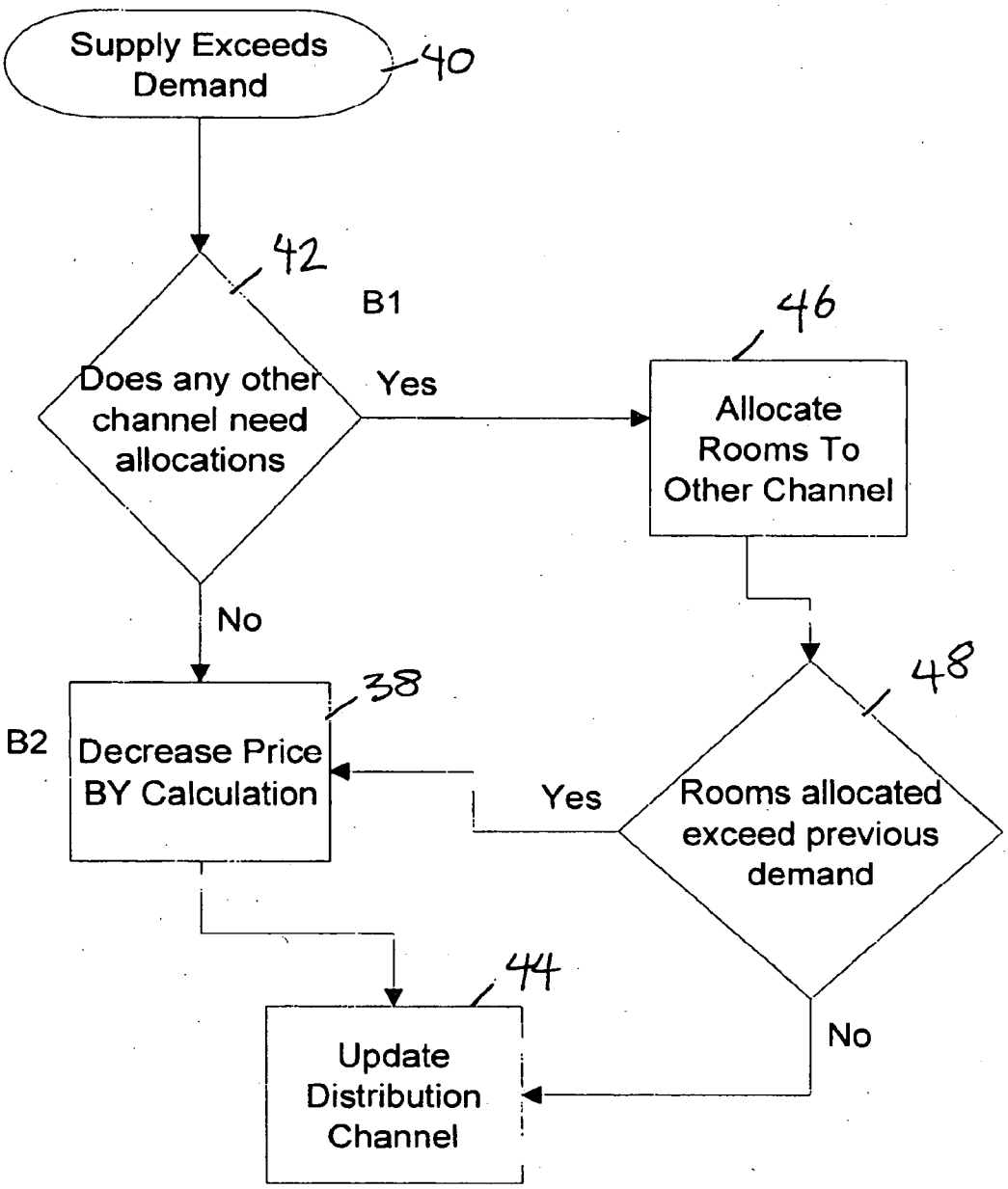


FIGURE. 3

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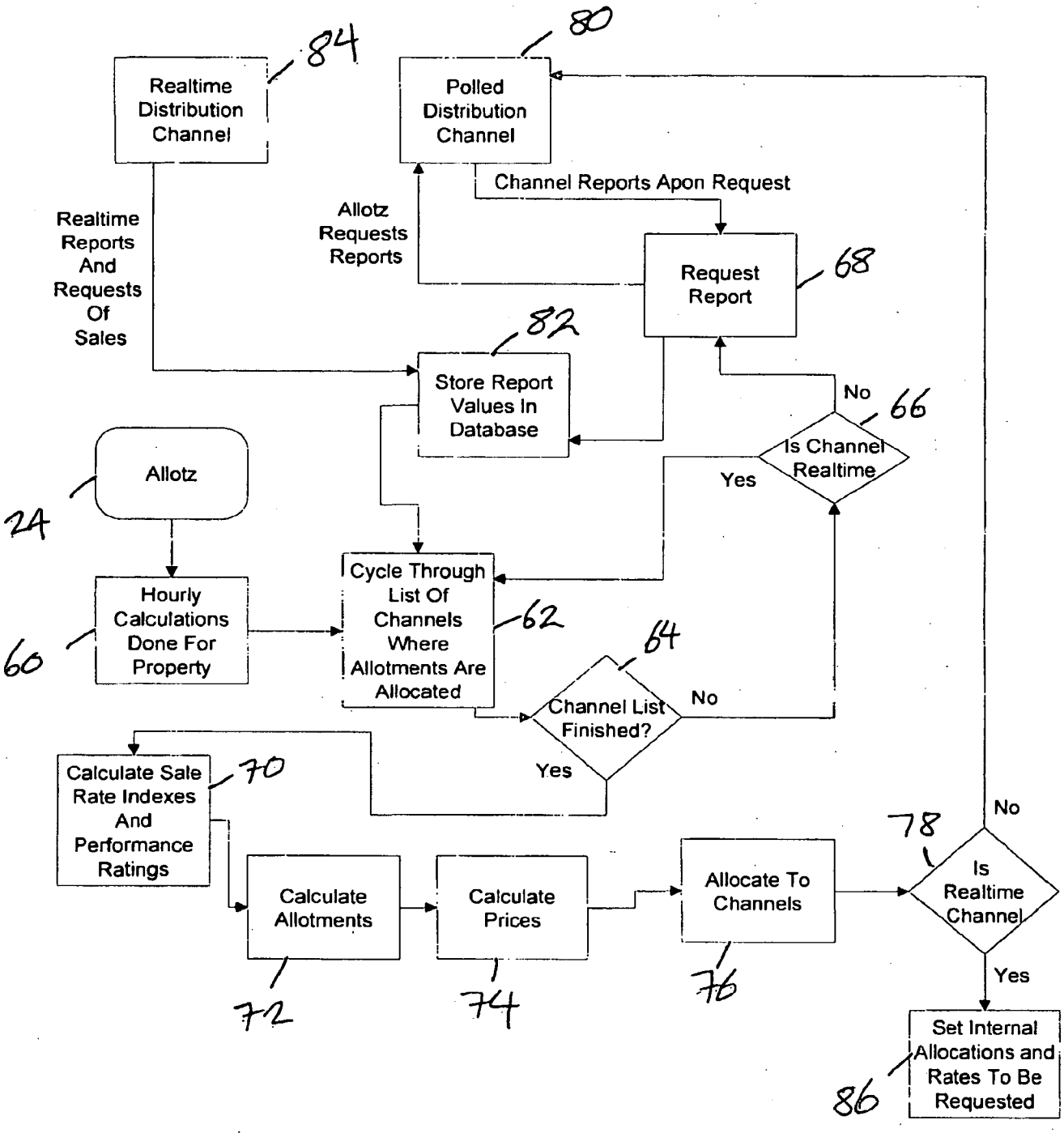


FIGURE. 4

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ALL02.001I	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. **PCT**/AU2007/000684	International filing date *(day/month/year)* 18 May 2007	Priority date *(day/month/year)* 18 May 2006

International Patent Classification (IPC) or national classification and IPC

Int. Cl. ***G06Q 30/00*** (2006.01) ***G06Q 10/00*** (2006.01)

Applicant

ALLOTZ.COM LIMITED et al

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. [X] *(sent to the applicant and to the International Bureau)* a total of **5** sheets, as follows:
      - [X] sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      - [ ] sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. [ ] *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or table related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:

