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The Promise of Mobile Telecom: An Interview with Keiji Tachikawa, CEO of NTT DoCoMo

Keiji Tachikawa

Mobile telephony has been with us for two decades, but in many ways its scope and potential are still being defined. After the transition from analog to digital systems a decade ago, the industry is now beginning a transition of even greater significance—from voice to data. For companies seeking to capture value from next-generation services after making major investments in licenses and infrastructure, the coming few years will be critical. What will it take for mobile operators to be successful in the near term? And what must they do to position themselves for the future?

For insights, David Dean, head of The Boston Consulting Group's global Technology and Communications practice, spoke with Keiji Tachikawa, CEO of NTT DoCoMo, one of the world's leading players in mobile telecom. Tachikawa received his Ph.D. in engineering from the University of Tokyo and his M.B.A. from MIT. He is a 40-year veteran of NTT and DoCoMo, and the author of several books on the future of the communications and information industries. The following are excerpts of their conversation, which took place in early February.

NTT DoCoMo introduced i-mode almost three years ago, and the service has probably generated more interest than any other mobile telecom service. To date, you have attracted about 30 million subscribers, who spend nearly $3 billion per year for i-mode services. Then, in October 2001, you introduced FOMA, the world's first large-scale 3G service.[1] What has been behind NTT DoCoMo's success?

There are many reasons for our success, including luck. But let me focus on one point. In the past, mobile communications provided access to anyone, at any time, and anywhere, but it was purely voice centered. With i-mode, we address our customers' needs for other types of communication, too—not just text but also such data as music and images. Our challenge is to provide mobile communications services that satisfy the diverse needs of our customers. FOMA, with its greater bandwidth and faster transmission speeds, will allow us to satisfy a wider range of needs than we could in the past.

What do you expect will be the "killer" application for your 3G services?

I cannot say, because our customers will decide. Naturally, we have explored all sorts of i-mode services, and over time we have developed a good understanding of which services consumers value. To be sure, we have had several surprises with i-mode. For example, we did not expect the downloading of ring tones to be so popular—that so many people would pay for it. So predicting successful 3G services is quite difficult and will require time and experimentation. I expect that users will generate many of the successful applications themselves: self-generated content similar to SMS [short message service] in Europe and e-mail over i-mode in Japan will play an important role.

Last year, you predicted that you would have 150,000 customers for FOMA by the end of March 2002, but it looks as if you will fall short of this target. Why is FOMA taking off slowly?

1. Freedom of Mobile Multimedia Access.

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People need to remember that i-mode started slowly, too, but then accelerated quickly. FOMA has been operating for less than six months–the introduction was delayed. We predicted 150,000 users for the first full year. I am confident that FOMA will be a success and that we will have several million customers within a few years. But it will take longer to diffuse FOMA than it took to diffuse i-mode in part because it will take a couple of years to deploy the new network throughout Japan.

I believe, though, that we will need to define different metrics for FOMA's success. In the past, as you know, mobile operators talked only about the number of customers they had acquired, irrespective of how much those customers used their handsets. Then operators started thinking about ARPU [average revenue per user] in order to differentiate between high-revenue and low-revenue customers. Some operators are now thinking beyond ARPU and trying to measure the value that different customers generate for them, but even that approach will not be sufficient in the future.

Let me explain. Some people will use FOMA simply as a data card in their PCs. Some applications will be unidirectional, such as monitoring functions for vending machines. We're also going to see machine-to-machine applications. And enterprises will deploy applications that link employees to corporate IT systems for customer relationship management, supply chain management, and employee portals. For some users, FOMA phones will replace TV and radio. Those are some of the reasons why we need to do more than simply count the number of users.

NTT DoCoMo has significant R&D facilities and in-vests more than $700 million annually in R&D. How important is R&D to your success?

In addition to our own R&D, we work closely with our suppliers to design attractive handsets and applications because we have clear evidence that the use of mobile handsets depends to a large degree on their design, features, and overall quality. I do not believe that the device manufacturers can create attractive functionality and services on their own: they don't have the intimate knowledge of users that we have. We interact with our customers daily, and we understand their needs. Consequently, we absolutely must influence handset design to drive acceptance, usage, and revenues. In this sense, our own R&D is critical.

