HITACHI
Inspire the Next

R&D and Intellectual Property Report 2008

Hitachi, Ltd.

Introduction

The purpose of this report is to provide information relating to Hitachi's technology management and its main components, research and development (R&D) and intellectual property (IP rights and brand). The reporting period is FY2007, from April 1, 2007 to March 31, 2008. The report also contains data from calendar year 2007, as well as measures that have been in practice before FY2007, and new organizational structures and measures that are planned for FY2008

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To Our Stakeholders

In 2010, Hitachi, Ltd. will celebrate its 100th anniversary. Since founding, Hitachi has advanced under its corporate philosophy: contributing to society through the development of superior original technology and products. We aspire to further grow as a group by capitalizing on the individual strength of each company in the Hitachi Group, while generating synergies.

To this end, in November 2006 Hitachi adopted the corporate strategy of "Collaborative Creation and Profits"(*). By implementing various measures adopted under the strategy, we aim to maintain a consolidated operating margin of 5% and D/E Ratio (including minority interests) under 0.8 in FY2009. We recognize FY2008 as a critical year for achieving those goals. We aim to complete changes into full-fledged growth and enhance the corporate value of the Hitachi Group.

In this report, we would like to share with you Hitachi's efforts in technology management, focusing on R&D as a source of corporate value, and IP as an ever-increasing component of corporate value.

We hope this report will help you gain a general understanding of Hitachi's R&D and IP.

June 2008

Kazuo Furukawa
President and Chief Executive Officer

* http://www.hitachi.com/New/cnews/061116/f_061116pre.pdf
http://www.hitachi.com/New/cnews/f_080526.pdf

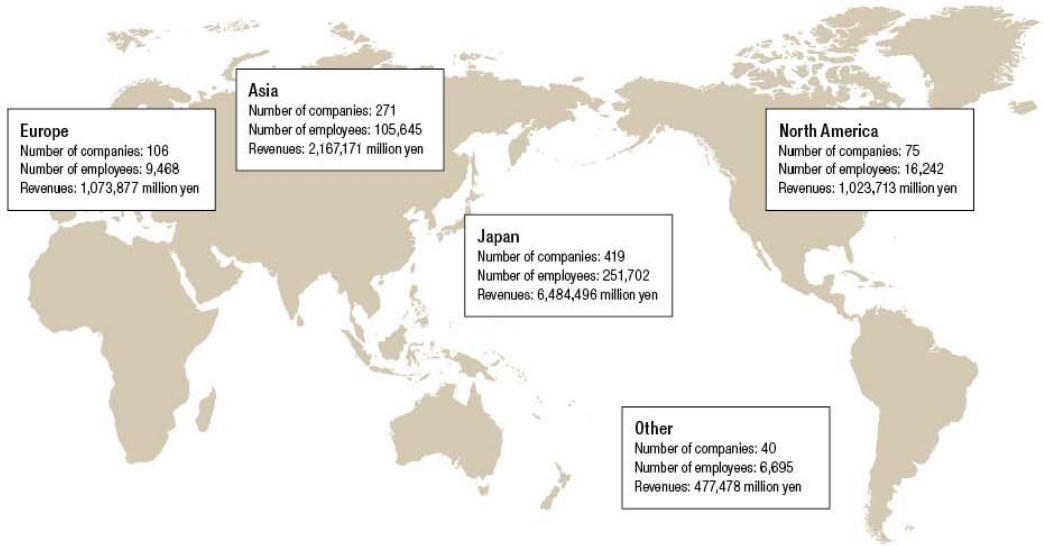
Hitachi Group Overview

Company Profile

Corporate Name: Hitachi, Ltd.
Incorporated: February 1, 1920 (founded in 1910)
Head Office:
1–6–6 Marunouchi, Chiyoda-ku, Tokyo 100-8280, Japan
Representative:
Kazuo Furukawa, President and Chief Executive Officer

Hitachi Group Profile

Hitachi, Ltd. and the Hitachi Group make up a corporate group consisting of 1,082 companies: 418 consolidated subsidiaries within Japan and 492 overseas, as well as 83 equity-method affiliates in Japan and 88 overseas. For business activities, there are seven business units, as indicated on the next page, with total revenues of about 11.2 trillion yen. The Group employs about 390,000 employees.



Economic Performance

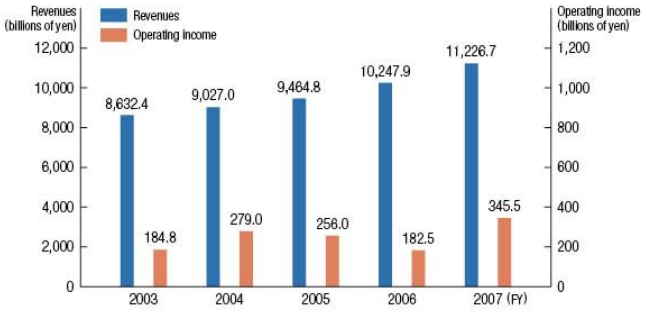
As of March 31, 2008
Common Stock: 282,033 million yen
Number of employees (unconsolidated basis): 40,223
Number of employees (consolidated basis): 389,752
Number of consolidated subsidiaries:
910 (Japan: 418, outside Japan: 492)
Number of equity-method affiliates:
171 (Japan: 83, outside Japan: 88)

Period: Fiscal year ending March 31, 2008 (consolidated basis)
Revenues:
11,226.7 billion yen (110% compared with the previous year)
Operating income:
345.5 billion yen (189% compared with the previous year)
Capital investment:
969.0 billion yen (92% compared with the previous year)
R&D expenditure:
428.1 billion yen (104% compared with the previous year)
Overseas output as a percentage of consolidated net sales: 24%

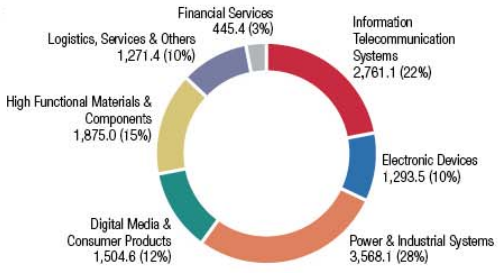
See Web site for economic performance reports.
http://www.hitachi.com/IR-e/

Financial Results (consolidated basis)

Revenues and Operating Income



Revenues by Industry Segment in Fiscal 2007 (billions of yen)



Total Sales by Industry: 12,719 billion yen
Consolidated Net Sales: 11,226 billion yen

Information & Telecommunication Systems

Data center
(unification control center)

Hitachi Global Storage Technologies'
500-gigabyte 2.5-inch
hard disk drive

Large disk array subsystem

● Systems integration, outsourcing services, software, hard disk drives, disk array subsystems, servers, mainframes, PCs, telecommunication equipment, ATMs
■ Hitachi Communication Technologies, Ltd., Hitachi-Omron Terminal Solutions, Corp., Hitachi Computer Products (America), Inc., Hitachi Computer Products (Europe) S.A.S, Hitachi Global Storage Technologies Netherlands B.V., Hitachi Electronics Services Co., Ltd., Hitachi Information & Control Solutions, Ltd., Hitachi Information Systems, Ltd., Hitachi Software Engineering Co., Ltd., Hitachi Systems & Services, Ltd., Hitachi Data Systems Holding Corp.

Electronic Devices

Hitachi Displays' 2.9-inch
wide and high definition (WVGA)
IPS LCD for mobile phones

Hitachi High-Technologies'
Focused Ion &
Electron Beam System

Hitahi Medical's
fluoroscopic X-ray system

● Liquid crystal displays (LCD), semiconductor manufacturing equipment, testing and measurement, medical electronics equipment, semiconductors
■ Hitachi Displays, Ltd., Hitachi High-Technologies Corporation, Hitachi Medical Corporation, Hitachi Display Devices (Suzhou) Co., Ltd.

Power & Industrial Systems

Ashford Train
Maintenance Centre

Hitachi Construction
Machinery's
hydraulic excavator

Hitachi Vehicle Energy's
lithium-ion battery

● Nuclear power plants, thermal power plants, hydroelectric power plants, industrial machinery and plants, automotive products, construction machinery, elevators, escalators, railway vehicles
■ Babcock-Hitachi K.K., Clarion Co., Ltd., Hitachi Construction Machinery Co., Ltd., Hitachi-GE Nuclear Energy, Ltd., Hitachi Industrial Equipment Systems Co., Ltd., Hitachi Via Mechanics, Ltd., Hitachi Automotive Products (USA), Inc., Hitachi Elevator (China) Co., Ltd., Hitachi Building Systems Co., Ltd., Hitachi Engineering & Services Co., Ltd., Hitachi Mobile., Ltd., Hitachi Plant Technologies, Ltd., Hitachi Power Europe GmbH

Digital Media & Consumer Products

UT (Ultra Thin) LCD TVs

Hitachi Appliances'
washer-dryer

Hitachi Maxell's
prismatic lithium-ion
rechargeable batteries
featuring thin type
and high capacity

● Optical disk drives, Plasma TVs, LCD TVs, LCD projectors, mobile phones, room air conditioners, refrigerators, washing machines, information storage media, batteries, air-conditioning equipment
■ Fujitsu Hitachi Plasma Display Limited, Hitachi Appliances, Inc., Hitachi Maxell, Ltd., Hitachi Media Electronics Co., Ltd., Hitachi Home Electronics (America), Inc., Shanghai Hitachi Household Appliances Co., Ltd.

High Functional Materials & Components

Hitachi Chemical's
molded plastic rear
hatch door

Hitachi Metals'
amorphous alloys
for transformers

Hitachi Cable's
probe cables for
medical applications

● Wires & cables, copper products, semiconductor materials, circuit boards and materials, organic/inorganic chemical products, synthetic resin products, display related materials, specialty steels, magnetic materials and components, high-grade casting components and materials
■ Hitachi Cable, Ltd., Hitachi Chemical Co., Ltd., Hitachi Metals, Ltd.

