

Environmental Strategy of Fujitsu Group

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The Fujitsu Group considers environmental awareness to be one of the most important commitments in corporate management and reflects it in the FUJITSU Way, a corporate philosophy with guiding principles for the company and its employees. In addition to striving to help realize a prosperous, human-centric, and self-sustaining society, we are also striving to help bring about a Human-Centric Intelligent Society, i.e., a society that leverages the power of information and communications technology (ICT). This effort is included in our new vision, which foresees the application of ICT in a wide range of fields—energy, water, transport, agriculture, forestry, fisheries, and medicine—as well as smart cities. This has led to Stage VII of the Fujitsu Group Environmental Action Plan, which began in fiscal 2013. In this stage, we will go beyond expanding our commitments to customers and society and begin promoting environmental initiatives consistent with our corporate activities by developing environmentally based customer approaches. In this issue, we describe the framework of our environmental management as well as various initiatives taken to reduce our environmental impact. We also present cases in which Fujitsu's solutions are supporting customer efforts in environmental management and reducing our customers' environmental load.

1. Introduction

The environment is a top priority for Fujitsu Group management. It is an important element of Fujitsu's corporate philosophy, the FUJITSU Way,¹⁾ which embodies the principles and values that Fujitsu and its employees aspire to in their daily activities. At the same time, Fujitsu is working to achieve a Human-Centric Intelligent Society as a new corporate vision by leveraging the power of information and communications technology (ICT).²⁾ In line with these fundamental ideas, Fujitsu aims to create new value in the environmental field by making extensive use of ICT. In addition to reducing its own environmental load, Fujitsu seeks to contribute to environmental solutions for its customers and society and to achieve a prosperous and sustainable society together with its customers, business partners, and clients.

In this paper, we first describe the framework of environmental management promoted by the Fujitsu Group. We then introduce solutions for our customers in the practice of environmental management and

reduction of environmental load as examples of how environmental management can be closely intertwined with business activities.

2. Fujitsu Group environmental management

The Fujitsu Group has held to the idea of "manufacturing in harmony with nature" since its formation in 1935, as reflected by its early adoption of revolutionary, forward-looking factory designs with garden-like grounds. This has led to Fujitsu ranking the environment as one of management's top priorities and to Fujitsu undertaking a variety of environmental initiatives. Through the years, Fujitsu has continued along the path of reducing its own environmental impact while contributing to the environmental activities of its customers and society.

As described in the FUJITSU Way, the Fujitsu Group seeks to "contribute to society and protect the global environment" (Corporate Values), "always act as a good global citizen attuned to the needs of society and the

environment" (Principles), "provide global environmental solutions in all business areas" (Business Policy), and "promote environmental activities as an integral part of its business activities" (Figure 1). Fujitsu has also established the Fujitsu Group Environmental Policy³⁾ to enable these environmental activities to be practiced on an ongoing basis and has put a Fujitsu Group Environmental Action Plan describing specific objectives into effect.

2.1 Fujitsu Group Environmental Policy

To promote environmental management that reflects the distinctive character of the Fujitsu Group, the Fujitsu Group Environmental Policy declares that Fujitsu seeks to contribute to the sustainable development of society as an ICT enterprise and to be continuously engaged in global environmental protection activities and in pioneering environmental initiatives on its own

initiative. The philosophy and principles of the Fujitsu Group Environmental Policy are summarized below.

Philosophy

The Fujitsu Group recognizes that global environmental protection is a vitally important business issue. By utilizing our technological expertise and creative talents in the ICT industry, we seek to contribute to the promotion of sustainable development. In addition, while observing all environmental regulations in our business operations, we are actively pursuing environmental protection activities on our own initiative. Through our individual and collective actions, we will continuously strive to safeguard a rich natural environment for future generations.

