

Fujitsu Group's Environmental Policy and Activities

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Since its founding in 1935, Fujitsu's basic principle of environmental management has been manufacturing in harmony with nature. Fujitsu has been environmentally active in various ways, taking the stance that environmental preservation is not an additional cost but a corporate value. Today, Fujitsu is formulating environmental activity plans in which each and every employee participates based on Green Policy 21, an environmental concept centered on the slogan "We make every activity green". Furthermore, in addition to reducing the environmental load in the Fujitsu Group, Fujitsu is working to reduce its customers' environmental loads through green information technology (Green IT) as part of its Green Policy Innovation project. Fujitsu has also formulated a medium-term environmental vision called Green Policy 2020 that describes the role and direction of the Fujitsu Group toward 2020. This paper describes the environmental management framework at Fujitsu for systematically carrying out environmental activities in line with the company's management framework and introduces environmental activities in the Fujitsu Group.

1. Introduction

Since its founding in 1935, Fujitsu has been environmentally active in various ways, thinking that environmental preservation is not a cost but a corporate value and that the basic principle of environmental management is manufacturing in harmony with nature. Today, Fujitsu is formulating original environmental policies and environmental activity plans based on Green Policy 21, an environmental concept centered on the slogan "We make every activity green", and is promoting environmental activities in which each and every employee participates.

Expanding upon the above, Fujitsu launched its Green Policy Innovation project in December 2007 with the aim of reducing the environmental load not just in the Fujitsu Group but also in its customers' enterprises and throughout society through the provision of green information technology (Green IT). In July 2008, Fujitsu es-

tablished a medium-term environmental vision called Green Policy 2020 that describes the role and direction of the Fujitsu Group up to 2020.^{1),2)}

This paper describes the environmental management framework at Fujitsu for systematically carrying out environmental activities in line with the company's management framework and introduces environmental activities in the Fujitsu Group.

2. Fujitsu Group's environmental management

2.1 Basic principle

The Fujitsu Group's environmental activities are enlivened with the corporate culture, that is, the DNA of Fujitsu going back to the company's founding with the basic principle of environmental management being manufacturing in harmony with nature. Years ago, when constructing Fujitsu's Kawasaki Facility, the founding president



(a) Kawasaki Facility (at time of construction)



(b) Kawasaki Facility (present)



(c) Numazu Plant (present)

Figure 1
Kawasaki Facility (past and present) and Numazu Plant.

called for a plant with a non-factory appearance, garden-like grounds, and a clean environment. The plant even featured a pond in its forecourt, which put this plant's construction far ahead of its time (**Figure 1**). This spirit can be seen in today's industrial parks: the Numazu Plant and other facilities have been constructed in the middle of vast tracts of greenery. The principle established here is being passed down as corporate culture to successive managers and employees and is becoming a valuable asset for Fujitsu.

2.2 Framework

As reflected by the framework described below, all employees of the Fujitsu Group are acutely aware that the environment is an important pillar of management, and top management feels strongly about working toward the meeting of environmental goals.

2.2.1 Environment as management matter

As shown in **Figure 2**, the FUJITSU Way embodies the philosophy of the Fujitsu Group.

The Corporate Values portion of this declaration advocates “contributing to society and preserving the global environment” and ranks environmental preservation as a matter of prime importance in management. The environment is also prominent in the Principles section, which describes what employees should aspire to in practice, and in Business Policy, which describes the medium-term direction of Fujitsu Group business.

2.2.2 Fujitsu Group environmental policy

In 1992, against the backdrop of the Rio de Janeiro Earth Summit and its adoption of Agenda 21,^{note 1)} Fujitsu drafted its Commitment to the Environment in conformance with the Global

note 1) A concrete action plan to be implemented by countries and international organizations for achieving sustainable development. It describes programs for dealing with social and economic problems related to population, poverty, demographics, etc. and environmental problems related to the atmosphere, soil, forests, desertification, agriculture, biodiversity, water, toxic waste and chemicals, etc.

