

## R&D that can Capture Value

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NTT Network Innovation Laboratories, with a five-to-ten-year outlook, is focusing on i) creating innovative services and the network concepts that will support them, ii) providing the new network foundation technologies required to win the business competition, and iii) being a leading force in the field of innovative, foundation technologies.

In the Japanese name for NTT Network Innovation Laboratories, we deliberately chose to write “net” (for network) in cursive Japanese characters (hiragana rather than kanji). This expresses our determination to break into new fields with a free and unrestricted approach and to create a “supple network” that can cope with variations in traffic and services with flexibility and adaptability in the future network. This should be carried out by bringing together a wide range of researchers—working in the fields of optics, wireless systems, and software and tackling the network architecture from the physical layer to the application layer.

Since NTT Network Innovation Laboratories was established in 1999, broadband Internet access services have become very popular and NTT has made considerable effort to adapt its business structure to the emerging broadband service era. It was essential for us to provide technologies to scale up our network capacities and speeds with higher quality and reliability at a competitive cost. These goals are even more critical now because network traffic is increasing drastically. In addition, we put top priority on providing innovative service visions and technologies to assist the NTT Group in developing new markets.

Evidence is rapidly mounting that we are entering the so-called ubiquitous era. Mobile phones have become enormously popular. Data communication services for mobile phones have already been accepted as standard features rather than optional add-ons and the phones are constantly being enhanced, for example by including digital cameras. This seems to indicate that an enormous market is emerging behind the mobile phone trend. Various kinds of data and functional features become valuable when mobile phones are used. The multi-million dollar market for mobile phone content can be explained by the fact that mobile phones enable content providers to determine the user’s circumstances (usually referred to as context). Versatile devices such as radio frequency identification tags are emerging that will enhance the availability of context information. The real world will be captured, affected, controlled, or even constructed by ubiquitous networks.

Professor Rebecca Henderson of MIT Sloan school gave an interesting talk at the OXYGEN project dinner. (OXYGEN is an MIT project for ubiquitous computing R&D.) She pointed out that value creation does not always ensure value capture. It is not enough to have a great idea. We need a strategy that not only makes markets but also beats the competition. Nowadays, good ideas are instantly shared via the Internet. Broadband technologies strengthen this fact. In the traditional R&D paradigm invented by German chemical industries, R&D activities were organized step by step from basic research to commercial deployment. That paradigm seems to need modification now. Creating ideas, finding good ideas among the many proposals, creating markets based on good ideas, capturing the market value—all of these activities must proceed concurrently. That is, it is important to develop an R&D system that captures value through knowledge creation rather than one that only creates valuable knowledge.

From 1993 to 1996, I worked for a joint project with Microsoft regarding multimedia information sharing business creation. At one meeting, Dr. Myhrvold, chief technology officer of Microsoft, said they wanted to jointly cook a delicious pie and take a portion of it. The history of Microsoft proves that value can be created and captured simultaneously through partnership. A large and valuable pie is difficult to cook by yourself. We have skillful chefs in our engineers and we have high-quality ingredients in the cutting-edge optical, wireless, and distributed network technologies in our laboratories, but we need partners to provide the spice to secure success.

Ubiquitous networks will require significant efforts over many years. NTT Network Innovation Laboratories will work to develop an R&D system that can capture the value of ubiquitous networks through knowledge creation in cooperation with NTT staff and outside organizations and individuals.



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