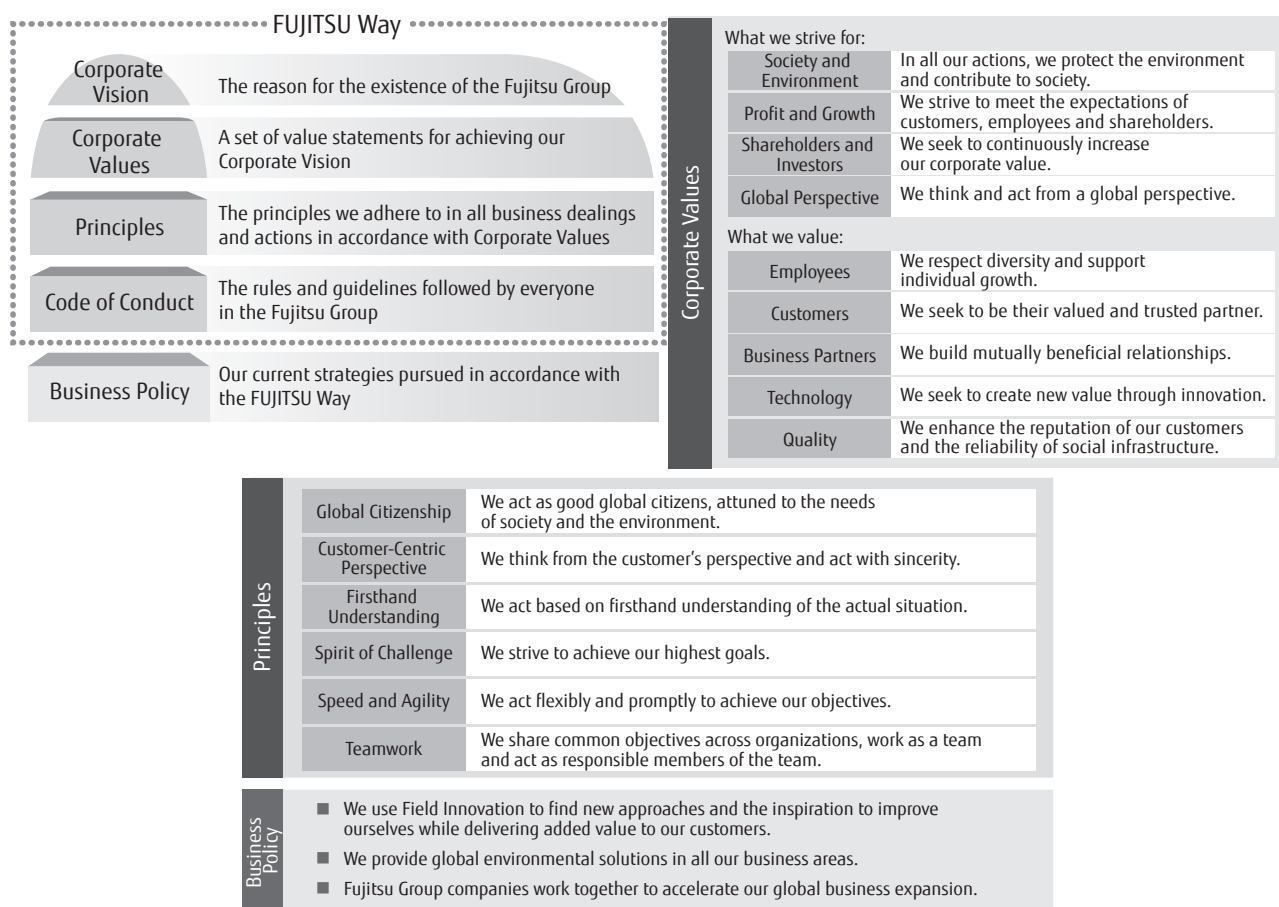


Figure 1
FUJITSU Way.

Principles

- We help customers and society reduce the environmental impact of their business activities and improve environmental efficiency with advanced technologies, ICT products and solutions.
- We proactively promote environmentally conscious business activities to help the environment and economy coexist harmoniously.
- We strive to reduce the environmental impact of our ICT products and solutions throughout their entire lifecycle.
- We are committed to conserving energy and natural resources, and practice the 3Rs approach (reduce, reuse and recycle) to create best-of-breed eco-friendly products and solutions.
- We seek to reduce risks to human health and the environment from the use of chemical substances and waste.
- We disclose environment-related information on our business activities, ICT products and solutions, and we utilize the resulting feedback to critique ourselves in order to further improve our environmental programs.
- We encourage our employees to work on global environmental conservation such as tackling climate change and preservation of biodiversity through their business and civic activities to be role models in society.