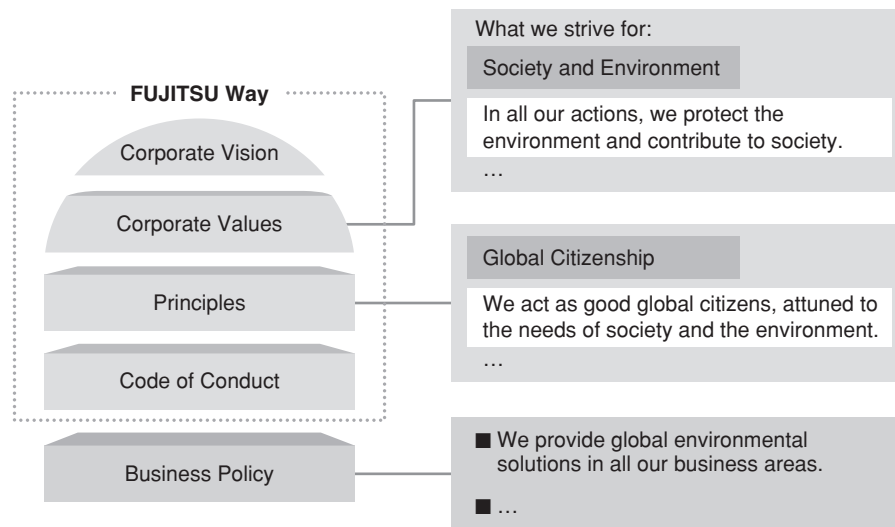


Figure 2
Environment as a management matter.



Figure 3
Environmental concept Green Policy 21.

Environment Charter announced by Keidanren the previous year. Then, in October 2002, the Johannesburg Summit was held to discuss an action plan that could be more effective than Agenda 21. In the light of diversifying environmental problems and the increasing importance of environmental management, Fujitsu revised its Commitment to the Environment, transforming

it into the Fujitsu Group Environmental Policy.³⁾

2.2.3 Green Policy 21 environmental concept

Green Policy 21 is an action-oriented environmental concept that goes beyond a simple declaration of intent (**Figure 3**). It aims to disseminate the ideas behind the Fujitsu Group Environmental Policy among all Fujitsu Group

employees and put those ideas into practice in everyday business activities. Under the slogan “We make every activity green”, the Green Policy 21 concept is helping to implement environmental activities in all kinds of business areas.

2.2.4 Green Policy 2020 medium-term environmental vision

Green Policy 2020 is a medium-term environmental vision describing the role and direction that the Fujitsu Group should take over the medium-term period up to 2020.⁴⁾ It states that the Fujitsu Group should contribute to the creation of a prosperous, low-carbon society by promoting environmental innovation in itself and in society.

2.2.5 Fujitsu Group environmental activity plans

Fujitsu Group environmental activity plans describe concrete activities and objectives so that environmental management is continuously enhanced in compliance with the Fujitsu Group Environmental Policy. The current plan, called the Stage V Fujitsu Group Environmental Protection Program, specifies objectives for the period from fiscal 2007 to fiscal 2009.

2.2.6 Green Policy Innovation project for reducing customers' environmental loads

This project aims to reduce the environmental loads generated by Fujitsu Group customers and society by providing Green IT products that incorporate environmental technology and know-how of the Fujitsu Group. It has taken up the challenge of reducing CO₂ emissions by more than 7 million tons over the four-year period covering fiscal years 2007 to 2010.

3. Fujitsu Group environmental activity plans

The Fujitsu Group establishes environmental activity plans as concrete environmental objec-

Activity stage	Activity slogan	Scope of activity
Stage I–II (1993–2000)	Build foundations of environmental management	Main office/plants
Stage III (2001–2003)	Be the frontrunner toward a recycling-oriented society	Group/plants, design and development
Stage IV (2004–2006)	From environmental management to sustainable management	Group-wide/plants, design and development, main office structure, sales, software and services
Stage V (2007–2009)	Environmental innovation in all fields	

Figure 4
History of environmental activity plans.

tives to put its environmental policy into practice. These plans began with the Stage I Fujitsu Group Environmental Protection Program in 1993. The current plan, which began in fiscal 2007, is known as the Stage V Fujitsu Group Environmental Protection Program (**Figure 4**).

