

Priority 1

# Providing Opportunities and Security Through ICT

Fujitsu will contribute to the creation of a society where ICT connects and supports the world's seven billion people, providing them with security and opportunities to pursue their dreams.



## Highlights in 2010

# “K computer”\*

## –Computing to Create a Prosperous Future that Fulfills the Dreams of People

The growing list of complex and challenging problems faced by the world includes global warming, increasingly destructive natural disasters, depleted resources, and the emergence of serious new illnesses. Fujitsu looks toward a prosperous future that fulfills the dreams of people and is committed to rapidly finding solutions for the problems that stand in its way. This will mean gathering wisdom from the whole world and making rapid progress in advanced research.

The key to this is a supercomputer with the ability to process huge volumes of information and reveal to us the unseen future.

Fujitsu is cooperating with RIKEN, an institute of physical and chemical research, as part of the High-Performance Computing Infrastructure (HPCI) initiative led by Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT), by developing the K computer, with completion planned for 2012.

\*“K computer” (or 京, the Japanese character for quadrillion) is the name adopted by RIKEN in July 2010 for Japan’s Next-Generation Supercomputer.

Fields in which the “K computer” will be actively employed.

### Developing new medical treatments and drugs

R&D for new pharmaceuticals, and simulations to optimize the latest medical treatments and surgical procedures

### Demystifying the universe

Discovering new, unknown matter in space and resolving the mysteries of the universe

### Addressing environmental and disaster-prevention problems

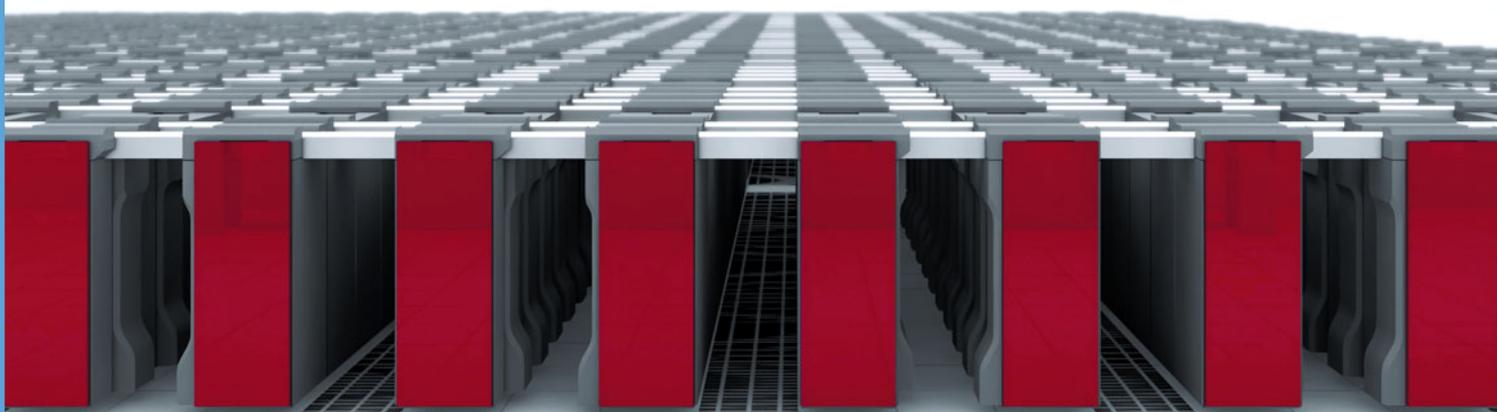
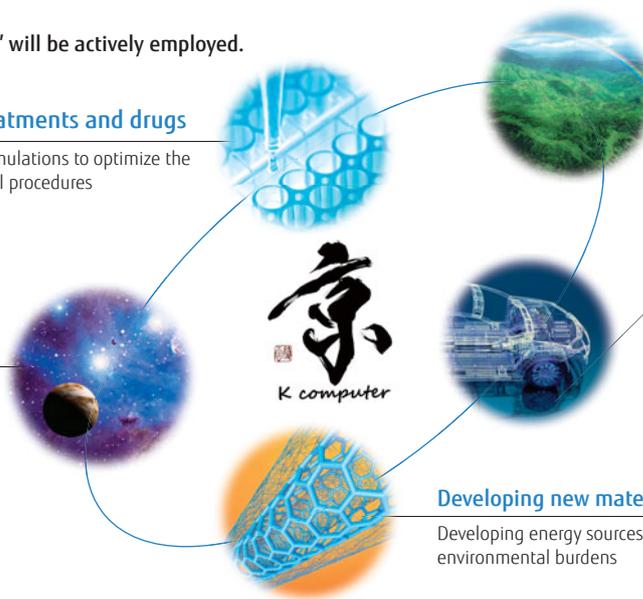
Performing analyses to avert global warming and to strengthen buildings against natural disasters

### Developing leading-edge products

Developing much safer aircraft, and automobiles that will minimize the effect of impacts

### Developing new materials and energy sources

Developing energy sources and materials with lower environmental burdens



The K computer uses over 80,000 CPUs in parallel that provide high performance and reliability while consuming little power. In June 2011, while still under construction, the incomplete system set a world performance record.