2.2 Raising environmental awareness in employees through e-learning

Environmental awareness in each and every employee is essential to carrying out environmental activities in an effective manner. The Fujitsu Group provides environmental education that can help change employee awareness and behavior in relation to the environment. The goal is to get each employee to understand the present state of the global environment and associated issues, to consider how Fujitsu can contribute to creating a sustainable society, and to understand the relationship between the environment

and Fujitsu's business operations and one's own work activities. The Fujitsu Group considers such environmental education to be extremely important. In addition to providing this education for each site and hub in the field, it also provides common company-wide and group-wide environmental education through e-learning. An e-learning system enables all employees including those in upper-level management to take courses so that they can maintain or improve their environmental awareness. In this way, each employee will be able to speak to customers about the environment in his or her own words and include environmental value in products, solutions, and services.

2.3 Fujitsu Group Environmental Action Plan

The Fujitsu Group implemented an environmental action plan as a set of specific objectives to put its environmental policy into practice. Since formulating its Environmental Action Plan in 1993, Fujitsu has adjusted the content and targets in accordance with a variety of factors. These factors include changes in the emphasis society places on global environmental problems, strengthening of environmental laws and regulations in countries throughout the world, the increase in environmental risk affecting companies, and an increasing demand for corporate social responsibility (Figure 2).

For example, Stage VI of the plan, which ran from fiscal years 2010 to 2012 called for a reduction in the environmental load within the Fujitsu Group with a focus on decreasing its greenhouse gas (GHG) emissions and for the development and provision of green ICT solutions to contribute to the environmental activities of its customers and society. This way of thinking about environmental management and environmental activities in the Fujitsu Group has been highly evaluated both inside and outside Japan. Major evaluations in FY2012 are listed below.

- Dow Jones Sustainability World Index: Selected for the 13th time
- CDP (climate-change performance/information-disclosure): Selected for the leadership index among 500 Japanese companies
- Newsweek Green Rankings: Top Japanese company for 2nd year in a row
- Nikkei Environmental Management Survey: 4th

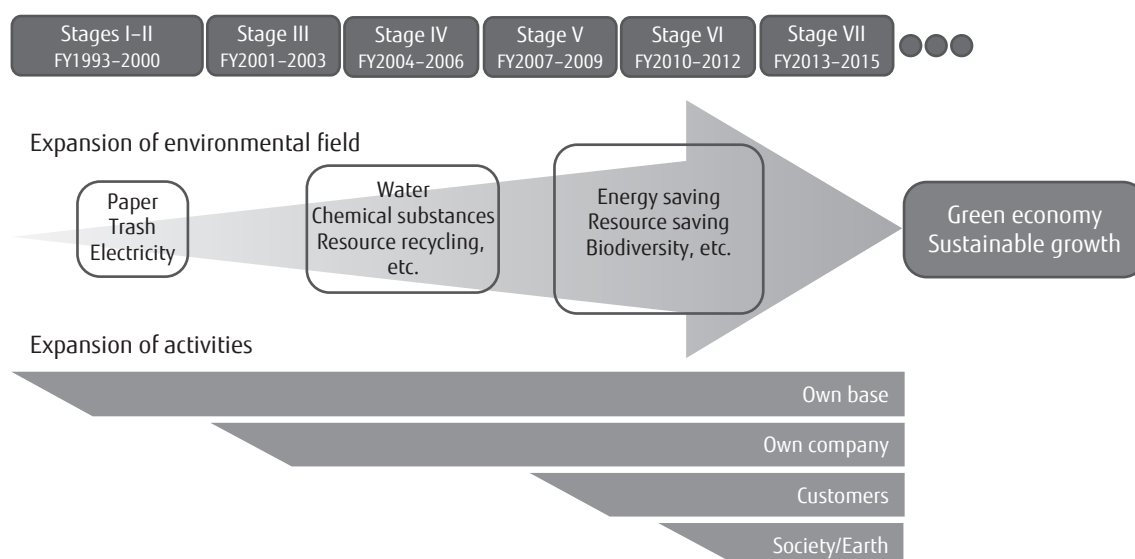


Figure 2
Stages in Fujitsu Group Environmental Action Plan.