Diverse factors are taken into account when determining the content, activities, and targets of an environmental activity plan. These include changing social concerns with global environmental problems, stricter national and global environmental regulations, increases in environmental risk affecting companies, and increasing demand for companies to fulfill social responsibilities. In the beginning, environmental load reduction activities centered on manufacturing plants, but there has since been a shift toward expanding and fortifying environmental activities in all business areas of the Fujitsu Group including design and development, manufacturing, main office structure, sales, and software and services.

The Stage V Fujitsu Group Environmental Protection Program is an activity plan targeting the three-year period from fiscal 2007 to fiscal 2009. This plan starts with two basic policies: (1) expand environmental activities in which all employees can participate as part of their daily work and (2) expand the scope of environmental activities to include the entire supply chain. On this basis, and considering the impact of future social trends on corporate management and the progress made by the Stage IV activity plan, five key

Table 1
Targets of the Stage V Fujitsu Group Environmental Protection Program (outline).

Five key areas	Stage V targets
Improve the environmental value of products and services	Increase the number of Super Green Products
	Achieve an improved environmental efficiency factor
	Increase resource reuse and recycling for collected end-of-life products
	Expand environmental solution offerings
Implement global warming countermeasures	Reduce CO ₂ emissions from energy consumption
	Reduce greenhouse gases other than CO ₂
	Reduce CO ₂ emissions during distribution and transport
	Apply Green Factory and Green Office systems
	Reduce volatile organic compound (VOC) emissions
	Reduce waste generation
Reinforce governance	Improve our Environmental Management System (EMS)
Reinforce risk management	Advance green procurement activities
Make environmental contributions to society	Promote activities for making environmental contributions to society

areas were identified as environmental issues that must be given priority by the Fujitsu Group in future (**Table 1**). A specific objective has been established for each of these areas.

- 1) Improve the environmental value of products and services
- 2) Implement global warming countermeasures
- 3) Reinforce governance
- 4) Reinforce risk management
- 5) Make environmental contributions to society

4. Results of major environmental activities

The Fujitsu Group is continuously encountering new environmental challenges through environmental activity plans and other endeavors. This gives rise to new values in the environmental field. Some specific examples of environmental activities and their results in the Fujitsu Group are introduced below.

4.1 Development of global EMS

In March 2006, Fujitsu deployed a global Environmental Management System (EMS) targeting Fujitsu itself, group companies within

Japan, and overseas group companies. On the basis of this EMS, Fujitsu received integrated ISO14001 certification (ISO14001 is an international EMS standard) on a scale ranking the largest in the industry (88 domestic and 11 overseas group companies as of the end of fiscal 2007).

4.2 Environmental activities spanning entire supply chain

Recognizing the need to implement environmental activities throughout the supply chain, Fujitsu has been promoting green procurement for all procured products. At the end of fiscal 2006, Fujitsu achieved a green procurement rate^{note 2)} of 100% across the entire Fujitsu Group in Japan.

4.3 Introduction of environmental accounting systems

Fujitsu has been deploying original environmental accounting systems since 1998 as a foundation for putting environmental management into practice. Today's environmental accounting systems capitalize on IT to speed up decision making and improve operation efficiency throughout the Fujitsu Group.

note 2) Procurement rate from suppliers as established by EMS.

4.4 Zero waste emissions^{note 3)} at all Fujitsu plants in Japan

The goal of zero emissions for all waste including everyday waste was achieved at the end of March 2003 at all Fujitsu plants in Japan. This was accomplished by recycling waste chemicals and everyday waste such as raw garbage from plant cafeterias and septic-tank sludge.

