

Driving Innovation Continually to Turn Our Dreams into Reality

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Overview

NTT DOCOMO is set to become one of the first mobile communications operators in the world to launch Long Term Evolution (LTE) services, with the start scheduled for December 2010. As the mobile communications market is generally perceived to be approaching maturity, what issues are on the agenda of the mobile industry? Executive Vice President and Chief Technical Officer of NTT DOCOMO, Mitsunobu Komori, clarifies the status of the mobile industry, sharing with us his insights on the social mission of NTT DOCOMO as a world-leading enterprise and describing the future that mobile technology is expected to bring forth.



Potential for future growth in the mobile communications market

—In light of the significant evolution and advances in the mobile phone services that we have witnessed, how do you view NTT DOCOMO's progress to date and its current situation?

I would like to start by describing the mobile communications market in 2010 that NTT DOCOMO envisioned ten years ago. That was when NTT DOCOMO announced its “DOCOMO Vision 2010” in a bid to further accelerate the growth of the mobile communications market, enrich the quality of people's lives, and revitalize the industry through the development of mobile multimedia. This vision is represented by the five letters of the word “MAGIC”, signifying five key elements such as *Mobile multimedia; Anytime, Anywhere, with Anyone; Global mobility support; Integrated wireless solution; and*

Customized personal service. This MAGIC vision was formulated in 1999 amidst the unprecedented expansion of the mobile market. It coincided with the period when NTT DOCOMO launched i-mode as the world's first mobile Internet service under the banner of “Challenging the Mobile Frontier”. We find today that most of the future developments envisaged ten years ago have materialized, which is truly amazing. It is no wonder that NTT DOCOMO's foresight in creating this vision and its technology and leadership in realizing this vision have received high praise from all over the world.

The fact that more than a hundred million people already own mobile phones might lead one to the hasty conclusion that the mobile market in Japan has reached saturation point. Contrary to this widely held perception, however, my personal belief is that we still have ample room for growth. I am hoping that we will later come to realize that what currently seems to be a plateau is actually a crossroads that will eventu-

ally lead us to another growth period in a way that we have never imagined before.

—*What kind of growth do you foresee?*

In recent years, wireless communication modules have been installed in an increasing number of devices other than mobile phones. You may already know that vending machines and car navigation systems also have communication capabilities. The digital photo frame is also wireless-communication-enabled; it lets you send photographs that you took with your mobile phone over a wireless network and immediately have them displayed in a photo frame in the living room of your relatives hundreds of miles away. And e-book readers, which are a hot topic right now, are likewise ready for wireless communication that enables their users to download content to the device whenever they want. The fusion of wireless capabilities with such a wide variety of devices will be the driving force to expand the mobile communications market significantly as the price of communication modules continues to fall in the years to come. We will also see home electrical appliances, game consoles, and electric vehicles start communicating. Instruments like blood-pressure monitors and weight scales will transmit and store data automatically via the wireless network. This capability should be very useful for keeping us in good health. The list of such devices goes on and on. What we must ensure, however, is that such the fusion of technologies occurs in a way in which the presence of such mobile communications technology is hardly noticed by users while we are providing services that make their lives more comfortable. This will certainly be challenging, but we have already started to tackle this difficult task of *blending mobile technology ubiquitously into our lives*.

—*How do you cultivate your foresight for product development?*

Since product development is a time-consuming process, we always try to look to the future, foresee customer needs, and infuse them into our product development cycle. “My DOCOMO Labs”, which we started in 2008, is designed to be an opportunity for us to provide customers with hands-on experience of new services under development and get a lot of feedback from them. This is very helpful in determining whether a certain service or product being developed will be one that makes our customers really happy.



Such customer opinions have greatly helped us to shorten the time to market as well. In fact, My DOCOMO Labs is the birthplace of the digital photo frame, which was introduced as a pre-service in the Labs in May 2008 and soon became the most popular item. Through the Labs, we let customers try the functions that we were planning to incorporate into the commercial version of the photo frame, and the valuable feedback received from them allowed us to evaluate its *usability* before it actually became a commercial product. After making repeated improvements as needed, we turned it into a commercial product under the name “Otayori Photo Service” in July 2009. We further upgraded the product and finally launched it commercially nationwide in January 2010. I’m pleased to say that this service has been widely gaining popularity.

Living in an age where the needs of individual customers are increasingly diversified, we need to repeat a trial and error process to find out which services or products are accepted by customers. If we really want to identify customer needs, we must listen sincerely to the voices of people, including our customers.

—*How do you see the growing popularity of smartphones?*

Smartphones are expected to cause a significant change to the world of mobile phones. Innovative human interfaces like the touch panel and the ease of downloading a wealth of applications created by corporate and individual developers around the world make smartphones incredibly attractive. In Japan, where advanced mobile handsets are widespread and downloading music, video content, and applications has already become common practice, the proportion

of smartphones users still remains low compared with North America and Europe. In the years ahead, however, we will see a big leap in the popularity of smartphones in Japan too when ones that can be easily customized to suit the user's preferences become widely available.