# The World of Computer Simulations that the Supercomputer Makes Possible

The high processing speeds of which the supercomputer is capable enable it to model complex phenomena.

Such computer simulations make it possible to evaluate the effects of radiation or arrangements in space that would otherwise be dangerous, and to assess the conditions for phenomena on such a vast scale as to make actual experiments difficult.

## Safe & Secure Our lives will change.

### We will work to save every possible cancer patient.

How drugs work within the human body, and the actual complex mechanisms of life itself, are still not well understood. As the K computer refines our understanding and predictions, we can expect dramatic changes in the development of new pharmaceuticals. For example, experimental evaluations have previously only been performed one by one on the vast numbers of candidate drugs, but once we have an understanding at the molecular level of the proposed remedy and its working on cancer cells, we can look into the fundamental problems in the expectation of developing effective drugs with few side effects.



### Detailed weather forecasts will minimize disaster damage.

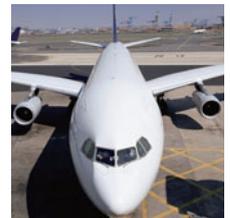
While the accuracy of weather forecasts is improving year by year, further improvements require more precise data processing. This takes an inordinate amount of time on today's supercomputers, and they cannot keep up with actual weather conditions. The high speeds of which the K computer is capable are expected to make detailed predictions of local heavy rain possible.



## Industry The way we make things will change.

### Efficiency will increase, without compromise on safety or performance.

Various computer simulations are already used in the complex design and development of rockets and aircraft, but current supercomputers can only calculate on the basis of components such as fuselages and wings, so wind-tunnel facilities built at great expense must be used. The K computer is expected to be able to handle the aircraft as a whole, reducing both the time and cost of development, while offering the decisive advantage of constructing aircraft with superior performance.



## Basic Science The unknown will be rendered visible.

### We want to know how the universe was formed and its future.

Various theories have been proposed for how the universe was formed. However, present technologies do not enable us to visit distant stars or galaxies for experimental proof. But this is where computer simulation comes into its own. The number of stars and the periods of time that can be handled are highly dependent upon the speed of data processing, and high performance supercomputers are essential. The K computer will give us glimpses of the distant future of the Earth and of humankind by simulating the phenomena of the universe.



### A Word from Fujitsu

### We are contributing to a prosperous "dream" future through Supercomputer Development.

Throughout recorded history, humankind has always dreamed of predicting the future, starting with the weather, typhoons and frost damage. In every age, sundials and astronomical observations were the most advanced technologies of their time, and aimed to discover the laws of Nature and to prepare for its vagaries. The high regard in which fortune-tellers and shamans were held by the rulers of their day tells us of the great importance that was attached to predictions.

Today, supercomputers have made it possible to grasp changes on many different scales, from the formation of the universe to the motions

of nuclear particles, and to make very precise predictions. We want to be a major resource in solving humankind's common problems, from measures against global warming and natural disasters, through saving resources and energy to curing serious illness. Through Fujitsu's supercomputer development and usage, we want to work with our customers to contribute to a prosperous and dream-inspiring future.



**Masahiko Yamada**  
Head of Technical  
Computing Solutions  
Unit

## Highlights in 2010

# Towards a Human-Centric Intelligent Society... Highly Reliable Cloud Computing Services for the World

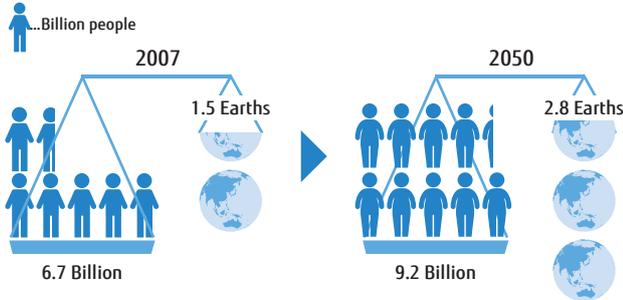
Fujitsu, in deploying globally a secure cloud computing platform that achieves the world's highest reliability level (99.99% uptime), is concentrating on providing trusted cloud services that will minimize the consumption of resources and contribute to the formation of a sustainable society.



## Using ICT Effectively to Achieve a Sustainable Society

Large population increases, primarily among developing nations, are anticipated to take the world's population from today's 6.9 billion to 9.2 billion by 2050. The rate at which global resources are being consumed is increasing even faster than populations, and it is claimed that if all people were to enjoy the same standard of living as those in the developed nations, it would require 2.8 planet Earths.

### Predicted increases in world population and resource consumption



Fujitsu believes that achieving sustainable development of international society under these circumstances will call for completely new concepts. Here, the key to finding solutions will be the effective use of ICT in virtual digital society.

