



# **Preface**

## **Special Issue on**

### **Cutting-Edge R&D**

#### **— Aspiring to Be A**

##### **Research Organization for**

###### **The 21st Century —**

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Entering the 21st century, the tremendous progress made possible by the information and communication revolution based on the Internet has brought about really dramatic changes in social trends and industrial structures. To stay ahead of these changes, Fujitsu Laboratories is striving to become a research organization expected in the 21st century, so that we can continue offering new value and solutions to our customers and society in the future.

In the 19th century, science and technology developed as two separate interdisciplinary areas. Then in the 20th century, multidisciplinary (20th century-style) research laboratories were established to create new inventions by fusing science and technology. Examples of the fruits of this research include such advanced devices as high electron mobility transistors (HEMTs), as well as computer and telecommunication systems supported by physics and information theory.

In the 21st century, however, our society needs new development style that goes beyond the fusion of science and technology, and we now consider business models and corporate social responsibility (CSR) to also be important elements of research and development (R&D). As we have seen from free search engines that rely on advertising income or portable music players coupled with music distribution systems, the use of an optimal business model can have tremendous impact on the world at large. Therefore it is also important for researchers to consider a business model for using their inventions, and this is a key

factor for creating new businesses and innovations. Moreover, we can now no longer ignore the impact of rapid technological advances on society and the environment. To make future society more safe and secure, it will be essential to consider environmental impact and the reliable operation of infrastructure in creating new products through R&D activities in which CSR is a guiding principle.

The 21st century-style research organization envisioned by Fujitsu Laboratories is like a highly advanced four-wheeled vehicle where science and technology represent the two rear driving wheels, business models and corporate social responsibility the two front wheels, and with researchers controlling the steering wheel to determine the direction in which the vehicle will go. Fujitsu Laboratories intends to aid its customers in creating value by conducting R&D based on this concept.

In addition to conducting in-depth research on state-of-the-art technologies continuously to drive advances in IT infrastructure, we will develop ubiquitous computing technologies that bring about innovation in business and people's lifestyles, as a basis for developing new business models and solutions. We will also be active in R&D to create cutting-edge materials and devices that will provide the seeds of future technology for creating new value.

In order to support further expansion of the Fujitsu Group's business in the future, Fujitsu Laboratories is conducting vertically integrated research & development activities covering everything from materials and devices to networks, IT systems, and solutions, based on a technology roadmap for the next 10 years.

This special issue introduces some of Fujitsu's major R&D activities.