[X]	Box No. I	Basis of the report
[ ]	Box No. II	Priority
[ ]	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
[ ]	Box No. IV	Lack of unity of invention
[X]	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
[ ]	Box No. VI	Certain documents cited
[ ]	Box No. VII	Certain defects in the international application
[ ]	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
20 November 2007	21 April 2008
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. +61 2 6283 7999	Authorized Officer **CHARLES BERKO** AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. (02) 6283

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/AU2007/000684

Box No. I Basis of the report

1. With regard to the **language,** this report is based on:

[X] The international application in the language in which it was filed

[ ] A translation of the international application into , which is the language of a translation furnished for the purposes of:

[ ] international search (under Rules 12.3(a) and 23.1 (b))

[ ] publication of the international application (under Rule 12.4(a))

[ ] international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

[ ] the international application as originally filed/furnished

[X] the description:

pages **1-45** as originally filed/furnished
pages* received by this Authority on with the letter of
pages* received by this Authority on with the letter of

[X] the claims:

pages as originally filed/furnished
pages* as amended (together with any statement) under Article 19
pages* **46-50** received by this Authority on **20 November 2007** with the letter of **the same**
pages* received by this Authority on with the letter of

[X] the drawings:

pages **1-5** as originally filed/furnished
pages* received by this Authority on with the letter of
pages* received by this Authority on with the letter of

[ ] a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. [ ] The amendments have resulted in the cancellation of:

[ ] the description, pages
[ ] the claims, Nos.
[ ] the drawings, sheets/figs
[ ] the sequence listing *(specify)*:
[ ] any table(s) related to the sequence listing *(specify)*:

4. [ ] This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

[ ] the description, pages
[ ] the claims, Nos.
[ ] the drawings, sheets/figs
[ ] the sequence listing *(specify)*:
[ ] any table(s) related to the sequence listing *(specify)*:

5. [ ] This report has been established taking into account **the rectification of an obvious mistake** authorized by or notified to the Authority under Rule 91 (Rule 70.2(e)).

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Uber Exhibit 1002 - p. 1310
Uber Technologies, Inc. v. SurgeTech, LLC

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims **1-21**	**YES**
	Claims	**NO**
Inventive step (IS)	Claims **1-21**	**YES**
	Claims	**NO**
Industrial applicability (IA)	Claims **1-21**	**YES**
	Claims	**NO**

2. Citations and explanations (Rule 70.7)

Relevant documents cited in the search report:

D1: WO 2001/067356 A (INVINITY SYSTEMS CORPORATION)
D2 WO 2001/084278 A (ASSETTRADE)
D3 WO 2005/010675 A (PROFITLOGIC, INC.)
D4 WO 2005/001615 A (PROFITLOGIC, INC.)
D5 GB 2302427 A (i2 TECHNOLOGIES INC.)
D6 WO 2001/082135 A (SCIENCE APPLICATIONS INTERNATIONAL CORPORATION)
D7 US 20040153359 A (HO et al.)
D8 US 20030088616 A (ETESSAMI ET AL.)

NOVELTY (N).& INVENTIVE STEP (IS). Claims 1-21

None of the cited art individually or in any combination obvious to a person skilled in the art, discloses all of the combination of features/integers of the claimed invention as amended. The closest D1 (INVINITY), for example, is directed to an inventory control system that allows a third-party tracking capability in a concept commonly referred to as Vendor Managed Inventory (VMI). In particular, none of the documents disclose a system for managing inventory allocations in which price of inventory allotments are adjusted based on sales performance from data received and re-allocated to re-sellers according to sales performance data involving calculation of performance indicators in the form of a function that includes a ratio of number of allotments sold to at least a number allocated and a number available for sale, as claimed.

INDUSTRIAL APPLICABILITY

The claimed invention is industrially applicable

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Uber Technologies, Inc. v. SurgeTech, LLC

AMENDED SHEET
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CLAIMS

1. A method of managing inventory allocations, the method including the steps of:

receiving, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

2. A method as claimed in claim 1, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

3. A method as claimed in claim 1, in which the step of processing the data includes the step of comparing the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

4. A method as claimed in claim 3, in which the step of comparing the performance indicators includes the step of comparing the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

5. A method as claimed in claim 4, in which the step of comparing the performance indicators includes the step of obtaining a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and applying the following equation to PC:

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Uber Technologies, Inc. v. SurgeTech, LLC

$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

6. A method as claimed in claim 5, which includes the step of adjusting a price of the inventory allotments allocated to said particular re-seller by a factor of Z.