place

Stage VII of the plan, which will run for three years from FY2013, will, of course, continue to address environmental concerns in Fujitsu's own business activities, but it will also expand the scope of Fujitsu's contributions on a global scale to its customers, business partners, and clients with society in its sights as well.⁴⁾ Details on Stage VII are given in the following section.

3. Environmental Action Plan (Stage VII)

Our world faces many challenges relating to population growth. These include the security of supply of energy, other resources and food, climate change, the increasing frequency of natural disasters, and loss of biodiversity. These social and environmental issues are deeply interconnected, and they cannot be managed in isolation. Society expects businesses to proactively take actions to address these challenges.

Deploying information and communications technology (ICT) in an intelligent manner can improve the efficient use of energy and other natural resources and reduce greenhouse gas emissions. ICT can also assist society preparing for and responding to natural disasters. Fujitsu believes ICT has a major role to play in helping society address the world's environmental

challenges. Beyond meeting today's demands, ICT has the power to connect people, enable sharing of knowledge and experience, and shape a safer, sustainable, and more prosperous tomorrow.

Responding to serious environmental issues and the demands and expectations of society and stakeholders, the Fujitsu Group has formulated its environmental targets for the FY2013-FY2015 period as Environmental Action Plan (Stage VII) and has put this plan into effect. This plan expands upon the contributions of the Fujitsu Group in solving the environmental problems of its customers and society by promoting the further use of ICT throughout society. As a leading ICT company, Fujitsu will continue to demonstrate its leadership in the global value chain and actively collaborate with its customers, business partners, and clients in building a sustainable and prosperous society in accordance with its corporate philosophy.

Stage VII focuses on the four following goals in three categories: "contributions to society," "Fujitsu's own business activities," and "continuous management targets."

- Contribute to solving the environmental problems of Fujitsu's customers and society through business
- Promote environmentally conscious business activities and achieve cost reductions

- Collaborate throughout the global value chain
- Accelerate business growth through environmental innovation

The specific targets that have been established for this three-year period are listed in **Table 1**.⁵⁾

4. Advanced environmental management

The Fujitsu Group has been working to enhance and upgrade its own environmental management systems as ICT continues to evolve. Past activities focused on improving the environment by reducing environmental load at each Fujitsu site and carrying out after-the-fact processing in relation to water quality, soil conditions, etc., but today, the focus is on real-time management by consolidating and visualizing environmental performance data. Another enhancement is correlation analysis with respect to collected data that enables forecasts about future conditions to be made. In addition, many environmental activities in which after-the-fact processing once dominated are now carried out from a “preventive” point of view.

Table 1
Fujitsu Group Environmental Action Plan (Stage VII).

	Target Items
Our Society	Contribution to Society by ICT: Reduce Greenhouse Gas Emissions
	Contribution to Society by ICT: Increase Solutions
	Design and Deliver Eco-efficient Products: Energy Efficiency
	Design and Deliver Eco-efficient Products: Resource Efficiency
	Leading Edge R&D
	Corporate Citizenship: Social Challenges
	Corporate Citizenship: Social Activities
Our Business	Efficient Business Operations: Reduce Greenhouse Gas Emissions
	Efficient Business Operations: Energy Intensity
	Efficient Business Operations: Data Centers
	Efficient Supply Chain: Logistics
	Efficient Supply Chain: Procurement
	Efficient Use of Resources: Renewable Energy
	Efficient Use of Resources: Water
Continuous targets	Reduced Environmental Impact: Chemicals
	Reduced Environmental Impact: Waste
	Reduced Environmental Impact: Recycling