Logistics, Services & Others

Hitachi Transport System has opened a joint distribution center for the medical industry, Kansai Medical Distribution Center

● General trading, logistics, property management
■ Chuo Shoji, Ltd., Hitachi Life, Ltd., Hitachi Transport System, Ltd., Nikkyo Create, Ltd., Hitachi America, Ltd., Hitachi Asia Ltd., Hitachi (China) Ltd., Hitachi Europe Ltd.

Financial Services

Multifunctional IC card and
electronic toll collection auto card

● Leasing, loan guarantees, insurance services
■ Hitachi Capital Corporation, Hitachi Insurance Services, Ltd.

● Major Products & Services ■ Major Consolidated Subsidiaries (As of March 31, 2008)
*1 Hitachi-GE Nuclear Energy, Ltd. acquired the nuclear power-related business of the company through a corporate split on July 1, 2007.
*2 Guangzhou Hitachi Elevator Co., Ltd. changed its name to Hitachi Elevator (China) Co., Ltd. on June 29, 2007.
*3 Fujitsu Hitachi Plasma Display Limited changed its name to Hitachi Plasma Display Limited on April 1, 2008.

I. Hitachi Group Technology Management

1. For the "Collaborative Creation and Profits"

Since its foundation, Hitachi has contributed to the development of the world and Japan with its unique technology and businesses based on Hitachi Founding Spirit: "harmony," "sincerity" and "pioneering spirit." This aspiration of ours will not waver no matter how the times and the social conditions change. With a renewed recognition of the founding spirit, we announced, in November 2006, a new corporate strategy featuring "Collaborative Creation and Profits" to ensure Hitachi's continued growth and to contribute to the society in solving various problems it would face in the future.

The corporate strategy aims to create new value by sorting, from customers' point of view, Hitachi's various businesses into "Social Innovation Business" consisting of Social Infrastructure Business, Industrial Infrastructure Business, Life Infrastructure Business, Information Infrastructure Business, and "Infrastructure Technology/Products" including high functional materials, and by generating group synergies and deepening partnership with our partners. Always keeping our stance based on the market and the society, we aim to breathe new life into the next era by faithfully implementing the corporate strategy.

2. Basic Ideas for Technology Management

Hitachi will reinforce, among others, "Social Innovation Business" to create a stable and highly profitable business portfolio. The "Social Innovation Business" will provide solutions supporting the lifeline of the new era and offer global and competitive products and services consisting of high technology and Hitachi's expertise by reinforcing and combining the social infrastructure system supporting our daily lives such as social, industrial and life infrastructures, and information services in the information infrastructure. The "Infrastructure Technology/Products" will maximize synergies with the "Social Innovation Business" with respect to differentiated technologies such as high functional materials. To this end, Hitachi is integrally promoting R&D strategies, IP strategies and business strategies based on the following basic ideas:

- Create innovation by preferential R&D investment in strong business
- Promote globalization with a thoroughly market-oriented attitude in growing social infrastructure markets in the world
- Create value by generating synergy effects among various businesses by using diverse management resources within Hitachi Group

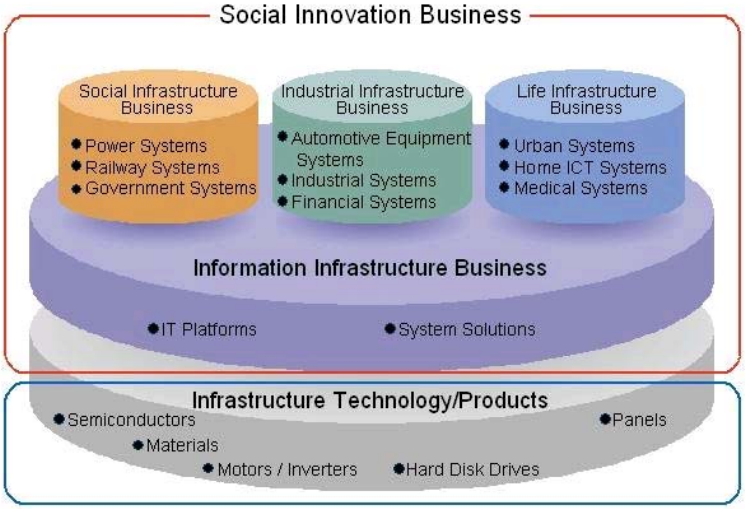


Fig. 1.1 Collaborative Creation and Profits

3. System for Technology Management

Hitachi Group's R&D is carried out by the Research & Development Group which is responsible for the corporate R&D activities, and development departments directly in charge product development in each business group and group company. Some group companies have their own laboratories and other research organizations. As of April 2008, a total of about 6,000 engineers in the Group is involved in R&D. The common technologies obtained through a reinforced collaboration of corporate R&D and R&D of business groups and group companies promote integrated management of Hitachi Group.

The Intellectual Property Group is responsible for registration of patent, design and trademark rights and protection of copyrights and trade secrets in a close cooperation with R&D departments and other related departments in within Hitachi Group. Because good collaboration with researchers is especially important in successfully registering patents and designs, the Intellectual Property Group promotes related activities by placing eight divisions in five offices depending on the product and technology fields.

Based on the understanding that the Hitachi brand, the group's common property, is one of important business resources supporting its competitiveness, the Corporate Brand Management Office controls the group in this field. Each business group and group company has a brand manager who works closely with the Corporate Brand Management Office to implement brand policies and promotional activities.

The Corporate Planning & Development Office promotes, in close cooperation with headquarters, business groups and group companies, the mutual use of technology information and strategies, decides group-wide technology strategies and plan and develop measures to generate synergies among various businesses.

These organizations related to R&D and intellectual property are working together to create new value based on Group synergies by actively promoting the sharing of information (e.g., technology information, IP information and market information).

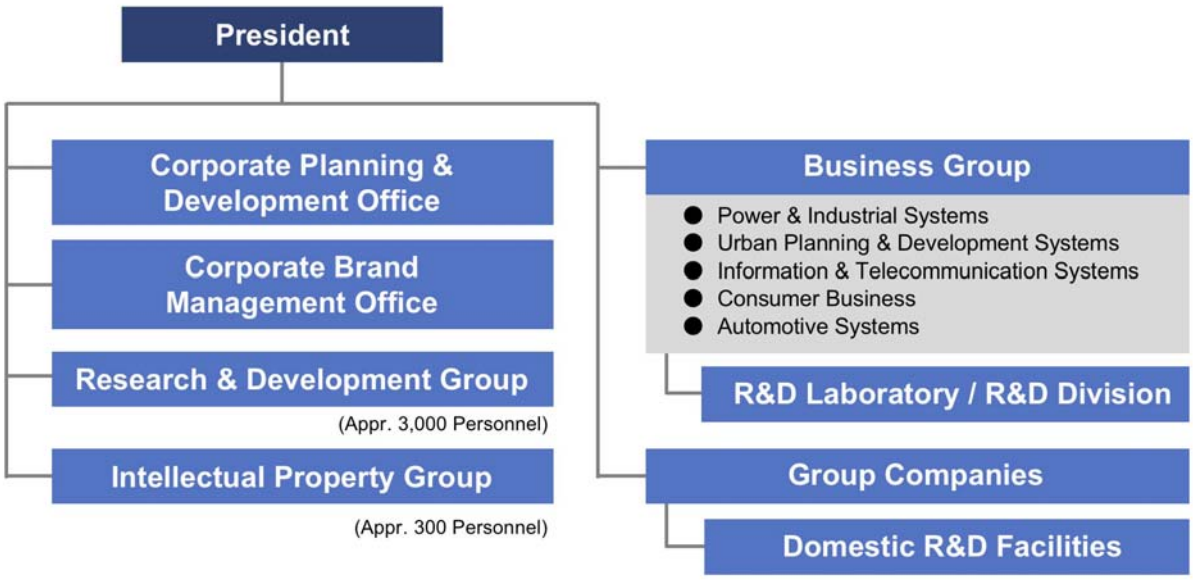


Fig. 1.2 Technology Management System (As of April 2008)

II. R&D and Intellectual Property in Main Businesses

By further promoting advanced technologies and making the best of the group's overall competitiveness, the Hitachi Group has introduced and maintained products achieving the largest or the second-largest market share in the Social Innovation Business and Infrastructure Technology/Products, thereby solving problems faced by Japan and the world. Below are three examples of such product solutions.

1. High Efficiency Coal-fired Power Plant Incorporating Advanced Environmental Technologies

With its rich reserves and affordability compared to other fossil fuels, coal is used to generate almost forty percent of all electricity produced in the world, and is expected to continuously play an important role in power generation. However, it is significant challenge for coal fired power generation to reduce emission of greenhouse gasses in its flue gas since coal fired power plants emit more greenhouse gasses such as nitrogen oxides (NOx), sulphur oxides (SOx) and carbon dioxide (CO_2) comparing to other power generation methods, as the demand for mitigating environmental impact have increased in recent years.

Hitachi Group is one of the first companies that introduced supercritical pressure boiler with high efficiency and low-NOx combustion technology and desulfurization and denitrification technologies that mitigate environmental impact, and has demonstrated significant performance both in Japan and abroad. (Fig. 2.1) Moreover, Hitachi is the only power plant manufacturer that produces denitrification catalyst in-house, and its long product life and high performance have allowed Hitachi to gain more than thirty percent of the world market share.

In 2005, Hitachi completed a high-efficient supercritical coal-fired power plant in Alberta, Canada that was the first of its kind built in North America. (Fig. 2.2) The new coal-fired power plant was highly appreciated in North America since, compared to the conventional plants, it improved the efficiency by 18% (18% less coal is used to generate the same output, reducing CO_2 emission by 18%), reduced NOx in flue gas by 40% and cut SOx by 70%.