In my view, mobile operators need to rely much less on suppliers for creating services. Rather than simply taking what the device manufacturers have to offer, operators should demand that manufacturers develop the features and devices that their customers require. Clearly, collaboration with major software players will be important, too, since much of a device's functionality is software driven.

What are some of your current areas of research?

One area that we are examining is the use of high-temperature superconductors and phased arrays as potentially important components of future mobile systems. Those technologies would allow signals to be transmitted with higher efficiency than is possible today. We are also investing significant resources to understand how the human brain responds to auditory and visual stimulation so we can improve the way users perceive and respond to the sounds and images they receive on their devices. As a result of this research, it may be possible one day for human brains to communicate directly with each other–without handsets getting in the way!

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Some industry observers believe that enterprise applications offer enormous potential for mobile services. What is your view?

We think that by integrating mobile devices into the corporate IT landscape, enterprises can create great value. We have been working on such applications for more than two years, and they now account for about 15 percent of our business. But it's important to realize that marketing to enterprises is quite different from marketing to consumers. For one thing, there are considerable differences between enterprises, and each enterprise has its own special requirements with regard to the availability and security of data. Mobile operators need to understand the company's processes in detail if they want to serve this market effectively. Consequently, serving the enterprise market requires significant software-engineering and system-integration skills. Currently, DoCoMo cooperates with more than 100 system integrators in Japan to provide mobile applications for enterprises.

Many industry participants had hoped for a single standard for 3G, but that has not happened. How will standards—or a lack thereof—affect the mobile industry's development?

It's unfortunate that we have multiple standards, because multiple standards mean, in effect, no standards. We need to work with our suppliers and competitors to agree on new standards, especially for software and applications—areas where there are, of course, no authorities to define standards as there are in the telecommunications industry. We need to develop de facto standards through our partners and by increasing the number of customers using our technologies. DoCoMo has joined up with Nokia to establish the Mobile Open Network Architecture Institute, whose aim is to design new architectures for mobile communications. Of course, other operators and developers are involved in this effort, too.

We need to realize that the world of mobile communications is much more akin to the world of the Inter-net than to the traditional telecommunications environment. This means that many players will have to work together to create the applications and services that users need. However, this will also mean that revenue streams and business models will have to evolve considerably. The industry will be successful only if all the participants are rewarded in some way for the revenues and profits generated. Having only one winner will not be a healthy situation.

It seems as if we have seen a new mobile technology every ten years or so. First-generation analog services arrived in the early 1980s, second-generation services appeared in the early to mid-1990s, and now we are entering the era of 3G. Looking ahead, what will 4G bring?

Third-generation technology is clearly not the end of the road, since its capability will not be sufficient for future applications. Despite all the talk about how 3G offers more than customers will need, experts agree that it has considerable limitations, some of which will be addressed by 4G technologies. For example, transmission speeds in 3G are too limited for high-quality streamed-video services. We do not yet have seamless services or full integration with fixed networks and wireless LANs. Internet technologies and especially IPv6—a more advanced Internet protocol that permits multicasting and enhanced security—are not adequately supported today. And, of course, network costs still have room to move down. Some of these issues will be addressed by 4G—but then 5G will become a necessity.

We are only now beginning to recognize the promise of mobile communications, and we should not be overly concerned about the short-term difficulties that the industry is facing. With

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many new technologies, the real impact comes later than initially expected, but the extent of the impact is greater than anyone could predict. We have seen this with the PC–and also with the Internet, which is redefining the inter-actions between individuals and within enterprises in ways that the early pioneers never expected or predicted.

NTT DoCoMo has been a real pioneer in mobile communications. What is your advice to mobile operators in other parts of the world that are trying to deal with the significant investments and uncertain customer demand for advanced mobile services?

David Dean

Of course all countries are different, but in general I think that many mobile operators should accelerate their plans for future services and applications and be less cautious. As I have said, we did not expect i-mode to be so successful so quickly–and other operators will experience their own surprises, too. Experimentation is key. Only through experimentation can you begin to understand how your customers see the value and promise of mobile communications.

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