The world's Internet connections topped two billion in 2010, and over 100 trillion e-mail messages were sent. Today's virtual society, free of physical restraints, is becoming the common platform for the peoples of the world.

We see the evolution of ICT, employed to maximum advantage while minimizing the consumption of resources, as a source of new value that can help the peoples of the world to achieve a sustainable society.

## A "Global-Scale Brain," Unfettered and Equal Access to a Business Engine for Everyone

To minimize energy consumption while working with our customers, local communities and the people of the world to

make a sustainable society possible, we are strengthening the systems installed in our data centers and the network access to the cloud services they provide.

The tremendous diversity and huge volume of data and information stored in the cloud platform can be linked and utilized to resolve society's problems and give birth to new knowledge.

We estimate that using this platform offers far greater energy efficiencies than can be achieved by processing the same volume of information with existing (physical) servers. This "global-scale brain," which can be used by everyone, constitutes an unimpeded and equally accessible business engine. Such are Fujitsu's cloud services.

## Global Deployment of Trusted Cloud Services

In providing cloud services used by many people, reliability is the highest priority. Data centers must also achieve further reductions in their energy requirements.

At Fujitsu, based upon the systems and products developed in our existing business, we have used computing technologies such as data-stream processing and distributed parallel processing in a tightly integrated vertical model to provide a trusted cloud service, one that our customers can use with confidence. Of our data centers deployed at over 100 locations worldwide, those in Japan, Australia, Singapore, the United Kingdom, Germany and the United States employ the latest on-demand virtual system services among other leading-edge technologies so as to achieve not only the world's top level of reliability (99.99% uptime) but also energy consumption efficiencies that are already five times higher than before and will be ten times higher by FY 2012.

At Fujitsu, we are working with our customers in various fields to help build a sustainable society on this "trusted cloud" base.

### A Word from Fujitsu

## We are discharging our corporate responsibility for society's infrastructure through the Trusted Cloud Service.

As the amount of energy consumed by each individual continues to increase, in conjunction with the world becoming "flat", means that the world's energy resources are becoming seriously depleted. Fujitsu sees its task as addressing this problem by keeping energy consumption to the minimum while marshalling the resources of ICT to devise means of sustaining growth. For us, Trusted Cloud Services not only provide society with an infrastructure that has the needed safety and security, but also discharges our dual social responsibility of using less energy and sustaining growth. For example, ICT can provide active awareness

of the movements of people or things and cloud services can provide support for appropriate actions. In this way, wasteful consumption of electricity and the waste caused by those unfamiliar with proper operation can be avoided, and our actions can be optimized sustainably. Fewer energy resources will be consumed in building a better society. This is Fujitsu's purpose in providing Trusted Cloud Services.



**Chiseki Sagawa**  
Head of Planning  
Unit, Software  
Business Group

# Providing New Values Through ICT

There are many problems confronting humankind in the quest for a sustainable society. Fujitsu uses ICT to address these problems over many areas, and is creating values that will enrich the future.

## Society's Problems in Food and Agriculture

It is claimed that as many as 900 million of the world's population are starving. Japan can only supply 40% of its own needs for food, and that percentage is declining, while the average age of farmers (66 years old) is increasing and their numbers are dropping. Japan's declining competitive strengths in agriculture are a serious concern.

### Fujitsu's Approach

#### Example 1

#### Using Cloud Computing and Knowledge Management to Foster Successors and Increase Competitive Strengths

With fewer members of the next generation to take over agricultural businesses, efficient knowhow transfer is a key issue. Fukuhara Farm, Ltd., in Shiga Prefecture, uses Fujitsu's cloud computer services to introduce an agricultural knowledge management system to reduce such transfer periods from 10 years to just four or five.

At Sowakajuen Co., Ltd., in Wakayama Prefecture, smartphones are used as data-gathering terminals for cloud computing services to extend the production of fine quality mandarin oranges. Hitherto, growth control of the fruit was made in bulk, orchard by orchard, but now it is done individually, tree by tree, so as to improve the quality of the fruit and products processed from it and strengthen the brand.

Fujitsu is using ICT to collect and analyze data on agricultural operations that previously depended upon the tacit knowledge and experience of individuals. The data for soil, weather, growing conditions and the results of operation are collected and analyzed to make the factors visible, to help workers acquire higher skills and to strengthen the agricultural product brand, in this way helping to make agricultural business sustainable.



Collecting meteorological and other information from sensors (Sowakajuen)

#### Example 2

#### Using Pedometers to Support Cattle Breeding

Increasing the birth ratio of cows is an important priority for many livestock breeders and dairy farmers. Fujitsu, noting that when cows come into heat their amount of exercise increases anything from three- to six-fold, constructed a system that uses pedometers attached to the cows to graph the amounts they exercise and deliver the graphs over the Internet. It is positioned as a system for detecting the fertile periods of cows. The system has been adopted by the agricultural cooperative of Iki City (JA Iki), where it is expected that successful impregnations will be more than doubled. There is the additional advantage that inseminators will no longer have to stay up all night in cattle sheds watching for cows to come into heat, which is a great improvement in their working conditions.