To promote further development of environmental technologies, Hitachi built in March 2007 one of the largest coal combustion experiment facilities that can demonstrate the combustion characteristics equivalent to that generated in an actual coal-fired power plant. That allowed Hitachi

Fig. 2.1 Flue Gas Denitration Equipment of Ninghai Power Plant, China (enlarged photo at top left)

Fig. 2.2 The first supercritical coal fired power plant in North America

to have the prospect of developing a new combustion system and further reducing NOx in flue gas by half.

With respect to CO_2 which is deemed as one of the greenhouse gases, Hitachi developed in mid-1990's a system to capture CO_2 contained in flue gas, and now plans verification tests in Europe.

Thanks to IP activities in coordination with business and R&D activities, about 1,200 patents relating to boiler and flue gas treatment technologies have been granted in Japan and abroad.

In recent years, Hitachi has focused on patenting activities meeting such developments and promoted IP activities reinforcing competitiveness of overseas businesses.

Hitachi group contributes to global-scale environmental conservation in the future by accumulating development of boiler and flue gas treatment technologies capable of supplying energies while maintaining the environment clean.

2. Hybrid Propulsion System for Railways

Since 2001, Hitachi and East Japan Railway Company (JR East) have jointly developed environmentally friendly hybrid propulsion system, which successfully resulted in the world's first commercial operation on Koumi line in July 2007.

In recent years, air pollution caused by industrial and vehicle emissions, global warming caused by CO_2 and other environmental problems have made the headlines together with energy issues such as fossil fuel depletion.

In the field of railcars, Hitachi has made efforts to reduce power consumption with "regenerative braking system" in addition to "weight reduction" and "equipment efficiency" as part of our engagement in energy and environmental problems. In respect of DMUs (Diesel Multiple Units) for non-electrified lines, however, regenerative braking system is not applicable because such a car is directly driven by diesel engines.

The hybrid propulsion system enables a railway motor car to use regenerative braking system, thereby promoting reuse of regenerative energies and high-efficiency engine operation to reduce energy consumption and hazardous emissions.

The system constitutes a series hybrid drive system consisting of a diesel engine and high energy-density lithium ion batteries, and has realized (a) reduction of environmental burdens, (b) higher railcar performance and (c) less maintenance. It was incorporated and put into practice as the hybrid drive system in Series E200 DEMU (Diesel Electric Multiple Unit) of JR East.

Compared to conventional DMUs, the DEMUs introduced to the Koumi line, for instance,

Fig. 2.3 JR East's Series E200 Motor DEMU incorporating hybrid propulsion system

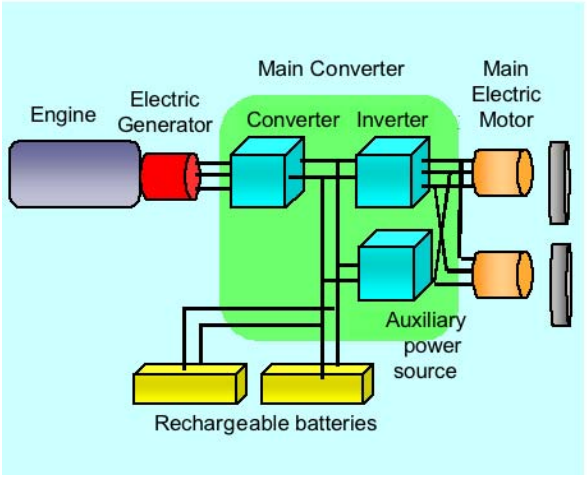


Fig. 2.4 Structure of hybrid propulsion system

has reduced energy consumption by 10% and hazardous emissions by 60%.

What is important with this system is the energy management that coordinates and controls energy supply to the engine, generator, batteries and main electric motor, which is carried out by engine and main converter and inverter controllers. To be more specific, appropriate battery charge level and travelling performance are maintained by controlling the engine generator system in response to train speed and state of charge level in the main circuit.

In practice, the engine generator stops while the railcar is stopping at train stations to prevent noise emission and improve fuel consumption, and starts to operate again when departing stations. The train accelerates solely with battery power until the speed reaches to about 30km/h. During the power running, the engine generator helps the power output. When regenerative braking system is put in action, the engine generator stops operation, and the regenerative power is absorbed in storage battery. If the battery becomes fully charged when the braking system operates to suppress the speed, the engine brake absorbs regenerative power to prevent overcharge.

To further improve fuel consumption, gradient prediction control is in place to efficiently use potential energy.

As to IP activities relating to railcar hybrid drive system, efforts have been made for strategic registration and maintenance of patents relating to railcar drive control and energy management system. As of the end of FY 2007, nearly 100 patent applications are pending in Japan. R&D activities and patenting activities in this field will be further coordinated based on the understanding that the technology continues to play the key role in Japan and abroad.

3. Disk Array Subsystem Featuring Storage Virtualization

As business operations diversify and data volume keeps growing in ever-changing business environments, there are increasing needs for a storage system that can reliably retain and utilize data and improve utilization of storage infrastructure. To meet such needs, an information systems manager needs to improve utilization of storage infrastructure by, for instance, enhancing the storage system as necessary and integrating the storage.

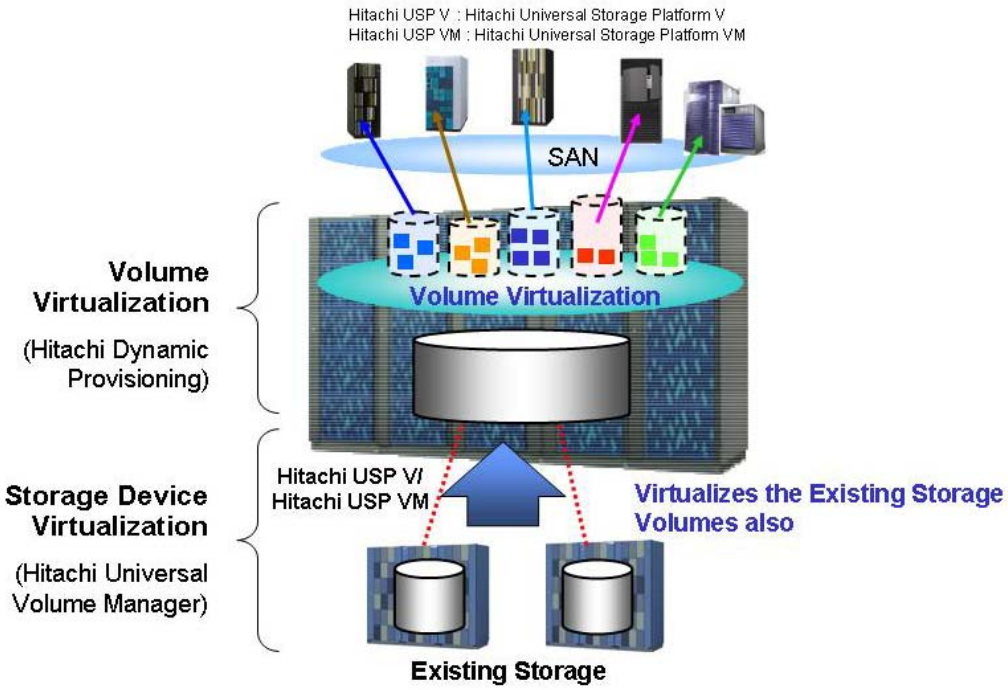


Fig. 2.5 Disk array subsystem featuring storage virtualization

As unstructured data such as images and video increases in recent years, it is hard to predict the data volume. Sometimes data volume increases at an unexpected pace, resulting in under-utilization of deployed storage capacity. According to a study, only 30–40% of the storage capacity is actually used in a general Storage Area Network (SAN) environment, which suggests that improving the utilization will contribute to the reduction of cost for introducing, managing/operating, and running storage systems. Thus there is an increasing need to improve storage capacity utilization to reduce those costs.

To meet such demands, Hitachi has realized storage virtualization at disk array controller.

In September 2004, Hitachi introduced "Hitachi Universal Volume Manager" which virtualizes multiple, heterogeneous storage and enables 'single-pane-of-glass' management/operation. This also enables effective utilization of existing storage as part of the disk array subsystem, Hitachi USP V/Hitachi USP VM. Moreover, it increases the value of existing storage system because the newest functions of Hitachi USP V/Hitachi USP VM are applicable across the entire virtualized storage systems.

"Hitachi Dynamic Provisioning" which was introduced in May 2007 virtualizes storage capacity and allows for larger volume definitions independent of the physical storage capacity. By optimizing the data allocation in the real storage area, it maximizes storage utilization and improves customers' storage ROI (Return On Investment), while reducing energy consumption in the storage system and improving the running cost.

Hitachi's disk array controller-based storage virtualization has been highly acclaimed by numerous customers for its reliability, performance and functions, and more than 9,100 units have been shipped so far worldwide (as of the end of March 2008). It has also been awarded with the 50th Best New 10 Products Awards–Nippon Brand Prize–in 2007 by Nikkan Kogyo Shimbun Ltd. for the product's unique technology and significant competitiveness Hitachi's IP activities related to storage virtualization technology have been focused on creation of patents as well as fostering them under its IP strategies, fully taking into account the business and R&D perspectives in the worldwide R&D environment. As a result, about 650 patent applications are pending in Japan and abroad as of the end of 2007 while about 120 patents have already been granted outside Japan. We will continue to strengthen our patenting activities in Japan and abroad.

III. Research and Development

1. Global R&D Strategies

Recently, issues relating to global sustainability such as global warming, resources and energy are being discussed as a common challenge facing all of humankind. For Japan, another pressing issue is how to maintain international competitiveness and sustain a safe and prosperous society in the face of a decreasing workforce and the rising competition from BRICs nations.