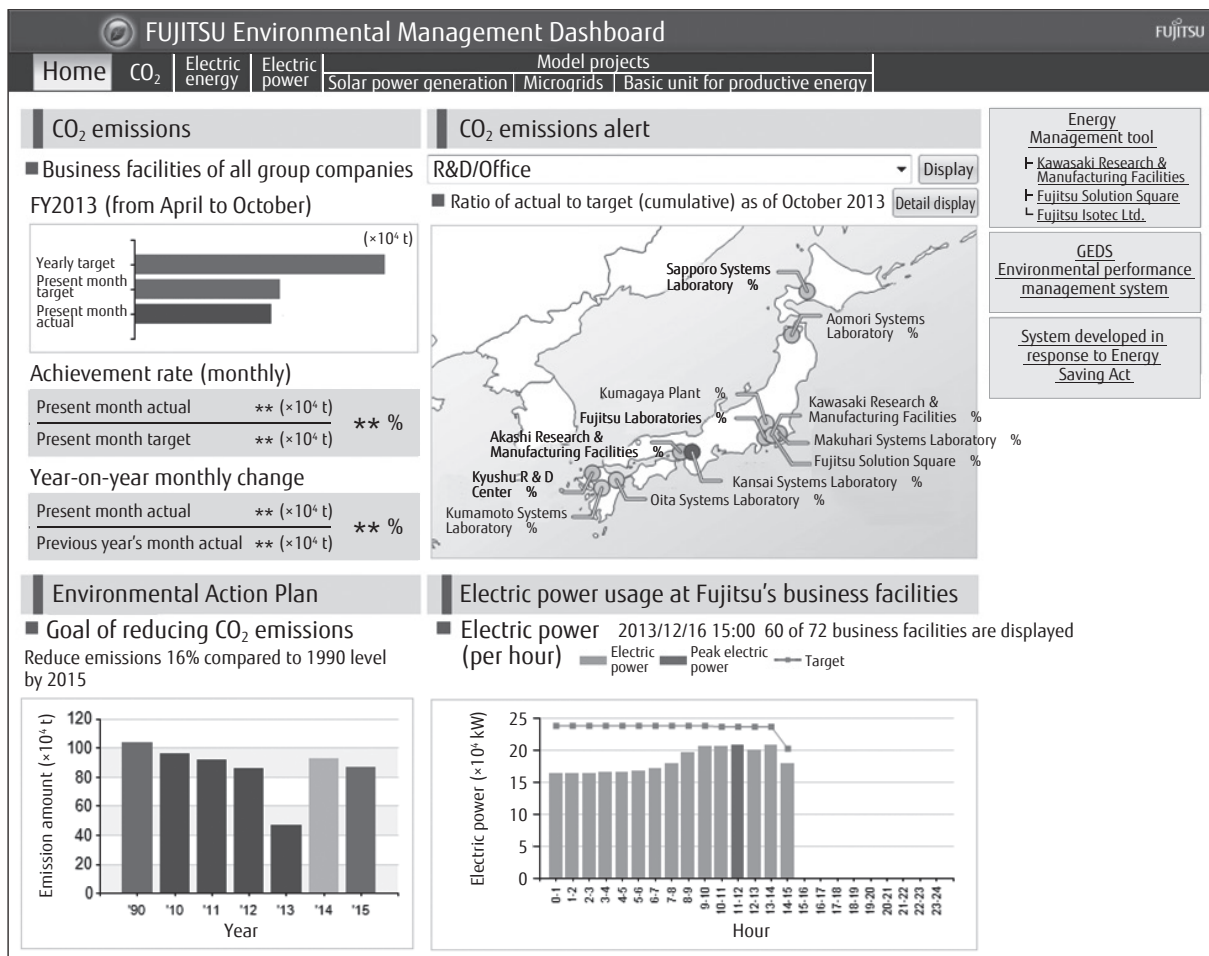
By introducing such advanced forms of ICT, the Fujitsu Group has achieved new functionality in environmental management, such as appropriate and efficient evaluation of environmental performance data, instantaneous feedback of evaluation results to management, and modification of environmental strategies as needed. Moreover, with an eye to stimulating further advances in environmental management, the Fujitsu Group plans to take a proactive approach to creating business opportunities by providing the market with environmental solutions in diverse fields in addition to those fields directly related to the environment. We introduce some of these solutions below.