Through this experience, Fujitsu is contributing to the sustainable development of livestock breeding and dairy farming.



A pedometer attached to a cow's leg

## Social Problems in Health and Medicine

In 2030, the proportion of elderly people in the Japanese population is expected to exceed 30%, and coping with the soaring medical-treatment costs, nursing care and hospital/clinic cooperation is an important issue for society. These kinds of problem are expected to arise in the nations of East Asia and other areas in the future.

### Fujitsu's Approach

#### Example 1

#### Medical Treatment at Home Using Smartphones

As the Japanese population ages, many more elderly people are living alone, and the costs of medical treatment are soaring. One response to this problem calls for changes that would make treatment possible at home.

"You Home Clinic" specializes in providing treatment at home, and since December 2010 it has been using Fujitsu's cloud computing services and smartphones to control the scheduling of home visits to patients, to check map information, to input vital signs, and to e-mail prescriptions. By adopting the service, twice as many patients as before could be visited at home with an improvement in the quality of medical care.

Fujitsu has over 30% of the Japanese market for electronic health records, and has made improvements to the environment of medical care. From now on, in the area of treatment at home, efforts will be extended to establish the environment for a recycling oriented economy in cooperation with services for private health-care companies and lifestyle support related services.



A doctor examining a patient at home

#### Example 2

#### Outsourcing ICT Services in Finland

An urgent issue for medical facilities is how to provide seamless information services to patients.

In 2009, Fujitsu worked with a Finnish social insurance institution to construct an electronic health record system for medical institutions throughout Finland, and in 2010 it entered a contractual agreement with Finland's third-largest city, Tampere, to undertake the outsourcing of ICT services for the Pirkanmaa Hospital District and eight administrative districts surrounding Tampere.

From November 2010, a broad range of ICT outsourcing services have been provided, linking information among research institutions, pharmacies and imaging centers of both local government and groups of hospitals.

This global experience will be used to ensure that Fujitsu continues to contribute to the good health of society.

## Social Problems in Transportation

There are an estimated one billion cars in the world now, and by 2030 the number is expected to exceed 1.5 billion. The financial costs of traffic jams in Japan are put at 2% of GDP, and it is not uncommon for this figure to exceed 3% in the overcrowded countries of Asia and the Middle East.

### Fujitsu's Approach

#### Example

#### Providing Vehicle Probe (Positional) Information

In 2007, the Fujitsu Group formed a research association, the Taxi Probe Commercial Viability Study Group, jointly with Denso Corporation and Panasonic Corporation to improve traffic-related and environmental problems by acquiring, processing and distributing positional information from several thousand taxis in the Tokyo area. In 2010, this effort was extended to trucks and buses.

Based on the information thus acquired and actual probe information, the research association was able to reduce CO<sub>2</sub> emissions by up to 30% by providing measures such as navigation functions that display the shortest routes. Fujitsu, by using this knowhow and deploying the SPATIOWL positional information service, will contribute to the solution of transportation problems including traffic jams and fuel costs.



Aiming to reduce traffic jams and fuel costs

## Social Issues in Education

Education is one of the fundamental infrastructures supporting the future of society and the economy. There is more need than ever for improvements in primary and secondary education, which form the basis for fostering the mental capacity, judgment and powers of expression that children need if they are to thrive.

### Fujitsu's Approach

#### Example

#### Participating in the "Future School Promotion Project"

Introduction of ICT to the classroom makes children feel interested and motivated, and improves their understanding, while providing finely tuned educational support such as close linkage between school and home.

To promote the use of ICT in elementary schools, the Fujitsu Group has been participating in the Ministry of Internal Affairs and Communications' Future School Promotion Project since August 2010. The research provides each child with a tablet computer, each classroom with an interactive whiteboard, and each school with a cloud system to distribute learning materials etc. Given the appropriate ICT environment, children can learn from—and teach—one another and so enrich their learning experience. In future, we will contribute to education by promoting learning that is adapted to the children's situation.



Children sharing their approach to problems (Hiroshima Municipal Fujinoki Elementary School)

## TOPICS

### Using a Supercomputer to Create New Values

#### Contributing to the Revitalizing of Industry in the United Kingdom

In March 2011, Fujitsu was selected as a partner in a national project running through 2015 intended to revitalize industry in Wales. Two Welsh universities will play the central roles in introducing a supercomputer to be utilized by universities, public authorities and private companies. It is expected to create new employment opportunities and new businesses to achieve economic growth and technology improvement within the Welsh community.

Fujitsu, by promoting the global use of supercomputers, aims to create a prosperous and dream-inspiring future.

#### Using a Supercomputer to Develop Treatments for Cancer Relapse and Metastasis

The University of Tokyo's Research Center for Advanced Science and Technology and Fujitsu worked together to build and operate a supercomputer system in August 2010 to develop pharmaceuticals for the treatment of cancer relapse and metastasis.