To overcome such global issues and create an internationally competitive industry, the Hitachi Group R&D strategy focuses on: (1) generating innovation for the creation of new industries; (2) commitment to maintain and strengthen the MONOZUKURI* industry; (3) speeding-up global deployment; and (4) foster global and innovative human resources. (Fig.3.1)

*MONOZUKURI: Japanese term which represents the total manufacturing solution including software and hardware know-how, and development expertise.

Hitachi group promotes R&D activities in a wide range of fields from information & telecommunication systems to financial services. In FY 2007, the Hitachi Group invested 428.1 billion yen in R&D, which represents approximately 3.8% of revenue (R&D investment of 435 billion yen (3.9%) projected for FY 2008). R&D investment by business sector was largest for the Information and Telecommunication Systems segment, representing approximately 5.6% of segment revenue. Also, in recent years, research in the Power and Industrial Systems segment is being fortified. (Fig. 3.2)

Fig .3.1 Global R&D strategy supporting further new growth in the Hitachi Group

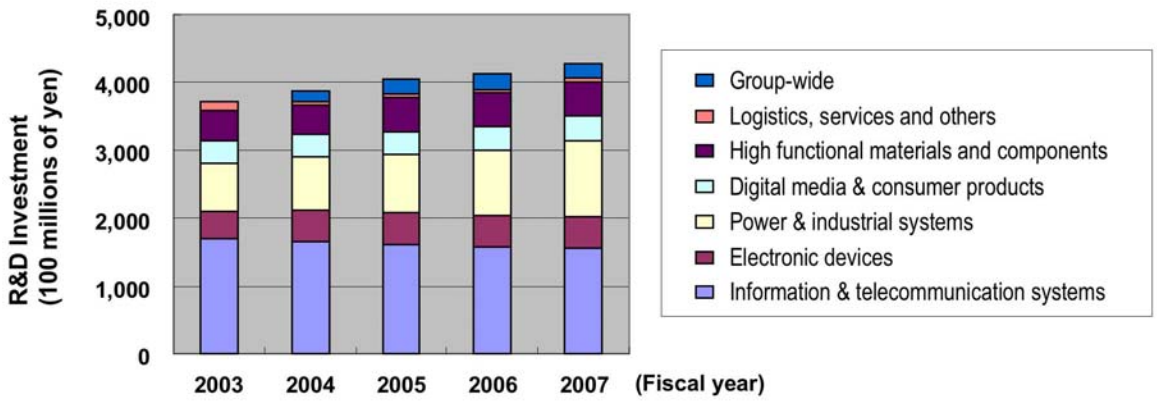


Fig. 3.2 Trends of R&D Investment

The management vision of the Research & Development Group is an organization generating world top-class and "only-one" technology, as well as ensuring return on R&D investments. The vision includes the growth of Hitachi as a company renowned for its technology, identifying R&D as the source of corporate value and prosperity, and placing strong emphasis on research management.

An "Fortifying research matrix" consisting of 5 technology fields and 5 business fields, totalling 25 areas, is established in prioritizing research to visualize and substantiate priority resource allocation.

2. R&D Organization

In the Research & Development Group, there are 6 corporate laboratories and affiliated R&D facilities overseas, with approximately 3,000 R&D staff, with the mission of (1) expanding current business; (2) generating new business; and (3) creating innovative new technology. (See Fig. 3.3)

Further, this organization serves as the R&D hub for the Hitachi Group, with schemes such as the "Technology Platforms across the Hitachi Group" established to gather researchers from Group companies and engage in R&D activities with business divisions and even customers. (See Fig. 3.4). The Platform provides horizontal technological links forming the core of Hitachi's MONOZUKURI

Fig. 3.3 Corporate laboratories

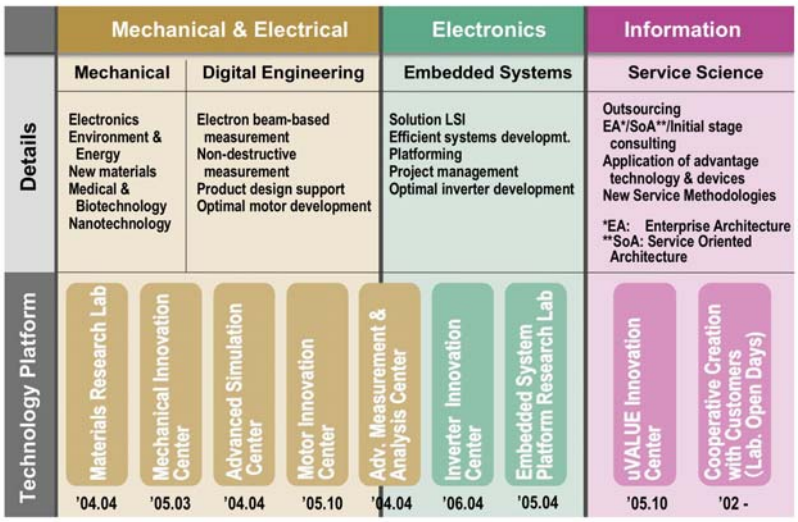


Fig. 3.4 Technology platforms across the Hitachi Group supporting MONOZUKURI innovation

innovation, and the development of human resources contributing to group businesses.

To accelerate R&D (30% reduction in development time), the Research & Development Group in cooperation with the "the Supervisory Office for MONOZUKURI" have been promoting laboursaving design process based on automatically generated analysis model (analysis-led design). Since September 2007, this process is being applied to the express train for the overseas market and next-generation Shinkansen.

The Research & Development Group is also introducing advanced technologies for the innovation of MONOZUKURI, such as high-speed detection of flaws and defects in process and equipment in coordinated with statistical data (data-linked MONOZUKURI) and application of the phase-gate system.

3. Fortifying Growth Strategies

Since 1989, Hitachi has been establishing overseas R&D facilities in the US, Europe, Singapore and China, to accelerate globalization. The mission of these facilities is to (1) contribute to local business operations; (2) promote R&D focused on local needs of the host region; and (3) collaboration with highly-skilled local personnel and centers of excellence such as universities (See Fig. 3.5) Emphasis is placed on the development of global and highly-skilled human resources, which active local recruitment and appointment to leadership positions.

As part of R&D activities to pioneer global businesses, Hitachi has engaged in joint research with universities in Japan, Germany, and the U.S. to develop de facto technologies in the environmental field. As global competition intensifies in the field of coal-thermal power plant, pilot tests are being planned for CO_2 collection in 2009. Also, Hitachi has been conducting joint research with IBM since February 2008 to develop basic sub-32nm semiconductor technology. To promote R&D customized for U.S. automotive manufacturers and take advantage of the strengths of Hitachi's R&D, the Automotive Products Research Laboratory was established to identify latest customer needs, respond promptly to those issues, and deliver of evaluation models.

The Research & Development Group is also promoting R&D activities to implement "Environmental Vision 2025" (See Chapters IV and V) as part of its growth-oriented R&D strategies. Development of core environmental and energy conservation technologies based on the conglomerate strength of Hitachi Group synergy, such as (1) technology to

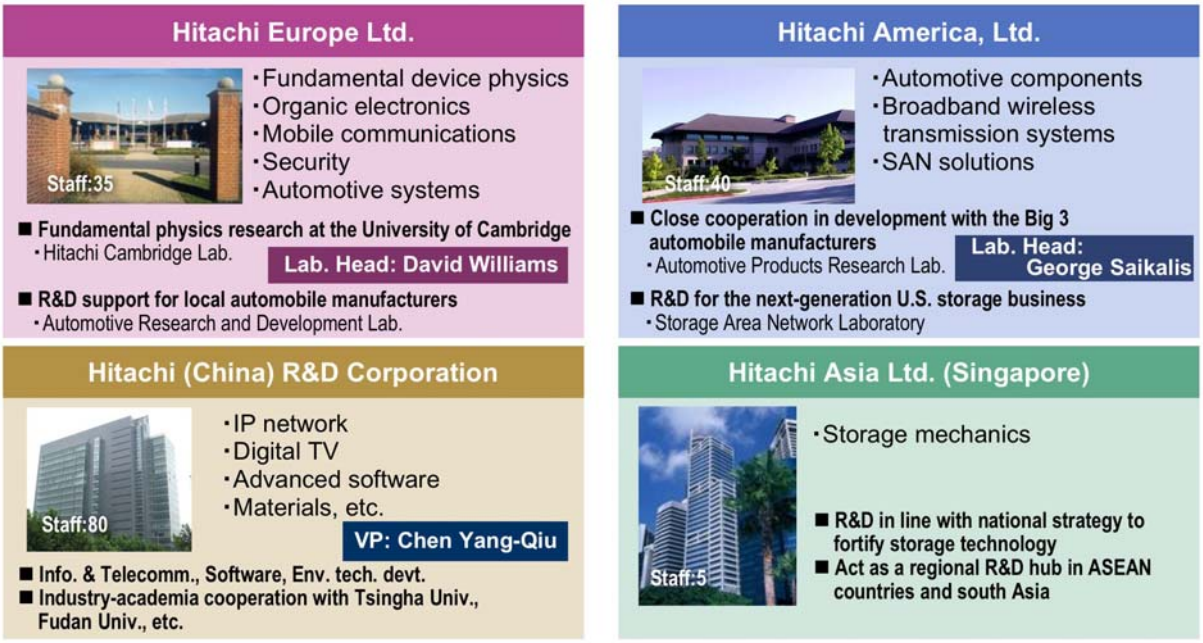


Fig. 3.5 Fortify overseas R&D centers

reduce CO_2 emission through efficiency-enhanced coal-thermal power plants and collection of fossil-fuel CO_2 emissions; (2) energy-conservation technology such as a low-power multi-core LSI and energy-efficient IT equipment; (3) HEV (hybrid electric vehicle) technology such as high-output lithium-ion battery, low-loss inverters and high-output motors; and (4) high-temperature lead-free solder and lead-free glass, are being aggressively pursued as technology to reduce environmental burden. (Fig. 3.6)

4. Creation of Innovative Technologies

The 20th century was the era of industry led by science; where society, people, and science & technologies interacted with each other and innovations were brought about. The Hitachi Group believes that the 21st century will be the "Century of prosperous human " where new business and technologies will emerge to support a clean energy industry, human-centric business, consumer appliances and industry gentle on humans, an ambient information society, and lifelong healthy society. (Source: Innovation 25 Strategy council material, etc.)