4.5 Development of recycling systems ahead of regulations

In 1995, Fujitsu began recycling IT products for business customers ahead of the enactment of regulations requiring this. Then, in 1997, it completed development of the Fujitsu Recycling System, the industry's first system for recycling end-of-life products covering all of Japan. By the end of fiscal 2006, Fujitsu had achieved a high resource reuse rate exceeding 90%. Fujitsu is also applying the know-how it has accumulated in Japan to the provision of recycling services in Europe, the Americas, and the Asia-Pacific region.

4.6 Development of Green Products and Super Green Products

With the aim of improving environmental performance throughout the product lifecycle, Fujitsu has been promoting the development of environmentally conscious products since 1993 through the application of original product-oriented environmental assessment. Fujitsu also began designating products that are especially environmentally conscious as Green Products in 1998 and Super Green Products in 2004. By the end of fiscal 2006, Fujitsu had achieved a 100% Green Product rate for newly developed products and was providing Super Green Products in 54 product groups.

4.7 Development and application of advanced environmental technology

Fujitsu has developed and applied world-leading advanced environmental technology including lead-free solder composed of tin, zinc, and aluminum as well as a recyclable magnesium alloy for Fujitsu notebook computers and vegetable-derived plastic also for notebook computers.

4.8 Provision of environmental solutions

Fujitsu offers customers its know-how in environmental activities as IT solutions, such as in the management of environmental performance data and the management of chemical materials. It also develops environmental impact assessment techniques for quantitatively assessing the environmental-load reduction effects of using IT and certifies solutions with a high environmental contribution effect as "environmentally conscious solutions". As of the end of fiscal 2006, Fujitsu was providing 82 products with that certification.

4.9 Social contribution activities

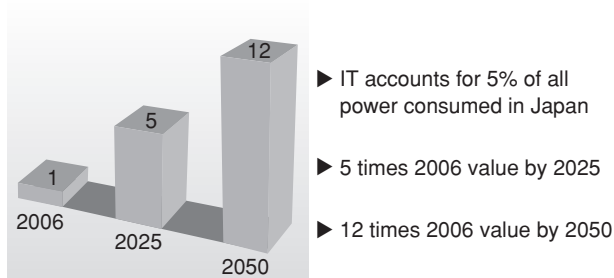
With the aim of achieving coexistence and mutual prosperity with local communities and the international community as a good corporate citizen, Fujitsu carries out diverse social contribution activities at its offices in all regions of Japan and at its overseas group companies. For example, Fujitsu has been engaged in ongoing overseas tree-planting activities since 1998 in Thailand, 1999 in Vietnam, and 2001 in Malaysia, and it contributes to the restoration of ecosystems and revitalization of local economies.

5. Customers' environmental load reduction project

Not wanting to stop at reducing its own environmental load, the Fujitsu Group announced a new project in December 2007 called Green Policy Innovation to help reduce the environmental load of its customers and society through the provision

note 3) No disposal by landfill or pure incineration through 100% effective use of waste.

Estimated total IT power consumption (Japan)



Source: METI "Green IT Promotion Council" (December 6, 2007)

Figure 5
Estimated electric power consumption for IT devices in Japan.

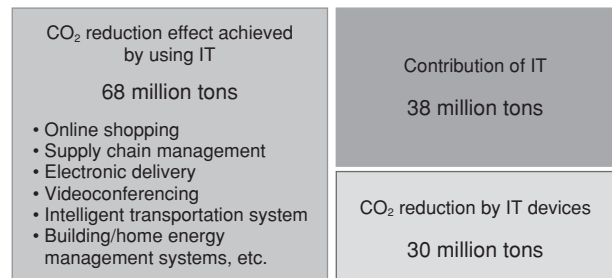
of Green IT.^{note 4)}

5.1 Interplay between IT and environment

The high penetration of IT devices and the increasing demand for data centers in recent years has resulted in a steady rise in the amount of electric power consumed by IT devices. A survey conducted by the Ministry of Economy, Trade and Industry (METI) revealed that the power consumed by IT devices in Japan will increase by five times 2006 levels by 2025 and by 12 times by 2050 if the current rate of growth continues (**Figure 5**).