Thanks to this system, an R&D process that previously took three or four years of practical experimentation can now design synthetic antibodies in a matter of months.

# Increasing ICT Accessibility

To achieve a society in which the access to ICT is unaffected by regional or age disparities, or the existence of handicaps, so that all benefit equally from the advantages of ICT, we are actively promoting upgraded information communication networks and universal design.

## Our Basic Stance

The number of the world's Internet users has topped two billion, and ICT has become an essential part of the infrastructure that supports daily life. In stark contrast, however, broad-band Internet has hardly penetrated developing nations, and this information disparity (the so-called "digital divide") is a factor hindering economic development.

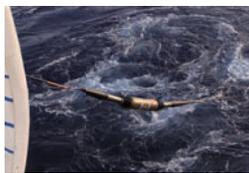
Fujitsu is introducing a number of initiatives to break down this digital divide so that all people of the world can have speedy access to information and an equal chance of making economic progress.

### Example 1

#### Completion of an Indonesia Submarine Optic-Fiber Network

Fujitsu has collaborated with the German cable maker Norddeutsche Seekabelwerke GmbH (NSW) to complete the first Indonesian high bandwidth communications network, which links the islands of Java, Bali and Lombok, and Kalimantan and Sulawesi.

This "JaKa2LaDeMa" project provides PT Telekomunikasi Indonesia with some 1,800km of high-capacity submarine cable and forms the infrastructure to support the Internet and the transmission of video and other data to the great benefit of daily life for the Indonesian people.



Installing the communications system

### Example 2

#### Helping to Build China's ICT Infrastructure

Fujitsu has provided China Mobile Communications Corporation with over 500 units of UNIX servers and storage systems to handle massive amounts of data such as subscribers' information and billing for its 600 million-plus subscribers.

Fujitsu is providing highly reliable ICT infrastructure platforms to customers in telecommunications, education and government sectors throughout China. They are used for systems such as business support systems, business analysis systems and network control systems. Fujitsu will continue to provide highly reliable products and solutions in the Chinese market as a global ICT partner.

### Example 3

#### Scanner Sales Network Expands in Africa and China

PFU provides "fi-Series" professional document scanners for businesses that want to digitize large quantities of paper documents. Through a network of partners across the world it sells and supports in 185 countries and regions enabling it to achieve the leading market share globally. More recently, the demand for professional document scanners has been increasing in African nations such as Nigeria, Ghana and Gambia, driven by the adoption of electronic document processing by government and financial institutions. PFU's fi-Series has played an important role as an introduction of ICT.

Through stronger cooperation with distributors and resellers the distribution network across Africa was extended in 2010 to cover 46 African nations that can now benefit from the business efficiency and productivity gains brought about by using PFU's fi-Series scanners.

The National Bureau of Statistics of China also chose 1,700 Fujitsu Group scanners and Chinese-language OCR software for China's Sixth National Census Project from November 2010, and the census benefitted from accurate and rapid preparation of the statistics.



Explaining products at a meeting in Ghana

### Example 4

#### Telemedicine System Trials in Laos

Fujitsu, with support from Asia-Pacific Telecommunity (APT, an Asian international communications organization), has helped the move towards e-government in Laos. One step in this is, for example, constructing basic infrastructures for the introduction of a database at a central hospital and the opening of access points at provincial hospitals so that medical records/information can be shared. We are also working on constructing systems for an ICT environment that will support doctors in remote regions by enabling them to consult with colleagues via web-based teleconferencing and the two-way transmission of image data.

We will be using the knowhow acquired in this way to benefit the move to e-government in developing countries.



A telemedicine trial

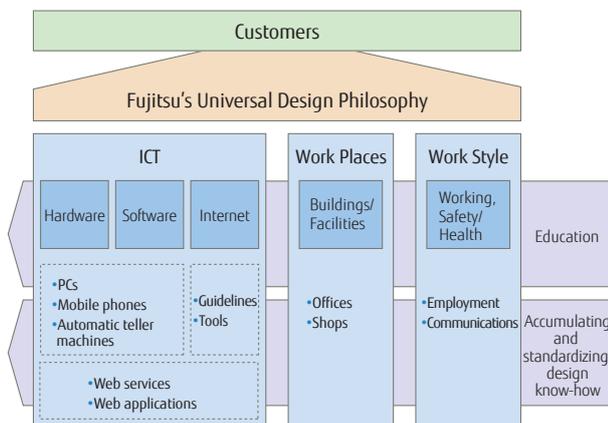
## Universal Design—Equal Opportunities for All

The Fujitsu Group recognizes its social responsibility to create an environment that provides equal opportunities for a diverse range of people to use ICT effectively. With this in mind, we are working to promote universal design.

The Fujitsu Group positions universal design as an important corporate management strategy and we are proactively implementing it to meet our social responsibilities. By taking advantage of these results in our products and services, we will improve society's productivity, increase our customers' level of satisfaction, and contribute to their businesses.