R&D activities for the century of human affluence, as illustrated in Fig. 3.7, include research in: (1) brain science (brain activity measurement, and brain machine interface) for the development of digital media and consumer products which operate as desired or have an interface which can detect the users intentions; (2) nanoelectronics

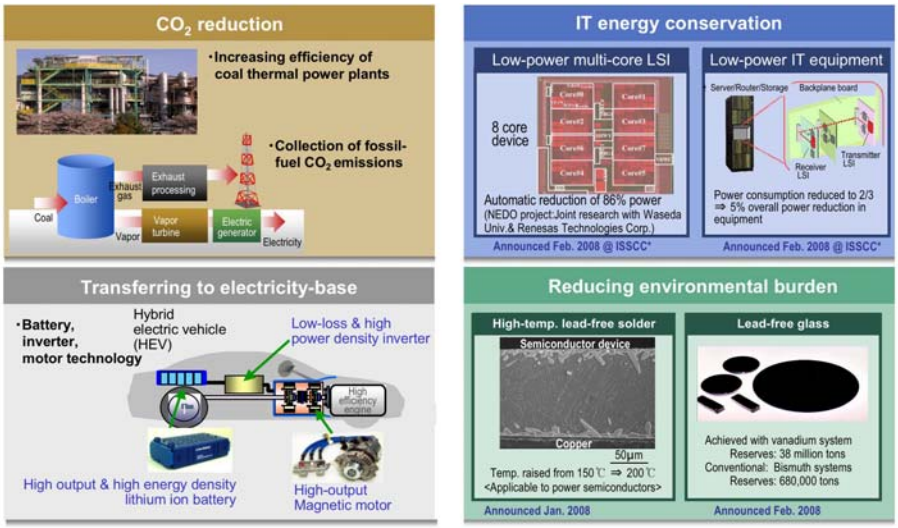


Fig. 3.6 Core technology for environment & energy

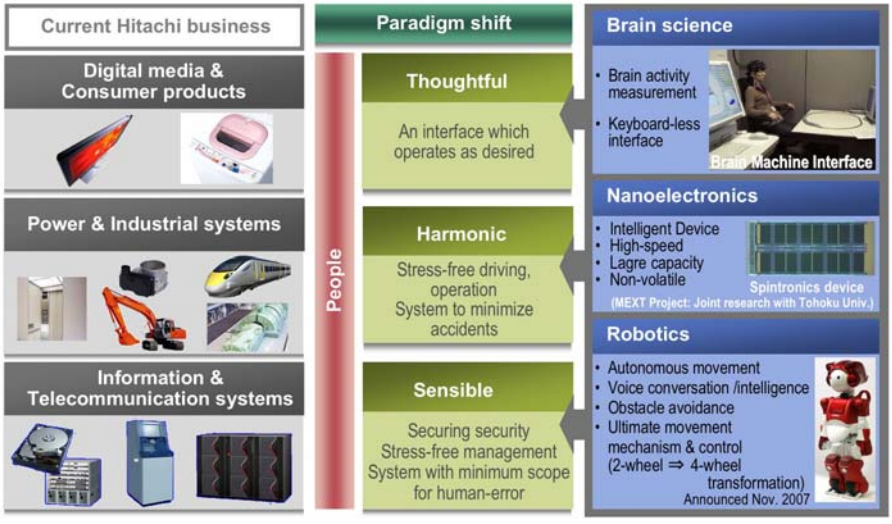


Fig. 3.7 R&D for a century of prosperity: MONOZUKURI

(intelligent devices with decision-making functions) to contribute to the power and industrial systems by the development of stress-free driving or operation, and accident-free system; and (3) interactive robotics as an application of secure, stress-and human-error-free information systems.

Furthermore, technology is being developed to produce new service businesses for the "century of human affluence", such as (1) *Business-Microscope* which visualizes business activity for productivity improvement services; (2) Finger vein authentication technology incorporated steering wheels to achieve key-less motor vehicles, and Wearable Optical Topography to measure brain function during daily activities, for safety and security services; and (3) *Life-Microscope* for long-term visualization of daily rhythms (e.g. temperature, movement, and pulse) and HALSMA* diet technology, an online system for effective diagnosis of metabolic syndrome by medical practitioners, for health-support services. (See Fig. 3.8)

* HALSMA: Hitachi Associates Life Style Modification & Action

Human-centered R&D for new businesses will continue to be a major focus and target of continued priority in R&D activity.

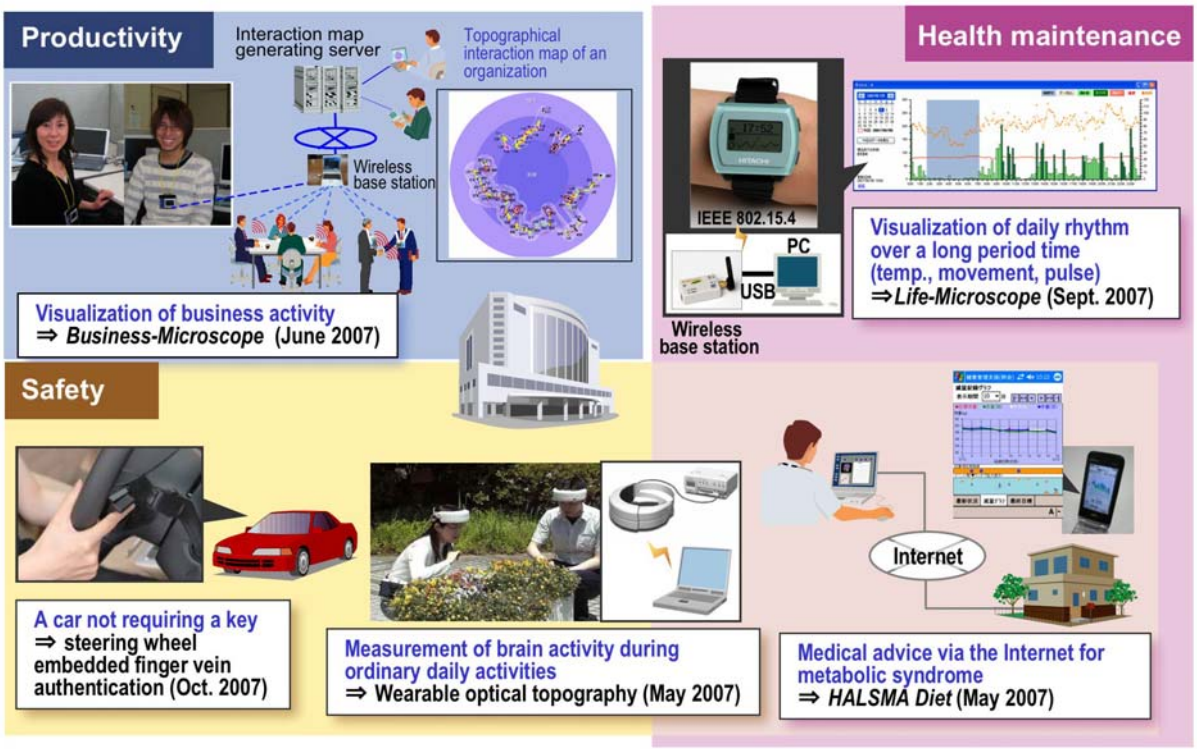


Fig. 3.8 R&D for a century of prosperity: Services (Lifestyle, Business, and Health)

IV. Intellectual Property

1. Basic Policy of IP Strategy

Based on the vision of "Creating IP Added Value," the Intellectual Property Group aims to contribute to the enhancement of Hitachi's corporate value. To achieve that, the Intellectual Property Group supports business strategies from an IP standpoint with fundamental missions such as "building a world-class patent portfolio" and "strategic IP use."

2. Building a World-class Patent Portfolio

2.1 Globalization

To support the Hitachi Group's globalization efforts from IP aspects, Hitachi promotes building a world-class patent portfolio. As one of the measures, Hitachi is currently pursuing a patent application filing plan under which the total number of overseas applications filed by the Hitachi Group surpasses that of domestic applications by FY2010, Hitachi's 100th anniversary. (See Fig. 4.1). Toward FY2010, Hitachi is promoting more applications overseas, especially in the US, Europe, and China, while at the same time increasing applications in India.

Countries where applications should be filed are flexibly decided by each business segment depending on the target market of each business segment.

2.2 Group Synergies

In 2006, Hitachi adopted a corporate strategy to promote "Collaborative Creation and Profits." This corporate strategy clarifies that Hitachi will utilize various management resources within the group, create value from synergies between businesses, and improve earnings based on operational synergies. As one of the measures, Hitachi has established the Hitachi Group patent pool system.

The patent pool system provides a scheme to integrally manage creating inventions, applying for patents, and exploiting patents that relate to cross-group technologies. For example, finger vein authentication technology is one of the pooled technologies. This technology has a wide range of applications, including log-in authentication for computers, authentication for ATM machines, and key-like functions for cars. Accordingly, the related inventions are developed in various business fields across the Hitachi Group, and Hitachi integrally manages the finger vein authentication technology under the patent pool system.