On the other hand, the use of IT has the effect of reducing environmental load. For example, videoconferencing, supply chain management, inventory control, and distribution solutions can reduce the movement of people and things and make for more efficient use of warehouses and space in general. In addition, the electronic delivery and digital publishing of music, images, and other media can help reduce the consumption of materials used for manufacturing physical media. According to forecasts made by the Ministry of Internal Affairs and Communications

note 4) Generic term for environmentally conscious IT products that save energy, are compact, etc. and IT solutions that have the effect of reducing environmental load through their introduction.



Source: MIC "Report of Study Group on ICT Policy for Addressing Global Warming" (April 2008)

Figure 6
Effect of IT society on the environment (predicted for 2012).

(MIC) on the CO₂ reduction effect of using IT for 2012, IT usage will achieve a reduction in emissions of about 68 million tons while causing about 30 million tons. By simple subtraction, the overall reduction effect of using IT is estimated to be about 38 million tons for society (**Figure 6**).

5.2 Green Policy Innovation

In a role befitting an IT enterprise, the Fujitsu Group aims to contribute to environmental load reduction in the activities of its customers and society on the whole by expanding its involvement with Green IT and providing Green IT products and solutions on an ongoing basis. To this end, the Fujitsu Group announced the launch of a new project called Green Policy Innovation in December 2007. The Fujitsu Group promotes this project in all business activities including research and development, design, manufacturing, procurement, distribution, and recycling and provides IT-infrastructure products and solutions based on its environmental know-how in those areas.

In this way, the Fujitsu Group aims to achieve an energy-saving and compact configuration in IT-infrastructure products such as platforms, networks, software, ubiquitous systems, electronic devices, and semiconductors and thereby reduce the environmental load caused by IT usage by, for example, reducing energy consumption in customers' offices and data centers. As part of

this project, the Fujitsu Group is also active in reducing the environmental load by utilizing IT through outsourcing and consulting and the provision of software and services so as to improve customers' business activities while reducing the environmental load (**Figures 7 and 8**). For the four-year period covering fiscal years 2007 to 2010, the Green Policy Innovation project aims to reduce the environmental load caused by IT by about 760 000 tons and reduce the environmental load by utilizing IT by about 6.3 million tons for an overall reduction of CO₂ emissions of more than 7 million tons in customers' business activities (**Figures 9 and 10**).

5.3 Examples of Green IT products for realizing Green Policy Innovation

Some specific examples of Green IT products and services for realizing Green Policy Innovation are introduced below.

5.3.1 Examples of reducing environmental load of IT:

- 1) PRIMERGY BX620 S4 blade servers enabling space-saving, energy-efficient server integration
- 2) ETERNUS2000 entry-level compact and energy-efficient disk arrays

5.3.2 Examples of reducing environmental load by utilizing IT:

- 1) Green Infrastructure Solution service for constructing energy-efficient data center facilities
- 2) Internet Navigware eliminating the movement of people and things through e-learning
- 3) PLEMIA/ECODUCE chemical-materials management system supporting eco-design products

5.3.3 Examples of cutting-edge technologies:

- 1) Computational fluid dynamics simulations technology for investigating the cooling ef-

iciency of data centers and designing the optimal arrangement of server racks and air conditioning equipment

- 2) Real-time multipoint temperature measurement technology for making accurate and real-time measurement of a data center's temperature distribution using optical fiber
- 3) Environmental impact assessment techniques for quantitatively assessing and visualizing the environmental load reduction effect of introducing IT solutions

6. Medium-term environmental vision

In July 2008, Fujitsu announced a medium-term environmental vision called Green Policy 2020 to clarify the role and direction of the Fujitsu Group over the next several decades in addressing environmental problems.

6.1 Background

The G8 Hokkaido Toyako Summit held in July 2008 declared a common goal of "halving global emissions of greenhouse gases from present levels by 2050". This will require global greenhouse-gas emissions to peak soon and then decline. For this to happen, however, a variety of technical, organizational, and market innovations will be necessary. Under these circumstances, much will be expected of the IT field.