7. A method as claimed in claim 1, in which the step of processing said data includes the step of carrying out a statistical analysis of said data relating to sales performance.

8. A system for managing inventory allocations, the system including a data processing apparatus that is configured to carry out the following steps:

receiving data relating to the sale of inventory allotments allocated to respective re-sellers;

processing, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of such allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carrying out at least the following steps in the data processing apparatus:

adjusting a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocating inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

9. A system as claimed in claim 8, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

10. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator for a particular re-seller to the performance indicators

of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

11. A system as claimed in claim 8, in which the data processing apparatus is configured to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

12. A system as claimed in claim 11, in which the data processing apparatus is configured to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

13. A system as claimed in claim 12, in which the data processing apparatus is configured to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

14. A system as claimed in claim 8, in which the data processing apparatus is configured to carry out a statistical analysis of said data relating to sales performance.

15. A software product for managing inventory allocations, the software product being executable by a data processing apparatus and being configured so that, when executed, the data processing apparatus carries out the following steps:

receives, in a data processing apparatus, data relating to the sale of inventory allotments allocated to respective re-sellers;

processes, in the data processing apparatus, said data to obtain data relating to sales performance of at least one of said respective re-sellers by calculating a performance indicator for each re-seller in the form of at least one function that includes a ratio of a number of allotments sold to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller; and

carries out at least the following steps in the data processing apparatus:

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Uber Technologies, Inc. v. SurgeTech, LLC

adjusts a price for which inventory allotments allocated to at least that said respective re-seller is to be sold by that respective re-seller; and

re-allocates inventory allotments to or from at least that said respective re-seller respectively from or to other respective re-sellers depending on said data relating to the sales performance of the respective re-sellers.

16. A software product as claimed in claim 15, in which said at least one function includes a ratio of a number of allotments sold in a predetermined time period to at least one of a number of allotments allocated to the re-seller for sale and a number of allotments available for sale by the re-seller.

17. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator for a particular re-seller to the performance indicators of other re-sellers, the inventory allotments associated with respective re-sellers having at least one common characteristic.

18. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to compare the performance indicator of said particular re-seller to an average of the performance indicators of said other re-sellers.

19. A software product as claimed in claim 18, which, when executed by the data processing apparatus, causes the data processing apparatus to obtain a percentage change (PC) of the performance indicator of said particular re-seller relative to said average of the performance indicators and to apply the following equation to PC:

$$Z_j = \frac{PC_j - Mean(PC)}{St.Dev(PC)/\sqrt{n}}$$, where n is the number of re-sellers having said at least one common characteristic, $j = 1$ *to* n, and Z is an adjustment rate to a price of the inventory allotment.

20. A software product as claimed in claim 19, which, when executed by a data processing apparatus, causes the data processing apparatus to adjust a price of the inventory allotment allocated to said particular re-seller by a factor of Z.

21. A software product as claimed in claim 15, which, when executed by a data processing apparatus, causes the data processing apparatus to carry out a statistical analysis of said data relating to sales performance.

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Uber Technologies, Inc. v. SurgeTech, LLC

Electronic Acknowledgement Receipt

EFS ID:	45769562
Application Number:	17542933
International Application Number:	
Confirmation Number:	6158
Title of Invention:	COMPUTER-IMPLEMENTED MANAGEMENT OF BOOKINGS FOR TRANSPORTATION SERVICES
First Named Inventor/Applicant Name:	Andrew Loch
Customer Number:	65449
Filer:	Samuel Simpson
Filer Authorized By:	
Attorney Docket Number:	SPPH-00122A-US
Receipt Date:	20-MAY-2022
Filing Date:	06-DEC-2021
Time Stamp:	17:42:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	CertificateOfCorrectionForm.pdf	208946 70999396672c2728e595b6c2dbca78868fb10514	no	2

Warnings:

Information:					
2	Request for Certificate of Correction	SPPH-00122A-US_LetterForCertificateOfCorrection.pdf	95951 bd20efa74f6d650abd6d550d71e42f82bbf7a9c9	no	2
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	12227451__ReducedFileSize.pdf	10477972 e3018a017e4242d2783ad132544d0913fa2eb557	no	737
Warnings:					
Information:					
			Total Files Size (in bytes):	10782869	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Assignee:	SurgeTech, LLC	Examiner:	Crawley, Talia F.
Serial No.:	17/542,933	Group Art Unit:	3687
Filed:	December 6, 2021	Docket No.:	SPPH-00122A-US
Customer No.:	65449	Confirmation No.:	6158
Title:	COMPUTER-IMPLEMENTED MANAGEMENT OF BOOKINGS FOR TRANSPORTATION SERVICES		

CERTIFICATE OF TRANSMISSION

I hereby certify that this document is being transmitted electronically to the United States Patent and Trademark office via the EFS Web e-Filing system on May 20, 2022.

/Samuel K. Simpson/

Samuel K. Simpson

REQUEST FOR EXPEDITED ISSUANCE OF CERTIFICATE OF CORRECTION

Attn. Office of Data Management: Certificates of Correction Branch
Commissioner for Patents
Post Office Box 1450
Alexandria, Virginia 22313-1450

Sir/Madam:

The Assignee of Record attaches herewith a Certificate of Correction for U.S. Patent No. 11,334,598.

37 CR 1.22(a)(1) states the following: "[t]he Director may issue a certificate of correction pursuant to 35 U.S.C. 254 to correct a mistake in a patent, incurred through the fault of the Office, which mistake is clearly disclosed in the records of the Office." Additionally, MPEP 1480.01 states that "[t]he Office will expedite processing and granting of patentee requests where such requests are accompanied by evidence to show that the error is attributable solely to the Office (i.e., requests filed pursuant to 37 CFR 1.322 only)."

Uber Exhibit 1002 - p. 1319
Uber Technologies, Inc. v. SurgeTech, LLC

The foreign application priority data (AU 2006902685) for U.S. Patent No. 11,334,598 has been clearly established in the records of the Office via the certified copy submitted in parent U.S. patent application serial no. 12/227,451, the file history of which is attached herewith. This comports with 37 CFR 1.55(h), which states that "[t]he requirement in paragraphs (f) and (g) of this section for a ***certified copy of the foreign application will also be considered satisfied*** in an application if a prior-filed nonprovisional application for which a benefit is claimed under 35 U.S.C. 120, 121, 365(c), or 386(c) contains a certified copy of the foreign application and such prior-filed nonprovisional application is identified as containing a certified copy of the foreign application (emphasis added)".

Accordingly, Assignee respectfully submits that the correction requested is incurred through fault of the Office, is clearly disclosed in the records of the Office, and is accompanied by documentation (the file history of U.S. patent application serial no. 12/227,451) that unequivocally supports the Assignee's assertion. Therefore, Applicant respectfully requests an expedited issuance of the Certificate of Correction.

Respectfully submitted,

/Samuel K. Simpson/

Date: May 20, 2022

Samuel K. Simpson
Reg. No. 53,596

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Uber Exhibit 1002 - p. 1320
Uber Technologies, Inc. v. SurgeTech, LLC

PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 11,334,598

APPLICATION NO.: 17/542,933

ISSUE DATE : May 17, 2022

INVENTOR(S) : Andrew Loch, Helen Johnson, Geoffrey Toogood, Daniel Paul Ruul

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Foreign Application Priority Data

May 18, 2006 (AU) 2006902685

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Patent Ingenuity, P.C.
9701 Wilshire Boulevard, Suite 1000
Beverly Hills, CA 90212

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

AO 120 (Rev. 08/10)

TO:	**Mail Stop 8** **Director of the U.S. Patent and Trademark Office** **P.O. Box 1450** **Alexandria, VA 22313-1450**	**REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK**

In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court for the District of Delaware on the following

☐ Trademarks or ☑ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
	6/29/2022	for the District of Delaware

PLAINTIFF	DEFENDANT
SurgeTech, LLC	Uber Technologies Inc., d/b/a Uber

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	11,334,598 B2	5/17/2022	SurgeTech, LLC
2	11,360,999 B2	6/14/2022	SurgeTech, LLC
3			
4			
5			

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE

Copy 1—Upon initiation of action, mail this copy to Director **Copy 3—Upon termination of action, mail this copy to Director**
Copy 2—Upon filing document adding patent(s), mail this copy to Director **Copy 4—Case file copy**

DocuSign Envelope ID: 3FA2FE50-1D15-43A1-AFBA-69D4300129B2

1995

	11,334,598
	May 17, 2022
	Andrew LOCH
	Computer-Implemented Management of Bookings for Transportation Services

☐

☒ 83559

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DocuSigned by:
Michael Love
RFDA2277A8E5441...