For the invention of finger vein authentication technology (Japan Patent No. 3,770,241), Hitachi won the Award of the Minister of Education, Culture, Sports, Science and Technology and the Invention Practicing Achievement Prize at the 2007 National

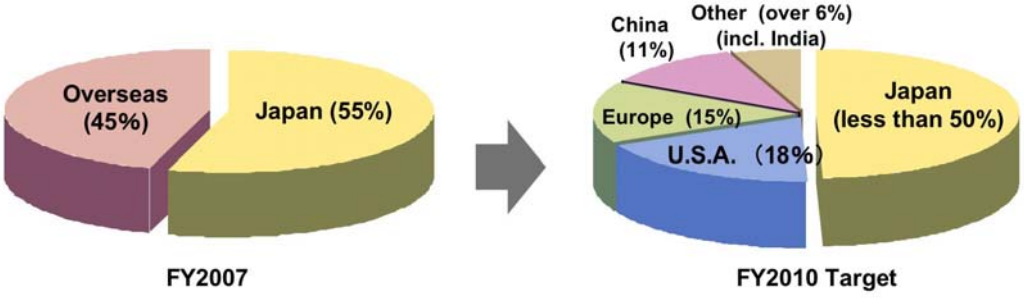


Fig. 4.1 Hitachi Group Domestic/Overseas Patent Applications

Commendation for Invention hosted by Japan Institute of Invention and Innovation (JIII). Those awards are intended to contribute to the advancement of science and technology, and development of the industry, by recognizing and commending those who made inventions, devices, and designs in Japan, and those who made a great achievement in utilizing and encouraging inventions.

2.3 Current Patent Portfolio

According to the Patent Power ranking published in the November 2007 issue of IEEE Spectrum, Hitachi ranks at the top of companies worldwide in the electronics group.

As for US issued patents in 2007, the Hitachi Group ranks third, achieving the same ranking as in 2006 (See Fig. 4.2*) (according to Hitachi's survey). Hitachi aims to also achieve a high ranking in 2008.

Company Gr.	US Patents (rank)	Rank in 2006
Samsung	3,263 (1st)	2nd
IBM	3,151 (2nd)	1st
Hitachi	2,302 (3rd)	3rd
Matsushita	2,181 (4th)	4th
Canon	2,019 (6th)	5th

Fig. 4.2 U.S. issued Patent in 2007

* Fig. 4.2 is based on data collected by Hitachi using commercial patent databases. See reference 1 for the list of companies included as Hitachi Group companies.

Fig. 4.3* shows the number of laid open patent applications in Japan and issued patents in the US in 2007, as well as their breakdown by business segment. The ratio is basically the same as last year.

* Fig. 4.3 is based on data collected by Hitachi using commercial patent databases. See reference 1 for the list of companies included as Hitachi Group companies.
Part of data used in Fig. 4.3 may be cumulative because some patents are jointly filed by Hitachi, Ltd. and Hitachi Group companies.

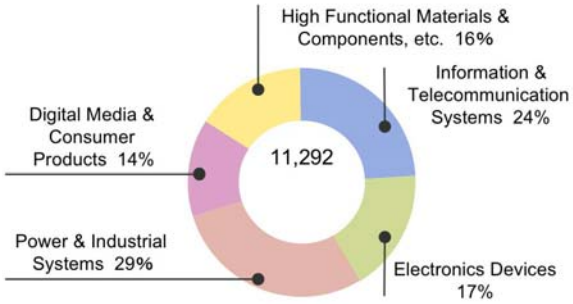


Fig. 4.3(a) 2007 Hitachi Group laid open patent applications in Japan

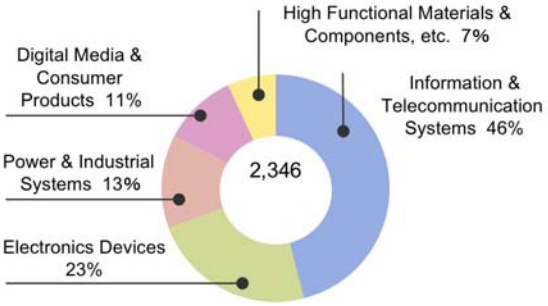


Fig. 4.3(b) 2007 Hitachi Group issued patent in the US

2.4 Selection and Focus

To build a world-class patent portfolio, Hitachi emphasizes on not only the number of patent applications and registrations but also their quality. As concrete measures, with respect to selected focus themes, the Flagship (FS) patent activities encourage creating inventions relating to Hitachi Group's advantageous technology and differentiated technology. Additionally, the Patent Portfolio Management (PPM) activities promote obtaining patents related to advantageous and differentiated technologies in Japan and overseas for the selected focus themes to build a competitive patent portfolio. Under PPM, targets are set for each theme based on market information and patent bench mark information, and so on. Later, whether targets are achieved is assessed, and the result is then used to review the targets and strategies. See Fig. 4.4 for examples of themes.

In 2007, the Hitachi Group, to promote environmental preservation and realize a sustainable society, has drafted the long-term plan "Environmental Vision 2025," under which the Group is determined to curb CO_2 emissions associated with its products by 100 million tons in FY2025. As illustrated in Fig. 4.4, Hitachi regards environmentally friendly technologies as one of the priority themes in the IP field as well, and aims to create an internationally competitive patent portfolio for such technologies that include, for instance, efficiency-enhanced gas/steam turbines and CO_2 collection technologies.

3. Strategic IP Exploitation

3.1. Methods of IP exploitation

To analyze the best strategy of IP exploitation in each business segment, the Intellectual Property Group has categorized various IP exploitations into four categories: silent pressure, cross licensing, patent royalty income, and strategic exploitation.

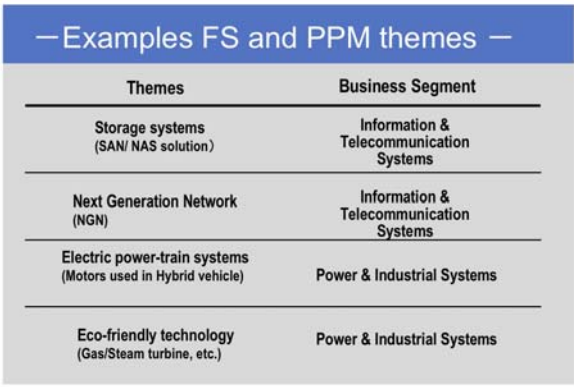
Silent pressure refers to the effect on competitors that is comparable to having actual cross license agreements, and that effect is generated by keeping Hitachi's patent position equivalent to that of its competitors.

Cross licensing refers to the cross license agreements between Hitachi and a competitor, a company in different industries, a component manufacturer, or a customer, which gives Hitachi more freedom in its business.

Patent royalty income means to obtain revenue to contribute to Hitachi's corporate earnings, by licensing patents to third parties.

Strategic exploitation means measures such as exclusive use (including limited licensing to strategic partners), branding of technologies, standardization, and sales supports.

Fig. 4.5 conceptually shows changes in Hitachi's IP exploitation activities. In the 1970's, Hitachi used its patents basically for silent pressure and cross licensing. In the early 1980's, patent royalty income began to increase, and the difference between Hitachi's income and expenditures related to technology license moved into the black in 1985.



—Examples FS and PPM themes —

Themes	Business Segment
Storage systems (SAN/ NAS solution)	Information & Telecommunication Systems
Next Generation Network (NGN)	Information & Telecommunication Systems
Electric power-train systems (Motors used in Hybrid vehicle)	Power & Industrial Systems
Eco-friendly technology (Gas/Steam turbine, etc.)	Power & Industrial Systems

Fig.4.4 Examples of FS and PPM themes

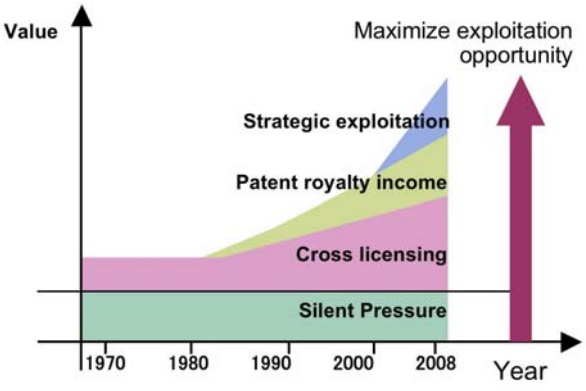


Fig. 4.5 Diversification of exploitation activity

Hitachi also actively pursues global IP licensing activities. The percentage of overseas patent royalty income* has increased to 71% in FY2007, compared to 35% in FY2000. (See Fig. 4.6)

* Patent royalty income includes those from Hitachi, Ltd. and some Group companies.

In recent years, Hitachi has made efforts not only to simply increase patent royalty income but also promote strategic IP exploitation to maximize opportunities for IP exploitation, and use IP to contribute to business segments in a more diversified way.

3.2 Strategic Exploitation

Some examples of strategic exploitation are introduced below.

3.2.1 Exclusive Use

This means a patented technology is exclusively used by Hitachi, taking advantage of the exclusive nature of a patent. Limited licensing to strategic partners also falls in this category. In the field of railcar, for instance, Hitachi has an international patent portfolio containing hundreds of patents relating to Friction Stir Welding (FSW)*, and Hitachi exclusively uses the technology. As of June 2007, more than 1,300 railcars using FSW technology have been ordered from Hitachi.

* FSW: A welding technology using frictional heat, which allows distortionless welding.

3.2.2 Sales Support

Hitachi promotes its advantageous status in technology and patents to assist product sales, by publicizing that the applicable product is protected by Hitachi patents on websites, in newspapers, and in publications to customers (such as brochures and proposals). Hitachi's secure client PC and heavy electric machinery are examples of these promoted products.

3.3 Collaborative Creation Using External Resources

Consistent with Hitachi's corporate strategy, collaborative creation is encouraged in the IP field as well. The followings are a few examples of collaborative creation.