6.2 Concept

Green Policy 2020 focuses on the "creation" of innovative technology and business solutions, "collaboration" with diverse entities making up the international community including customers and business partners, and "change" within the Fujitsu Group itself (**Figure 11**). It declares that the Fujitsu Group will strive to inspire environmental innovation in itself and in society to help achieve a prosperous, low-carbon society featuring not only a low-carbon environment, but also non-material prosperity such as biodiversity and a safe living environment.

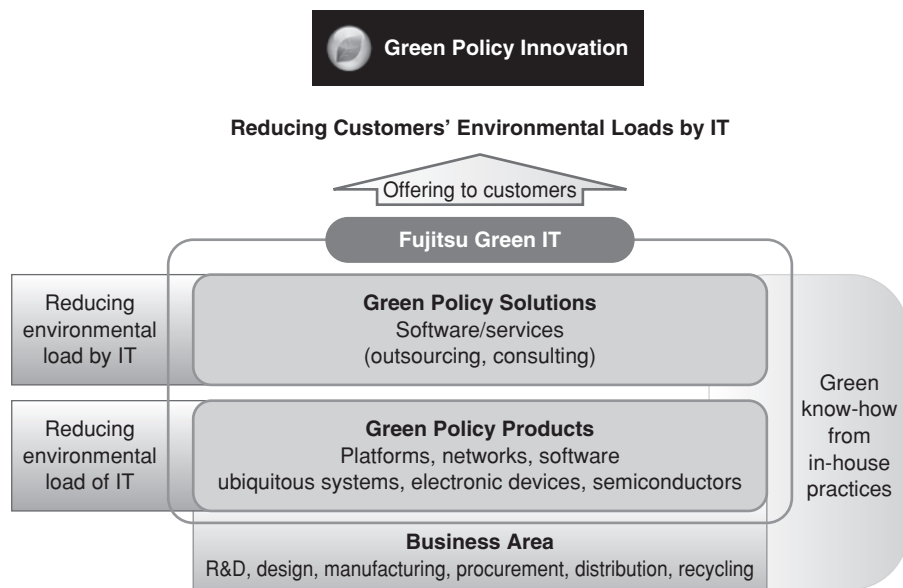


Figure 7
Concept of Green Policy Innovation.

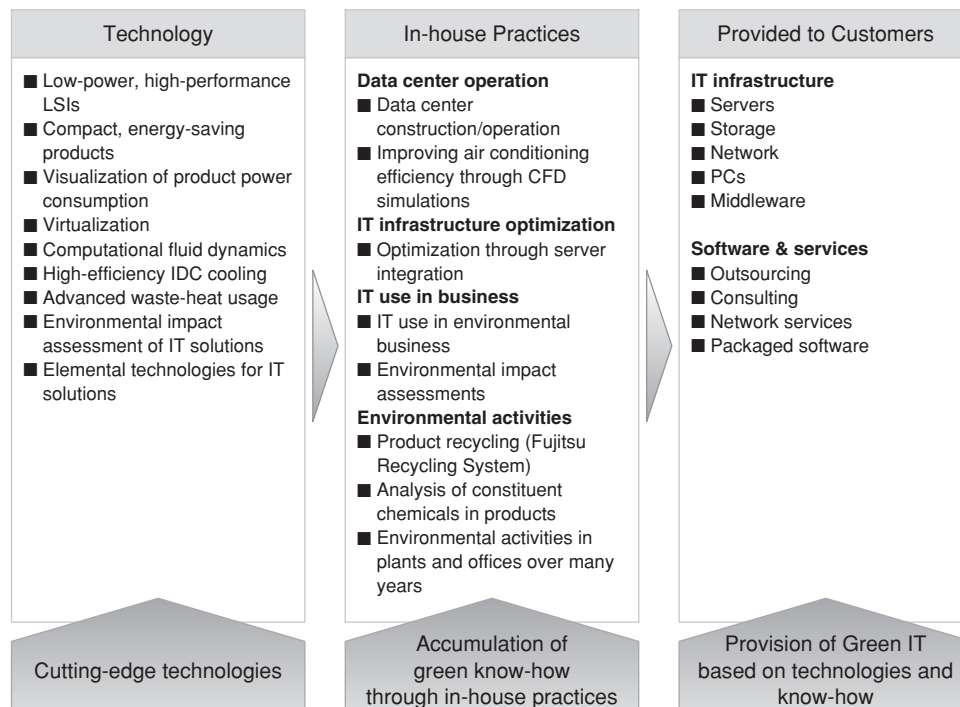


Figure 8
Activities of Green Policy Innovation.