**WEB** Fujitsu Design Policy  
<http://www.fujitsu.com/global/accessibility/policy/>

### Fujitsu Group ICT Universal Design Policy



## Example 1

### Communications with Society

The Fujitsu Group is active not only in using universal design for its products and services but also in publicizing its efforts to as many people as possible.

- Fujitsu submits its corporate website to JIS audits and is committed to improving its accessibility so as to reach the JIS "AA" standard.
- Fujitsu participates in the International Conference for Universal Design, which publishes research and introduces practical examples to encourage a society with high levels of universal design. There, the Fujitsu Group shares its attitude and collects messages from participants on the theme "Universal Design for Tomorrow" for publication on its website.



Messages from participants

**WEB** Messages on Universal Design for Tomorrow  
[http://jp.fujitsu.com/group/fdl/activities/ud2010/message\\_global.html](http://jp.fujitsu.com/group/fdl/activities/ud2010/message_global.html) (in Japanese)

## Example 2

### Raku-Raku (Easy-to-Use) Mobile Phones and PCs

The Raku-Raku Phone, a mobile phone whose delivery to NTT Docomo began in 2001 and proved very popular, achieved total shipments of over 19.3 million units through March 2011 as a simple-to-use design featured product incorporating multiple functions.

We also released the Raku-Raku PC series in 2008. These PCs include a Raku-Raku keyboard that allows the user to recognize at a glance the characters they want to input and features the Raku-Raku menu, which allows the user to start work immediately. These products strive for ease of use, simplicity, and user confidence and are optimal as products for senior citizens and beginners.

**WEB** Fujitsu Mobile Phone Products (in Japanese)  
<http://www.fmworld.net/product/phone/>

**WEB** FMV Raku-Raku Personal Computers (in Japanese)  
<http://www.fmworld.net/fmv/rakuraku/>

## Example 3

### A Mobile Phone Application for Children with Special Needs

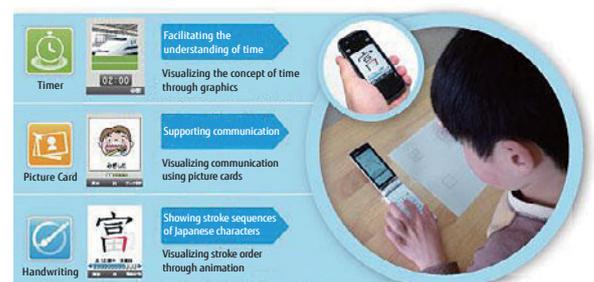
Children with special needs, including those with learning disabilities and autism, need support in learning to tell the time, communicate, think ahead and write letters.

Fujitsu has developed an application for the mentors and guardians of such children that consists of three modules for mobile phones: "Timer," "Picture Card" and "Handwriting" to help with living and learning. The children's understanding of the time, messages to be conveyed, and the order of strokes in writing Japanese characters are all helped by using color filters and vibration, etc., that take disabilities into account. The application can be downloaded free of charge from the Fujitsu website.

The application was developed by Fujitsu and tested in collaboration with Kagawa University's Faculty of Education (Sakai Lab), which is actively involved in employing ICT in education and support applications. After the tests, functionality and user-friendliness were further improved.

This initiative was recognized when Fujitsu was awarded the fourth Kids' Design Award in July 2010 and the Universal Design Award 2011 in March 2011.

**WEB** A mobile phone application for Children with Special Needs  
<http://www.fujitsu.com/global/news/pr/archives/month/2010/20101029-01.html>



# Providing Reliable and Secure ICT Infrastructure

The need for stable operation of ICT is a given, and it is used in the areas of security and disaster prevention, where it supports safe and secure living. To deserve growing trust from our customers, we are implementing ongoing improvements to our products and services.

## Our Basic Stance

Today, as ICT supports the social infrastructure on which business and daily living are based, Fujitsu has a social responsibility to ensure stable systems operation.

Also, in order to respond to the world's growing needs for ICT in the areas of security and disaster prevention, Fujitsu is offering reliability and security.

### Example 1

#### Launch of Next-Generation "arrowhead" Securities Trading System

Advances in finance industry technology and expansion in online trading have led to a need for greater speed in order processing and the distribution of market information. The Tokyo Stock Exchange (TSE) selected Fujitsu as a system partner and launched a next-generation trading system called "arrowhead."

"arrowhead" achieves world-level millisecond-level speeds in both order processing and market-information distribution and provides the high reliability needed by TSE. The new trading system not only offers greater convenience to a wide range of users but also enables new styles of trading and the creation of new business models that promise to add momentum to the Tokyo market.



TSE Market Center

### Example 2

#### World's Largest Class of Registry Information System Using Linux

Fujitsu has constructed a registry information system using Linux for Japan's Ministry of Justice. The system contains the nation's real estate, company and legal-entity registrations, comprising about 270 million real-estate registrations and about 3.5 million company and legal-entity registrations. The system supports the management of the above-mentioned information and daily data entry at about 450 registry offices. It is one of the world's largest Linux systems in the area of mission-critical tasks.