For instance, The Welding Institute (TWI) in the UK owns certain fundamental patents of FSW technology. Hitachi acquired a non-exclusive license under two of those patents from TWI, and customized the FSW technology for railcars. Building on that, Hitachi has established a substantial patent portfolio of hundreds of Japanese and overseas patents directed to the customized FSW technology.

Standardization and patent pool can also be regarded as an example of collaborative creation. By providing Hitachi's own technologies to standardization organizations to combine with others' technologies and promote further development, collaborative creation based on internal and external resources are achieved. Patents that are essential for a standard are submitted to the standard's patent pool for licensing

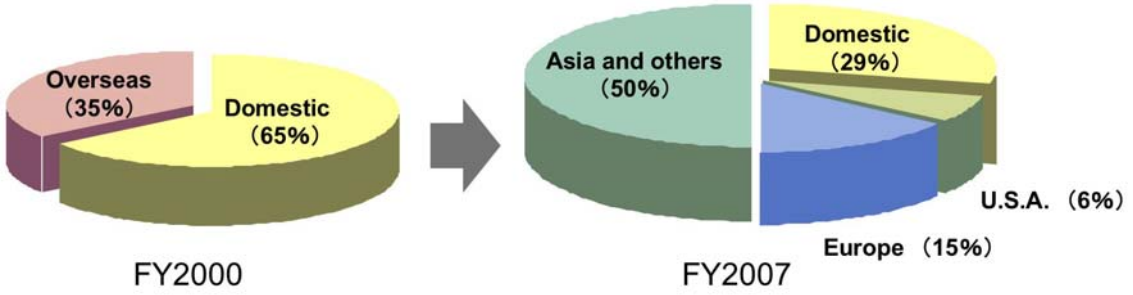


Fig.4.6 Domestic and overseas royalty income breakdown

to facilitate wide adoption of the standard. Fig. 4.7 shows major standardization activities that the Hitachi Group took part in.

4. Invention Reward System

4.1 Overview

In April 2005, Hitachi revised its invention reward system in line with the amendment of Article 35 of Japan Patent Law (effective in April 2005). Inventors now receive rewards at various stages in a patent's lifecycle, that is, the application filing stage, the registration stage, and the utilization stage, at the last of which the patent's utilization is evaluated based on the status of the internal use or licensing out of the patented invention. The revised system especially improves the reward at the utilization stage. Hitachi will further review and revise the system on a regular basis.

4.2 Invention Reward Committee

To improve transparency and inventor satisfaction of the reward system, including reward amount, Hitachi established the "Invention Reward Committee" to hear inventors' opinions and to respond to any concerns.

4.3 Invention Information System

Hitachi's "Invention Information System" aims to encourage invention by promoting communication between inventors and the business divisions that utilize patents. Using this system, inventors can report online how patents relating to their inventions are used by Hitachi or non-Hitachi companies. Inventors can also inspect online how the rewards they received at the exploitation stage were computed.

Through appropriate implementation of the Invention Information System, Hitachi will further encourage employees who work in the forefront of R&D activities to create more inventions and patents that contribute to Hitachi's business.

5. Trade Secret Management

The Hitachi Group has always actively managed its trade secret (especially technology information). It adopted the "Hitachi Trade Secret Management Regulations," the "Rules for Handling Other Company's Trade Secret," and other measures after amendments to Japan's Unfair Competition Prevention Law in 1990 that required further protection of trade secret. Hitachi also upgraded its corporate regulations and management system to meet the challenges of the digital and networked information environment. Recently Hitachi reinforced its preparedness to any inadvertent leaks of technology information (one form of trade secret) due to, for instance, the increased mobilization of human resources and technology transfer to China and other countries. Also, to ensure information security, Hitachi provides employees with e-learning and other training programs and thin client PCs. By these measures, Hitachi reinforces the trade secret protection.

Standardization Technique	Standardization Group	Patent Pool Management Organization
MPEG-2, 4 (Image compression technique)	ISO	MPEG LA
DVD-6C (Optical disks)	DVD forum	DVD-6C license agent
Blue-Ray (Optical disks)	Blue-Ray Disc Association	TBD
IEEE-1394 (Digital broadcasting)	IEEE	MPEG LA
ARIB (Digital broadcasting)	ARIB	ULDAGE

Fig. 4.7 Major Standardizations that Hitachi Participated In

V. Brand Management

1. Brand Management

Based on the recognition that its founders' sprits "harmony," "sincerity" and "pioneering spirit" constitute the Hitachi Brand's basic principles, Hitachi has gained its customers' trust with its sincere attitude toward work. As the business environment changes with the trends toward consolidated management, globalization and more emphasis on intangible assets, Hitachi Group has regarded the Hitachi Brand, its common asset, as an important management resource supporting its competitiveness. Moreover, since April 2000 it has vigorously promoted brand management to reinforce the Hitachi Brand.

1.1 Hitachi's Brand Platform and Corporate Statement

The Hitachi Brand is a significant promise that delivers Hitachi Group's corporate strategy and social mission as well as specific corporate activities correctly to all the stakeholders. "Hitachi Brand Platform" clarifies what each and all of Hitachi employees working under the Hitachi Brand think and promise, and how they take an action. "Hitachi Brand Platform" consists of 3 pillars: "Brand Vision," "Brand Mission" and "Brand Value." (See Fig. 5.1)

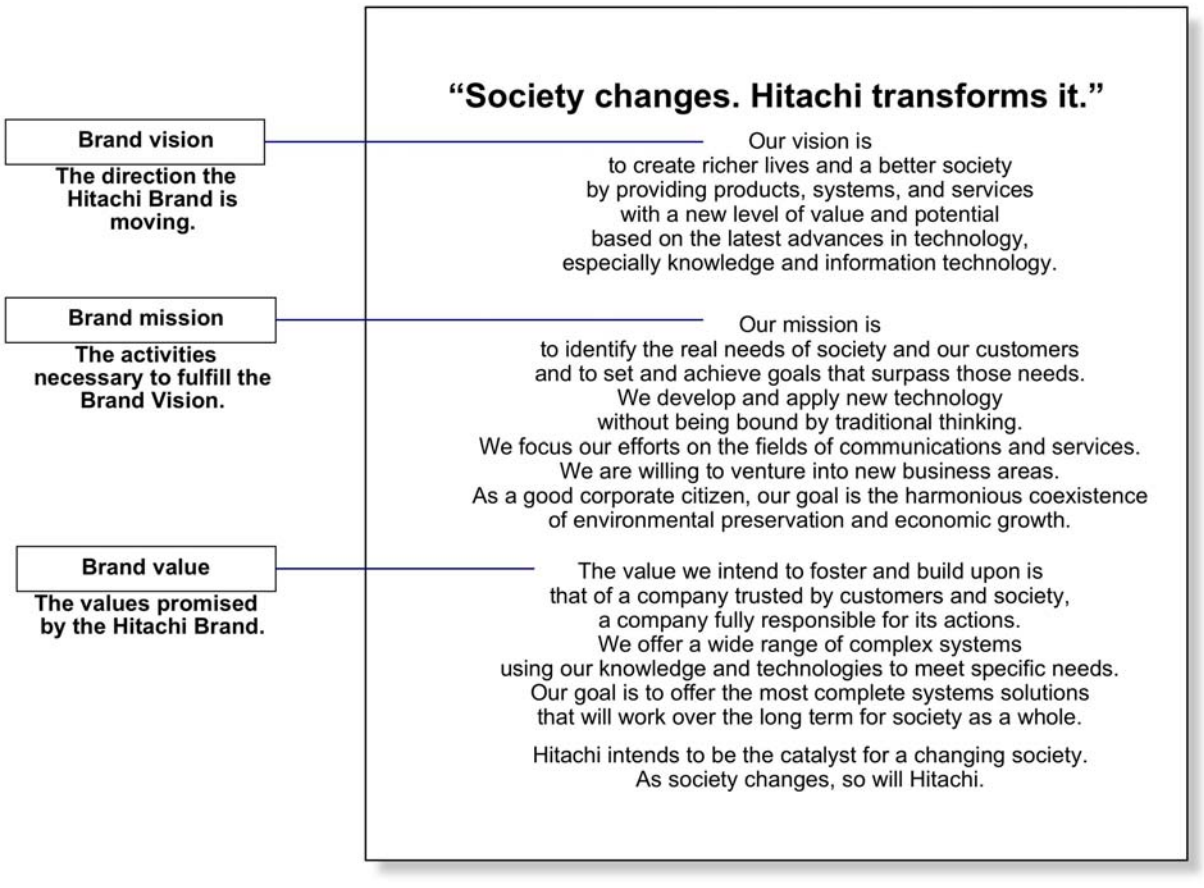


Fig. 5.1 Hitachi Brand Platform

The corporate statement "Inspire the Next" which consolidates and describes the essence of Hitachi Brand Platform has the meaning that "to keep infusing a new breath of life to the next era." By not having any word after the term "Next," it implies various ideas such as era, society, idea, product, system and solution. One of the aims of the corporate statement is to think and share the terms after Next with our stakeholders.

1.2 Hitachi's Basic Design Element

To deliver Hitachi's corporate images and brand images integrally and continuously, Hitachi has established the Hitachi Group Identification Standards. The basic elements of the Hitachi Brand are as follows.

● Hitachi Mark:
The mark symbolizing Hitachi which is used as the family crest.

● Hitachi Logo:
The basic element used most commonly as a symbol of the Hitachi Brand which accumulates brand value and is used on all products and services supplied by Hitachi.

HITACHI

● CS (Corporate Statement) Logo:
The element combining the Hitachi Logo and the Corporate Statement. This logo acts to communicate both the company's brand value, and its determination to move ahead for changes, throughout the company and also to the outside world. The red stroke on top right (Inspire Flash) symbolizes Hitachi's attitude for further growth, its firm determination toward the new era and its aspiration to keep infusing a new breath of life to the next era.