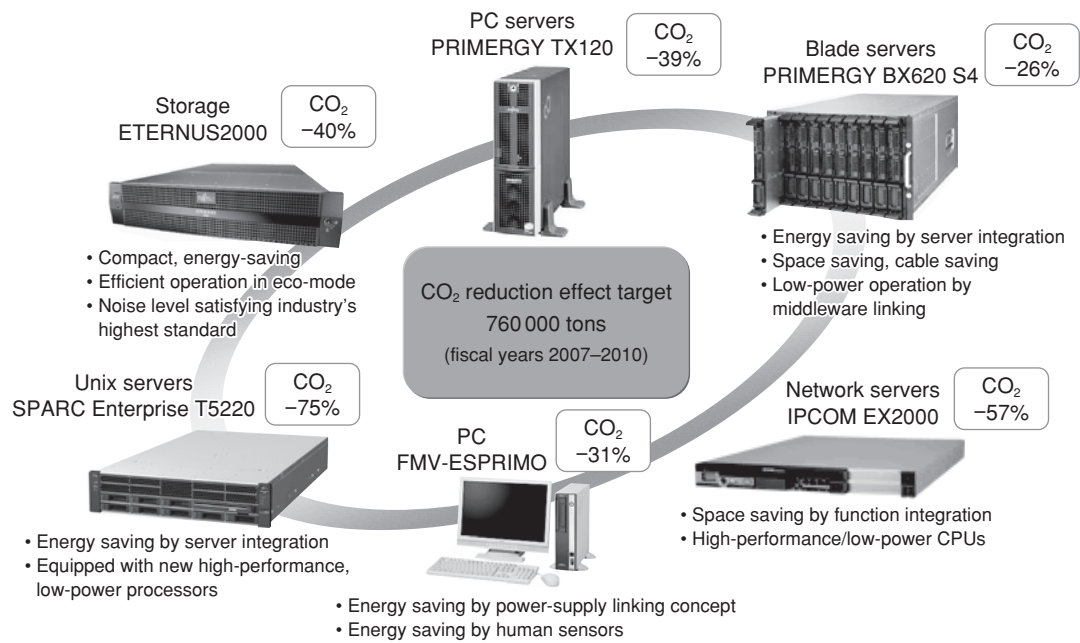


Figure 9
Reducing environmental load caused by IT.