The registry information system is a gigantic, critically important part of Japan's electronic government system, of which the number of applications puts it on a par with the social security system. This project has concentrated some 50 facilities scattered throughout Japan into four locations in the effort to reduce costs and boost reliability. Fujitsu will continue to discharge its social responsibility by the construction and stable operation of government systems.



Supporting a stable administration

### Example 3

#### A New Biometric Security System for ATMs in Brazil

Bradesco S.A. is Latin America's largest private financial institution (with 3,628 branches and 32,015 ATMs). Fujitsu has now supplied it with a Palm Secure biometric palm-vein authentication security system for its ATMs.

Dishonest use of ATMs is a serious social problem in Brazil, and several biometric authentication systems were studied for adoption. The high evaluation of Palm Secure's outstanding authentication accuracy and the resistance of vein patterns to external tampering led to the adoption of Fujitsu's system. Palm Secure contributes to safety and security within Japan and around the world with a widening range of applications for buildings and room access, including PC login.



Introduction of biometric security for ATMs

### Example 4

#### Contributing to the Return of the "Hayabusa" Asteroid Probe

The Japan Aerospace Exploration Agency (JAXA) launched the "Hayabusa" asteroid probe in May 2003. Fujitsu helped to ensure the success of this mission by developing and operating a number of key systems, including the orbit determination system that determined its position and speed, and the real-time satellite status monitoring and fault diagnosis system that automatically detected equipment faults.

"Hayabusa" overcame a number of problems, secured the world's first asteroid samples—fine particles from the Itokawa asteroid—and returned to Earth in June 2010. Fujitsu continues to provide development and operational support for JAXA's ground systems and is committed to furthering the development of Japan's space technology.



The "Hayabusa" asteroid probe. (Illustration: Akihiro IKESHITA)

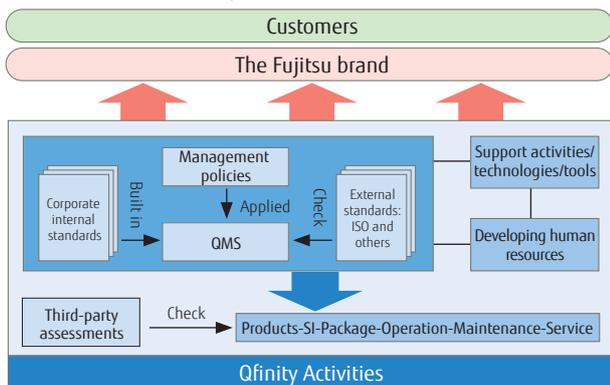
## Quality that Builds Trust, Safety and Security

The Fujitsu Group attaches fundamental importance to product quality in all corporate activities so that everyone can enjoy the benefits of ICT in security. Again, the priority is not on satisfying ourselves but on making products that satisfy our customers by providing the quality they expect.

To provide these high-quality products and services, Fujitsu has constructed and operates a quality management system (QMS). In operating this system, Fujitsu periodically verifies the progress of the PDCA (plan, do, check, act) cycle in the light of ISO and other international certification standards.

To further increase our customers' trust in the Fujitsu Group, we implement quality management using QMS in process improvement.

### Our QMS-Centered Quality Assurance Activities



## The Pursuit of Quality and Safety

Fujitsu responds by anticipating changes at our customers and their business environments so as to continue providing them appropriate products and services. At every stage from design through evaluation, production, to sales and support, we perform our quality improvement activities in line with the following principles.

### Quality Principles

1. We pursue quality from the customer's perspective.
2. We build in quality that anticipates changes.
3. We achieve quality consistent with our social responsibilities.
4. We use first-hand feedback based on the actual situation.
5. We work with our business partners to improve quality.
6. We seek to make public quality-related information transparently.
7. We foster employees who think about quality.

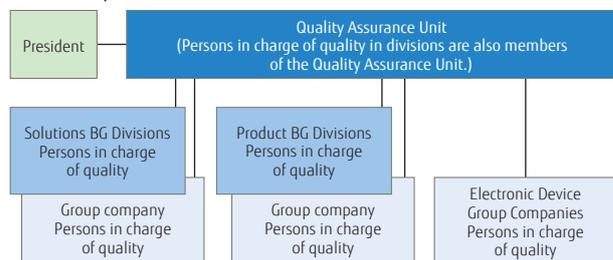
Based on the policy of emphasizing safety in all aspects of our business activities, we strive for assured safety in product designs, collection and the publication of information on product-related problems, and rapid response to such problems.

## Our Approach to Promoting Quality Assurance

Fujitsu has established a group dedicated to quality improvement within each division and each Group company so that we can provide high-quality products and services to our customers.

Also, through the Quality Assurance Unit, which consists of representatives of these dedicated groups, we work to develop countermeasures through information sharing and by improving support structures, which transcend the organizational framework. In this way, we work to establish a QMS that creates added value for the customer.

