Chapter 8

Beyond the 3G (Third Generation) of Mobile Communications Technology Standards

EXECUTIVE SUMMARY

How the decade-long unfolding of 3G is being morphed into the convergence of communications and computing is described. With this new technology direction, actors in both the mobile and computing industries have started fighting to define the next generation mobile standard.

1. FROM 3G TO 4G AND THE CONVERGENCE OF NETWORKS BETWEEN THE COMMUNICATIONS AND COMPUTING INDUSTRIES

As the unfolding of 3G business showed, the global mobile communications industry has become more complex than ever because of the interaction of technologies, government policies, standards choices, and the range of the market from low-end to high-end products/services. During the 1G and 2G periods, actors competed to define a standard in rather homogeneous regional markets. Then, they competed for market share within the standard once a standard was defined. In the 3G arena, actors had to not only compete to define standards but also compete within a standard and over standards in the same market in heterogeneous market conditions in various regions around the world.

Actors needed different strategies for regions where standards were committed and where standards were not committed. Even regions that had committed standards (such as Europe and Japan) could be divided into two types of regions. One had a committed single standard (e.g. Europe),...
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and the other opened free competition between standards (e.g. Japan). In both types of regions, the issues that actors had to deal with were (1) timing of commercialization of a standard and (2) performance of a committed standard. These were especially important for actors in regions of free competition. If one standard were commercialized earlier than the other, it would provide first mover advantages. When two standards competed against each other in the same market, the standard with better performance would be more likely to win over the other if all other conditions were the same. For the market with a committed single standard, the actors still considered these two issues even though their standard did not have to compete against others in their market. The launch timing and performance of their selected standard would compete against other standards for the regions that had not committed to any standard. Thus, the actors that wanted to persuade other actors in other regions to adopt their standard still had to consider these issues in order to provide a better evaluation on their standard than other competing standards.

In the regions that had not committed to any 3G standard, the issues were the choice of (1) a standard and (2) system vendors. Each camp tried to persuade mobile service providers and governments in undecided regions to select their standard, so major system vendors could gain advantages in exporting their products.

These different types of markets co-existed, so actors in the mobile industry needed to develop their business to deal with different situations around the world simultaneously. As shown in the CDMA2000 case, many actors do not want to fight against each other just for sake of a standard. As the Korean government did, many actors look for their own benefits and split their bets on more than one potential standards if possible. Moreover, they are willing to switch one standard to another standard that is more potential to have a larger market.

The ongoing evolution of the global mobile communications market is becoming more complex as it moves toward 4G technologies. After the Internet revolution in the late 1990s, people have wanted to be connected to the Internet at all times. Thus, the data delivery affected the evolution of the 3G mobile market, all networks (e.g. wired, mobile, and satellite) are converging to IP-enabled network, so people can be connected to Internet regardless the different network types. This change in the environment opens up new opportunities for actors in the communications industry, computer industry, and broadcasting industry.

For example, the mobile communications market was separate from the computer industry even in the early 3G period. People used computers (including desktop personal and laptop computers) for connecting to the Internet, while carrying cellular phones for making and receiving phone calls and delivering simple data (e.g., SMS). However, as the Internet network has expanded and other technologies such as Voice-over-IP have developed, people can make phone calls through the Internet using their computers without cellular or landline phones. They can also connect to the Internet through their cellular phones or other variant of portable handsets (e.g., PDA and tablet computer) without desktop and laptop computers. This means that actors in the computer industry such as Internet service providers and portal service providers can offer services that only mobile service providers used to offer and vice versa.

All necessary hardware and software are in the process of being developed to support this convergence. During the convergence process, more technology standards are required to make these different systems compatible and interoperable to communicate with each other seamlessly. Actors who have acknowledged the significance of technology standards through the evolution of the ICT industry have tried their best to maneuver their standards strategies along with their business strategies. For example, Intel, which had long tried to be part of the mobile industry but failed, and its allies (e.g. Motorola and Samsung) were standardizing Worldwide Interoperability for Microwave Access (WiMax) as a next general standard of
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