HITACHI
Inspire the Next

1.3 Brand Value Enhancement Measures

Because brand value is enhanced by activities of each employee, Hitachi has provided training programs and educational tools to improve the awareness toward brands among employees of Hitachi Group companies. The brand image of a company is formed with accumulation of various experiences of the stakeholders. That is why Hitachi must be able to provide consistent brand experiences that match with the Hitachi's Brand message. The following measures are taken to brand management.

1.3.1 Promotion of Web Management

Hitachi's website contains various information to be given to the stakeholders. Playing the role of the inquiry counter, sales, and customer services, the Website constitutes a place for comprehensive brand experience. To further improve the Website, Hitachi has developed a website governance system, and guidelines relating to visual expression and usability promoting such Web management creating business opportunities. (See Fig. 5.2)

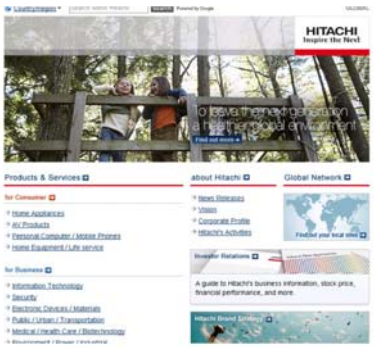


Fig. 5.2 Top Page of Hitachi Global Website

1.3.2 Environmental Campaigns

In addition to various advertising and promotion activities in and outside Japan, Hitachi Group has continuously carried out campaigns to improve awareness toward the Hitachi Brand. Since its public announcement of "Environmental Vision 2025" featuring "prevention of global warming," "recycling and reuse of resources" and "protection of ecology system" in December 2007, Hitachi Group has promoted a wide range of Hitachi's environment innovation products, implemented environment

campaigns, and launched environmental activities' websites, etc. (See Fig. 5.3)

1.3.3 Improvement of Brand Images Among Youths

As a part of science and technology educational program for junior high and high school students, Hitachi Group has organized seminars to improve its brand images among university students and other young population. It has also promoted recruiting activities for competent staff and good relationship with future stakeholders.

2. Anti-counterfeit Measures

The Hitachi Group has actively taken measures against counterfeit goods (e.g., home appliances, electronic components, automotive components, construction equipment components, and electric power tools) in China and other Asian countries, the Middle East, and Africa. In China where counterfeit goods are especially rampant, Hitachi has vigorously promoted raids and other effective measures in cooperation with local affiliates to regain the sales of genuine products.

Hitachi has also lobbied Chinese authorities through industrial associations, such as supporting visits by the International Intellectual Property Protection Forum (IIPPF) to China. After requirements for criminal charges in intellectual property infringement cases were relaxed in December 2004, infringers tended to try to avoid court charges by minimizing the number of goods that can be seized at raids. Also, administrative penalties do not have much deterrent effect so that repeated offenses are common. So, Hitachi has conducted raids against manufacturers that infringe more than one brand, in cooperation with other companies, to seek criminal charges.

With respect to the fraudulent company name registration that includes the trademark of "日立" and "HITACHI" in Hong Kong, even if a court orders the cancellation of a fraudulent registration, the cancellation procedures are very difficult to complete under Hong Kong's corporate registration system. So, in coordination with other companies, Hitachi has asked the Japanese Ministry of Economy, Trade and Industry for assistance, and the Japanese government has held several discussion meetings with the Hong Kong government since November 2005 to request a revision of Hong Kong's relevant legal system and operations. As a result, the Hong Kong government has announced its law amendment plan.

As more counterfeit goods enter international trade, Hitachi is pursuing measures aimed at both exporting countries (mainly China) and export destinations. Such measures include: parallel investigation in the Middle East and China, seizure at the Customs of countries in the Middle East, raids in each country, and uncovering counterfeit networks based on information collected from raids and seizures. To do so, Hitachi has actively collaborated and exchanged information with relevant authorities. Further, in recent years, Internet-based infringements are on the rise, and in response to that Hitachi is vigorously taking countermeasures in light of new laws and regulations.

Japanese version　　English version　　Chinese version

Fig. 5.3　Hitachi Environmental Activities' Websites

Reference 1. Group Companies for Japan-US Patent Data

Category	Company Name
Information Telecommunication Systems	Alaxala Networks Corp., Hitachi Communication Technologies, Ltd., Hitachi Electronics Services Co., Ltd., Hitachi Government & Public Corporation System Engineering, Ltd., Hitachi Information & Control Solutions, Ltd., Hitachi Information Systems, Ltd., Hitachi Information & Communication Engineering, Ltd., Hitachi-Omron Terminal Solutions Corp., Hitachi Software Engineering Co., Ltd., Hitachi Systems and Services, Ltd., Hitachi Consulting Co., Ltd., Hitachi Global Storage Technologies Japan, Ltd., Hitachi East Japan Solutions, Ltd., Hitachi Data Systems Holding Corp., Hitachi Global Storage Technologies Netherlands B.V.
Electronic Devices	Akita Electronics Systems Co., Ltd., Hitachi Displays, Ltd., Hitachi High-Technologies Corporation, Hitachi Medical Corp., Hitachi ULSI Systems Co., Ltd.
Power & Industrial Systems	Babcock-Hitachi K.K., Hitachi Building Systems Co., Ltd., Hitachi Car Engineering Co., Ltd., Hitachi Construction Machinery Co., Ltd., Hitachi Engineering & Services Co., Ltd., Hitachi Industrial Equipment Systems Co., Ltd., Hitachi Plant Technologies, Ltd., Hitachi Transportation Technologies,Ltd., Hitachi Mito Engineering Co., Ltd., Hitachi Via Mechanics, Ltd., Clarion Co., Ltd., Xanavi Informatics Co., Ltd., Hitachi Mobile Co., Ltd., Hitachi Keiyo Engineering&Systems, Ltd., Hitachi Vehicle Energy, Ltd.
Digital Media & Consumer Products	Hitachi Plasma Display, Ltd., Hitachi Advanced Digital, Inc., Hitachi Appliances, Inc., Hitachi LG Data Storage, Inc., Hitachi Lighting, Ltd., Hitachi Maxell, Ltd., Hitachi Media Electronics Co., Ltd., Hitachi Taga Technology, Ltd.
High Functional Materials	Hitachi Cable, Ltd., Hitachi Chemical Co., Ltd., Hitachi Metals, Ltd., Hitachi Metals Techno, Ltd., Hitachi Powdered Metals Co., Ltd., Hitachi Tool Engineering, Ltd., Shin-Kobe Electric Machinery Co., Ltd.
Logistics, Services & Others	Hitachi Transport System, Ltd., Hitachi America, Ltd
Financial Services	Hitachi Capital Corp.

As of March 31, 2008 (53 Group Companies)

On April 1, 2008, Fujitsu-Hitachi Plasma Display, Ltd. changed is corporate name to Hitachi Plasma Display, Ltd.

Reference 2. Major External Awards & Recognitions

The 39th Ichimura Prizes in Industry (The New Technology Development Foundation)
Awarded: April 27, 2007

- Meritorious Achievement Prize: For "Development & production of flash memory embedded microcontrollers and its contributions to the paradigm shift in products manufacturing"
  Recipients: Hitachi, Ltd. and Renesas Technology (Joint award)
- Contribution Prize: For "Research and development of a security system using real-time mass spectrometry, and its practical application"
  Recipient: Hitachi, Ltd.

The 63rd IEEJ Academic Promotion Awards (Institute of Electrical Engineers of Japan)
Awarded: May 25, 2007

- IEEJ Technical Development Award: For "Development and practical application of 70kV class SF6-free gas insulated switchgear"
  Recipients: Hitachi, Ltd., Japan AE Power Systems Corporation, and Nagoya University (Joint award)

2007 IEICE Awards (Institute of Electronics, Information and Communication Engineers)
Awarded: May 25, 2007

- Distinguished Achievement and Contributions Award
  Recipient: Hitachi, Ltd.
- Achievement Award: For "10-Gb/s operation at high temperature in InGaAlAs based light sources for optical fiber communications."
  Recipient: Hitachi, Ltd.

2007 National Commendation for Invention (Japan Institute of Invention and Innovation)
Awarded: June 19, 2007

- The Prize of the Minister of Education, Culture, Sports, Science and Technology: For "Invention of finger vein personal identification technology"
  Recipient: Hitachi, Ltd.
- Invention Practicing Achievement Prize: For "Invention of a processing method for exhaust gases from semiconductor or etching equipment"

The 10th Ozone Layer Protection & Global Warming Prevention Award (Nikkan Kogyo Shimbun, Ltd.)
Awarded: September 6, 2007

- The Excellence Award: For "Development of catalytic PFC cracker"
  Recipient: Hitachi, Ltd.

The 4th Eco-products Awards (The Global Environmental Forum)
Awarded: November 15, 2007

- Minister's Prize, the Ministry of Environment: For "Hybrid carriages for railways"
  Recipients: Hitachi, Ltd. and East Japan Railway Company (Joint award)

The 50th Ten Best New Products Awards (Nikkan Kogyo Shimbun, Ltd.)
Awarded: January 25, 2008

- Nippon Brand Prize: For "Virtual enterprise storage equipment USP V"
  Recipient: Hitachi, Ltd.

The 3rd Excellent ESCO Business (The Energy Conservation Center, Japan)
Awarded: January 30, 2008

- Silver Award: "Optimal steam supply system for steam load-changing retort process by using ESCO business"
  Recipients: Hitachi, Ltd and Nihon Canpack Limited (Joint award)

The 53rd Okochi Memorial Awards (Okochi Memorial Foundation)
Awarded: March 11, 2008

- Okochi Memorial Production Prize: For "Development and commercialization of CD-SEM for measurement of ultra-fine semiconductor patterns"
  Recipients: Hitachi High-Technologies Corporation and Hitachi High-Tech Fielding Corporation (Joint award)

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