### The Quality Assurance Structure



## Promotional Activities

### Qfinity Activities

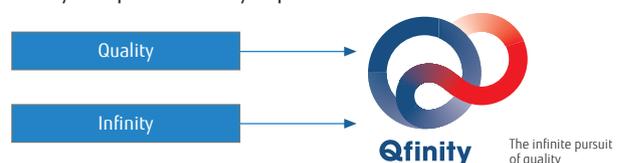
Since 2001, Fujitsu has implemented Qfinity\* activities, which are independent quality improvement activities, in all divisions. The Qfinity concept emphasizes a quality improvement model using the PDCA cycle that exhaustively pursues not only better product functions and reliability but also quality improvements in all phases of work, including efforts to improve customer response and delivery and reduce costs.

In each division, we are moving forward with efforts on themes that reflect the division's major policies and the issues that arise in the workplace on a daily basis. Project activities include both group activities concerned with a specific theme and individual activities to propose reform and improvement based on their findings. In principle, all Fujitsu employees participate in at least one of these activities.

- FY 2010: Approx. 5,700 project initiatives
- FY 2010: Approx. 94,000 improvements/proposals

Using the web-based Qfinity information system on our intranet, all Qfinity information can be shared interdepartmentally, enabling us to do the benchmarking of the other divisions' objectives and processes, and to acquire information and knowledge such as technologies, know-how and other expertise.

### Qfinity Group-Wide Quality Improvement Activities



\*Qfinity: The word Qfinity was created by combining "Quality" and "Infinity" to express the concept of our commitment to the infinite pursuit of quality.

## Providing Reliable and Secure ICT Infrastructure

To make the successes of Fujitsu Qfinity activities widely known within the Group, we provide information to each Group company through the Qfinity website on our intranet and also hold a Group-wide Qfinity conference every year at which exemplary cases of Qfinity activities and awards are presented.

Every year, these Qfinity activities are collected into a handbook and distributed throughout the Group.



The Qfinity handbook

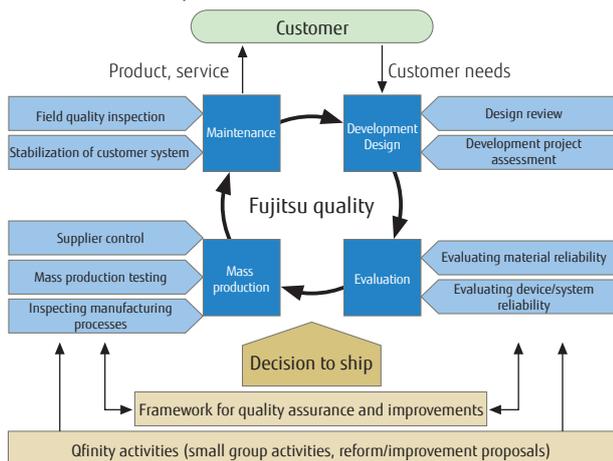
Group-wide Qfinity meeting

### Customer-Centric Quality Assurance Activities for Products and Services

In providing products and services, we adopt the customer-centric perspective. A customer-centric approach means understanding the issues from the customer's point of view. This attitude is central not only at the design review stage but also at every stage of each process, where we ask "does it meet customer needs and expectations?" as we perform the evaluations and audits.

Through this approach, items that do not meet customer expectations are withdrawn and not allowed to proceed to later processes.

#### Flowchart for Quality Assurance Activities



### Fostering Experts Who Support Product Safety

In supporting product safety, since 2003 we have fostered Product Safety Experts who are approved under the Company's own system of approvals to check product safety. When they are unable to confirm safety, the affected product cannot be given final approval for shipment. These experts must be qualified in safety standards including Japanese, international and Fujitsu's own standards and must also check designs to ensure that

previous product faults have been prevented from recurring.

The concept of preventing product accidents before they can occur is becoming more important than ever. This calls not only for familiarity with the accidents or hazards associated with the product and with others possessing similar functions and structures, but also for practical knowledge and assessment of any potential risks associated with the product itself and the way it is used, viewed from the perspective of the user.

This is why, in FY 2010, we established Company internal standards for implementing product safety risk assessments and trained risk assessors. We have now started using these for PCs. From now on, risk assessors will be used for a widening range of products as we seek to further increase product safety.



Training product safety risk assessors

### Satisfaction and Quality Surveys by Third-Party Organizations

The products and services provided through Qfinity and other activities are only delivered and provided when they reach the level expected by our customers.

We also implement customer-satisfaction and quality surveys by third-party organizations for these products and services, and have received particularly good results for customer satisfaction with reliability (in FY 2010 surveys covered some 1,000 companies). As a result, when this information is circulated to all parts of the Company, it can be reflected in developing the next products and services. Moving forward, we will continue to work to improve quality through the twin pillars of Qfinity activities and various surveys.

#### Flowchart for Satisfaction and Quality Surveys