7/15/2022

Michael R. Love
Director, SurgeTech, LLC

☐

DocuSign Envelope ID: 3FA2FE50-1D15-43A1-AFBA-69D4300129B2

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/96 (08-12)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: SurgeTech, LLC

Application No./Patent No.: 11,334,598 Filed/Issue Date: May 17, 2022

Titled: Computer-Implemented Management of Bookings for Transportation Services

SurgeTech, LLC, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: D. P. Ruul To: Allotz.com Limited

   The document was recorded in the United States Patent and Trademark Office at Reel 059965, Frame 0191, or for which a copy thereof is attached.

2. From: A. Loch, H. Johnson, G. Toogood, D. P. Ruul To: Allotz.com Limited

   The document was recorded in the United States Patent and Trademark Office at Reel 058307, Frame 0816, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: Allotz.com Limited via receiver James Patrick Downey To: Southbank Capital PTY LTD

The document was recorded in the United States Patent and Trademark Office at
Reel 058308, Frame 0458, or for which a copy thereof is attached.

4. From: Southbank Capital PTY LTD To: Surge Pricing Patent Holdings, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 058308, Frame 0608, or for which a copy thereof is attached.

5. From: Surge Pricing Patent Holdings, LLC To: SurgeTech, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 059721, Frame 0972, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Kevin Paganini/	07/15/2022
Signature	Date
Kevin Paganini	66,286
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	46205830
Application Number:	17542933
International Application Number:	
Confirmation Number:	6158
Title of Invention:	COMPUTER-IMPLEMENTED MANAGEMENT OF BOOKINGS FOR TRANSPORTATION SERVICES
First Named Inventor/Applicant Name:	Andrew Loch
Customer Number:	65449
Filer:	Kevin Edward Paganini/Teresa Rodriguez
Filer Authorized By:	Kevin Edward Paganini
Attorney Docket Number:	SPPH-00122A-US
Receipt Date:	15-JUL-2022
Filing Date:	06-DEC-2021
Time Stamp:	23:26:01
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	US11334598_POA-aia0081a.pdf	244536 8878ebcfd0a2cf02092ddfae6babf5ce5fc32f06	no	2

Warnings:

The PDF file has been signed with a digital signature and the legal effect of the document will be based on the contents of the file not the digital signature.

Information:

2	Assignee showing of ownership per 37 CFR 3.73	11334598_aia0096.pdf	230259 e2ecbaf5fc25e05369f804433d5909df24e97f8b	no	3

Warnings:

Information:

Total Files Size (in bytes):	474795

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/542,933	12/06/2021	Andrew Loch	SPPH-00122A-US

CONFIRMATION NO. 6158

83559
Bryan Cave Leighton Paisner LLP
1290 Avenue Of the Americas
New York, NY 10104

POA ACCEPTANCE LETTER

OC000000135366397

Date Mailed: 07/25/2022

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/15/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

Uber Exhibit 1002 - p. 1331
Uber Technologies, Inc. v. SurgeTech, LLC

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17/542,933	12/06/2021	Andrew Loch	SPPH-00122A-US

CONFIRMATION NO. 6158

POWER OF ATTORNEY NOTICE

65449
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9701 Wilshire Boulevard
Suite 1000
Beverly Hills, CA 90212

OC000000135366395

Date Mailed: 07/25/2022

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/15/2022.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

Uber Exhibit 1002 - p. 1332
Uber Technologies, Inc. v. SurgeTech, LLC

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 11,334,598 B2
APPLICATION NO.	: 17/542933
DATED	: May 17, 2022
INVENTOR(S)	: Andrew Loch et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item [30], insert:
--May 18, 2006 (AU) 2006902685--

Signed and Sealed this
Twenty-third Day of August, 2022

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office