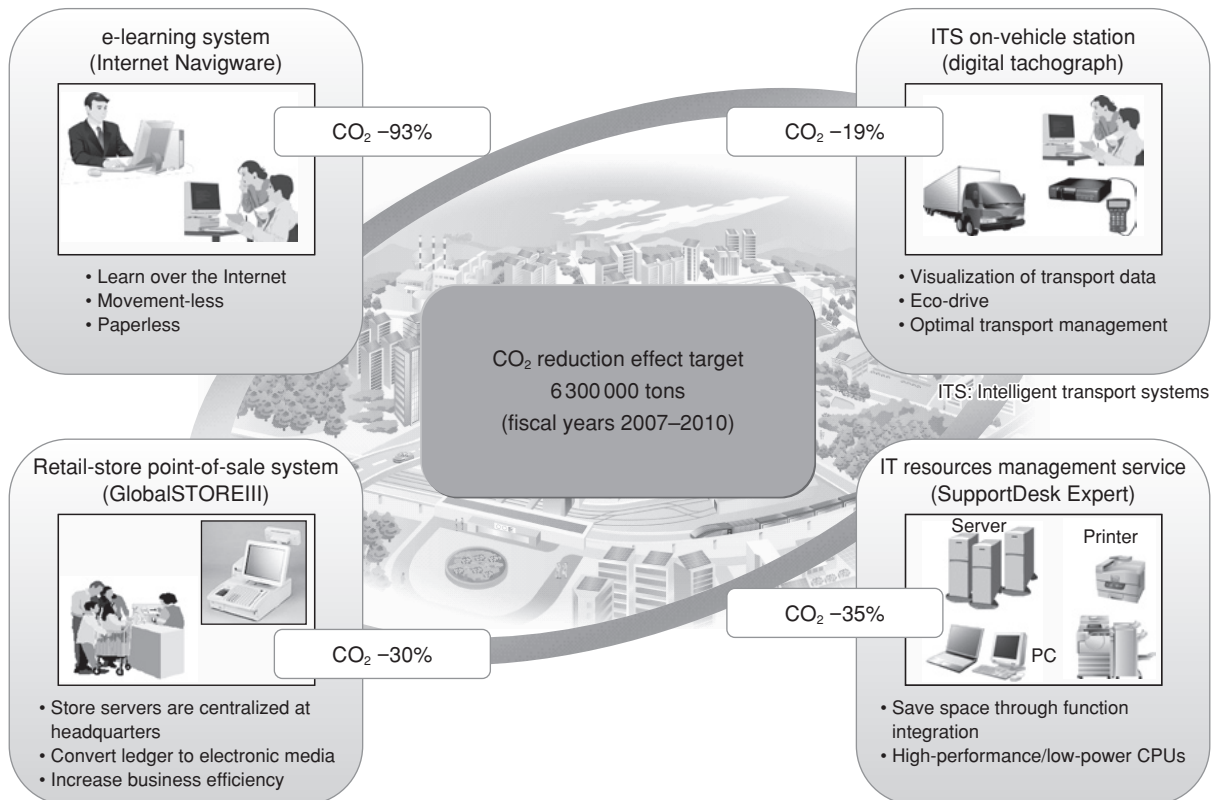


Figure 10
Reducing environmental load utilizing IT.

Green Policy 2020

The Fujitsu Group will meet the challenge of creating a prosperous, low-carbon society

To support the creation of a prosperous, low-carbon society, the Fujitsu Group will leverage technologies and know-how to inspire environmental innovation for its business and for society, in collaboration with customers and partners.



Figure 11
Medium-term environmental vision “Green Policy 2020”.

6.3 Three goals

Green Policy 2020 established three goals for the Fujitsu Group.

- 1) Benefit our customers and society as a whole

Provide technology and solutions with the aim of reducing CO₂ emissions in Japan by about 30 million tons annually by 2020 and contributing to a reduction in global greenhouse-gas emissions (achieving, at the least, a peak in global greenhouse-gas emissions by 2020)

- 2) Pursue internal reforms

Aim to achieve overall energy efficiency on a world-class level in all its business areas (software and services, hardware products, electronic devices, etc.) by 2020

- 3) Preserve biodiversity

Promote all items presented in the Leadership Declaration of the Business and Biodiversity Initiative^{note 5)} and undertake specific activities by 2020

note 5) The government of Germany encouraged private enterprise to become more involved in preserving biodiversity at the Ninth Conference of the Parties (COP9) to the Convention on Biological Diversity. Companies participating in this initiative and signing the Leadership Declaration are expected to promote business activities that are oriented to preserving biodiversity. Fujitsu signed the Leadership Declaration on May 29, 2008 (German time).

7. Conclusion

This paper introduced the environmental management framework and environmental activities of the Fujitsu Group. Looking to the future, the Fujitsu Group will continue to place a high value on environmental activities as it works to achieve a steady reduction in its own environmental load in response to global warming and environmental regulations. The Fujitsu Group also desires to make positive contributions to reducing the environmental loads of its customers and of society as a whole by providing IT solutions in its role as a global IT enterprise.

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