Social mission as a mobile pioneer

—Could you share with us NTT DOCOMO's mission as a pioneer in the mobile phone industry?

An important aspect of our mission is to fully leverage the potential of mobile phones and the power of NTT DOCOMO's research and development (R&D) to provide services that will go a long way in helping solve social issues in addition to services that customers are normally supposed to receive. I believe that part of our mission is to address the wide range of challenges that we are faced with in modern society, encompassing the aging society, environment, and safety and security.

A good example of such a service is "Mobile Spatial Statistics". Since the mobile communication network needs to connect customer phones calls swiftly, it always keeps data on customer locations. While handling location information representing the privacy of over 56 million customers with the greatest care, we are investigating how best to create Mobile Spatial Statistics data as beneficial data for society. We have begun to explore practical possibilities



based on this idea.

—What could statistical data based on location information be useful for?

Using Mobile Spatial Statistics, we can, for instance, identify how many people were in a specific area, categorize them by age and gender, and see how these characteristics changed over time. Such detailed data, which was difficult to collect in the past, will be found to be very useful by public institutions for urban planning and transportation projects. Knowing how many people there are in each area will facilitate the making of disaster prevention plans, including setting up public evacuation centers effectively. Likewise, data on the number of people in each area at a certain point in time will be useful in improving the operational efficiency of running a fleet of taxis, which are often found cruising around empty. It may also help alleviate the load on the environment. In a bid to turn such ideas into reality, we are experimenting with huge amounts of data to statistically process it and visualize it for practical applications.

State of LTE development and its upcoming launch

—We have now learned how NTT DOCOMO technology was born and how great the potential of using technology in a totally new way will be. With LTE services scheduled for launch by the end of 2010, could you update us on the current status of LTE development at NTT DOCOMO?

LTE technology is expected to realize high-speed and high-capacity communication with low latency. Up until the current third generation (3G), countries and operators around the world have adopted different technologies. However, now that major mobile operators around the world have announced their intentions to deploy LTE, LTE will be the dominant technology for the next-generation mobile networks in the world.

We are in the final verification stage in preparation for commercial LTE service launch scheduled for December this year. Specifically, intensive tests are underway in a field environment, connecting LTE-enabled mobile terminals to an LTE access network and core network.

We should not forget the time when we introduced 3G FOMA: at the beginning, NTT DOCOMO was technically running far ahead of the rest of the world, but when we eventually looked over our shoulders,

we found that no one was following us. We learned a lesson from that experience. This time, therefore, we are trying to keep aligned with other major global operators and vendors, carefully looking at the maturity of their technologies. We are also putting more effort than ever before into standardization activities.

—What is your relationship with NTT Laboratories?

NTT Laboratories is engaged in a wide variety of R&D activities ranging from information and communications to related basic technologies. At NTT DOCOMO, on the other hand, we concentrate our R&D efforts on mobile communications. Therefore, there is essentially no overlap between NTT and NTT DOCOMO in terms of R&D. In addition, we tend to focus our efforts on short-term service development and commercial infrastructure development as we cannot afford to ensure sufficient resources for medium- to long-term research activities. That is why we should look to NTT Laboratories to reinforce our basic R&D. I hope that we can make full use of the R&D resources of the NTT Group through information exchange and stronger cooperation among Group members.

—And finally, Mr. Komori, could you leave us with some thoughts on R&D?

One of the four “New DOCOMO Commitments” announced two years ago says, “We will continue to drive innovation so that we can earn the respect and admiration of people worldwide.” You may think “earning the respect and admiration of people worldwide” sounds a little too exaggerated. During the last two years, since taking up my current position, I have had many opportunities to meet and talk with top executives of world-class operators and vendors. I have been happily surprised to learn that they are highly aware of what we do at NTT DOCOMO and that they widely recognize us for having introduced a number of world firsts such as i-mode, a 3G system (FOMA), and Osai-fu-Keitai (mobile wallet) as a pioneer in the mobile field. Nevertheless, we should not



rest on the hard work of our predecessors and the achievements in the past. Instead, “We will continue to drive innovation to turn even more dreams into reality.” This statement from the New DOCOMO Commitments crystallizes the resolution of everyone engaged in R&D.

Interviewee profile

■ Career highlights

Mitsunobu Komori entered Nippon Telegraph and Telephone Public Corporation (now NTT) in 1977. Prior to taking up his current position in June 2008, he served as a Senior Engineer at NTT Network Systems Development Center, NTT America Vice President, Senior Manager of NTT Group Promotion Headquarters, Senior Manager of NTT Human Resources and General Affairs, General Manager of NTT East Nagano Branch, Senior Manager of NTT Department V, NTT DOCOMO Senior Vice President and Managing Director of the Core Network Engineering Department, and NTT DOCOMO Senior Vice President and General Manager of the Kanagawa Branch.