4.1 Environmental Management Dashboard

The Environmental Management Dashboard⁶⁾ (**Figure 3**) is a solution that aims to reduce the environmental load while improving economic value and that supports ongoing improvements in a customer’s environmental management system. Collecting environmental information does not in itself mean that a company will be capable of judging whether that data is good or bad or of deciding what action to take to make improvements. Fujitsu’s Environmental Management Dashboard enables environmental information such as power consumption and CO₂ emissions collected from power- and environment-related facilities to be combined as desired with management information such as sales data, production volumes, and working hours from a company’s legacy systems so that this data can be analyzed and visualized from various perspectives. This solution enables management to optimize power consumption and control CO₂ emissions as needed for each type of site (store, office, plant, etc.).

4.2 Environmental contribution to traffic

“FUJITSU Intelligent Society Solution SPATIOWL”⁷⁾ for constructing intelligent social infrastructures is an example of using ICT for traffic (**Figure 4**) to make an environmental contribution. This service reduces the environmental load by enabling more efficient use of resources and energy. It can advise a driver of a more efficient driving route by combining and overlaying different types of information, such as real-time congestion information collected from the speed and position of moving vehicles treated as moving sensors and road-construction- or accident-related information



GEDS: Global Environment Database System

Figure 3
Environmental Management Dashboard.

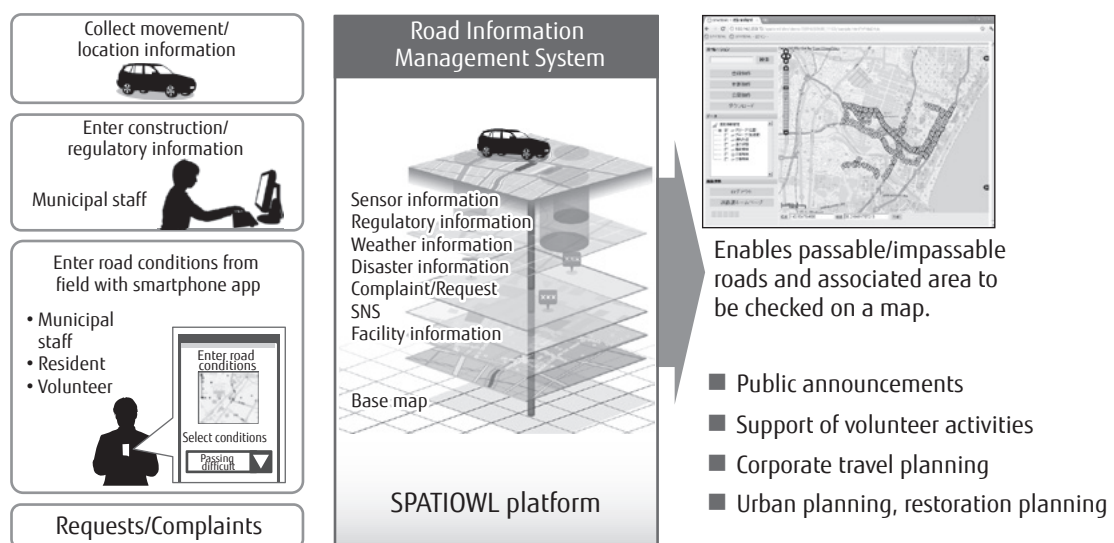


Figure 4
Example of using ICT and SPATIOWL location information service for traffic.

obtained from construction-vehicle sensors or social media. Providing drivers with optimal routes in this way can optimize traffic flow and help reduce fuel consumption and CO₂ emissions.

