

Globalization of Wireless Telephone

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This is the era of communications - one of the most rapidly growing segments of high-tech industry. Rapid changes are taking place in the communication market to meet the new demands and to achieve revenue growth. Information technology and wireless telecommunications are merging to provide smart wireless telephones. The convergence of voice, data and video networks has created further opportunities and threats for service providers. This convergence with deregulation has created a market where the broadcasters, satellite companies, and other service providers are looking to provide integrate services through wireless. In this paper, we outline the wireless telecommunication industry, review the market trends and develop strategic policy for globalization of the smart cellphone technology.

The first generation wireless telephones were analog and were designed for voice transfer only. Second generation systems are digital and capable of providing voice/data/fax transfer as well as a range of other value-added services. At present, second generation systems are still evolving with ever-increasing data rates via new technologies. Second generation systems include Global System for Mobile (GSM), Time Division Multiple Access (TDMA), Code Division Multiplexing (CDMA) and PDC. General Packet Radio Service (GPRS) and Enhanced Data for Global Evolution (EDGE) are evolutions of GSM and US-TDMA into a high-speed data-transfer rate system. Therefore, it enables the delivery of multimedia and other broadband applications to mobile phone users.

Third generation (3G) is the industry's response to increased demands on mobile communication systems and are scheduled for operational startup in Japan and Europe in 2001-2002. Applying high-speed data transfer and state-of-the-art radio terminal technology, 3G systems enable multimedia and are currently in the process of being standardized under Third Generation Partnership Project (3GPP). Among the three types of system to be standardized (i.e. WCDMA-DS, MC-CDMA, UTRA TDD), Japan and Europe will adopt WCDMA-DS in a strategy to take the lead through superior service. CDMA operators are assuredly the leaders of the digital access technologies, having clearly edged out rival TDMA as we pace into the new millennium.

The telecommunication industry is faced with many important strategic and policy issues, which originate for to several different reasons. Some result from mere business needs of the industry to make profit. Traditional service providers have to redefine their business strategies in order to stay competitive. Others are due to government regulations or de-regulation and affect any business within a country. Some issues are the result of industry-wide standardization organizations, which usually have no geographical boundary. In addition, deregulation fueled low-cost business opportunities for many new companies, which in return

forces major players to reduce the services cost rapidly and improve the quality of service to stay alive.

International Mobile Telecommunications-2000 (IMT-2000), an initiative of the International Telecommunications Union (ITU), provides wireless access to global telecommunication infrastructure through both satellite and terrestrial systems, serving fixed and mobile phone users via both public and private telephone networks. Development is being pursued based on a "family of systems" concept defined as an amalgam of systems providing roaming on a global scale and extending IMT-2000 service functions to subscribers to all types of communication service providers. In the future, cellular telephones and handheld devices will probably converge into one product that has these capabilities: play digital music and display color video, allow wireless email and Internet access, and provide cellular telephone and typical handheld functions.

Although mobile data is driving the need for the new generation of wireless communication, voice traffic will continue to remain a significant deal in 3G networks. Moving forward, the main issues for quality of service are going to center around factors that degrade speech quality—echo, background noise, and varying signal levels within the network. In order to keep up with exponential subscriber growth, engineers scramble to maintain the delicate balance between increasing network capacity and maintaining voice quality.

Electronic designers will continuously be challenged to produce innovative chip sets which can handle speed and capacity demands by broadband service explosion. Wireless products that coexist in the assigned frequency spectrum are vital to the deployment of 3G. Equipment manufacturers, service providers and infrastructure builders will have to form joint ventures to get better deals from parts vendors on the one hand and have market differentiation for their customers on the hand.

To achieve globalization, resource capacity must be addressed. Management skills to handle multiple technical disciplines in multicultural environment are essential to the global deployment of any technology. Modular off-the-shelf software which conforms to adopted standards should be developed. Unified harmonic platform solutions will guarantee success. It will allow total mobility, with the same services available no matter what kind of access device is used and no matter where the user is located. Availability of streaming media, games, and internet browsing through wireless smart phones are essential ingredients of strategy for the successful globalization of wireless phone system.

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