4.3 Environmental contribution to agriculture

FUJITSU Intelligent Solution “Akisai” Food and Agriculture Cloud⁽⁹⁾ is an example of using ICT for agriculture (Figure 5) to make an environmental contribution. Covering outdoor and indoor cultivation and animal husbandry, this service provides comprehensive enterprise-type support for agricultural management in administration, production, and sales. Akisai stores and analyzes various types of data such as air temperature, precipitation, and soil temperature obtained from sensors installed on a target farm and stored in the Akisai cloud. These data along with daily work records obtained from smart devices enable the production processes of the farm’s products to be visualized. The Akisai service can be used to determine optimal times for applying fertilizer and pesticides, thereby improving the quality and yields of crops. It can also be used to reduce the amounts of fertilizer and pesticides used, thereby reducing the environmental impact on the soil and human health. As an example of a site using the

Akisai service to support agricultural management by ICT, Fujitsu opened “Akisai Farms” on the premises of its Numazu Plant in June 2013. This site is being used as a test farm for outdoor and indoor cultivation using the Akisai service.

In addition to these services, Fujitsu is undertaking initiatives to provide advanced, ICT-based services and solutions in diverse fields including smart cities, water supply, and medical care. Looking forward, the Fujitsu Group will continue to help its customers implement environmental management systems and reduce their environmental load by leveraging the know-how and advanced technologies that Fujitsu has accumulated in its various business fields over the years.

5. Conclusion

This paper first examined the history of environmental management in the Fujitsu Group and introduced Stage VII of the Fujitsu Group Environmental Action Plan launched in FY2013. It then presented case studies of environmental solutions based on Fujitsu’s in-house activities to support the environmental activities of Fujitsu’s customers and society, provide them with advanced environmental management systems, and contribute to a better environment for all.

Looking forward, the Fujitsu Group plans to

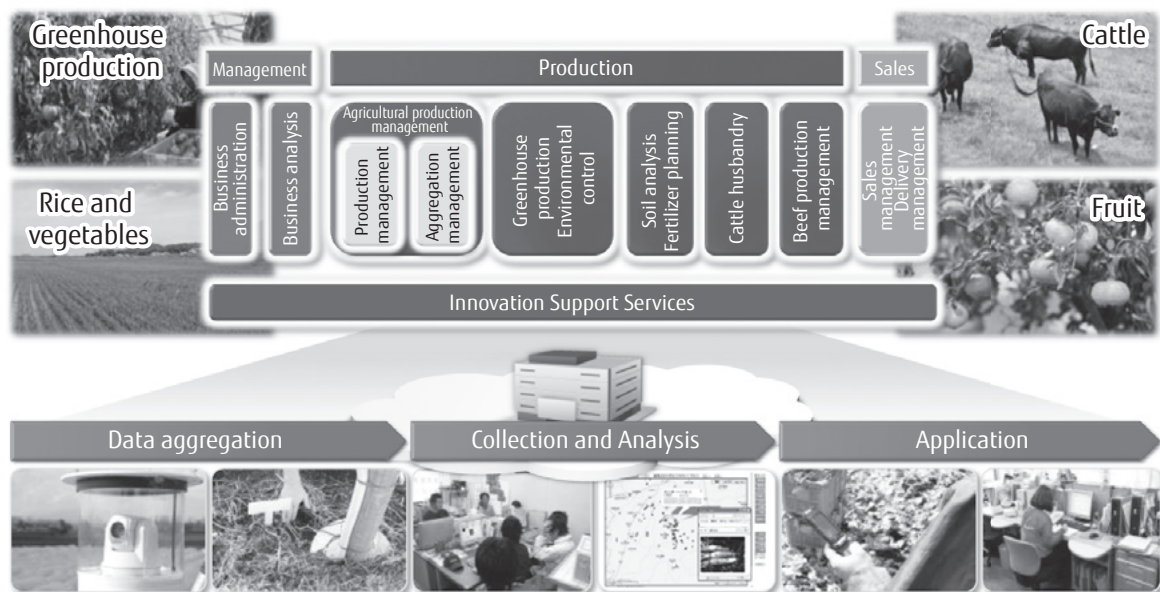


Figure 5
Example of using ICT and Akisai cloud service for food and agricultural.

expand the scope of its global environmental activities, intensify legal compliance as the foundation for environmental management, and strengthen governance. The Fujitsu Group also plans to provide environmental solutions that leverage the know-how accumulated through its own environmental activities and that make optimal use of ICT. Our aim is to contribute to the sustainable growth of a prosperous, human-friendly society.

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