

Featured Articles

Changing Nature of IP Management for IT Platform Business

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OVERVIEW: Hitachi's IT platform business has been based on an export business model in which storage equipment was developed in Japan and exported. To support this business, it has pursued an IP strategy involving rigorous patent portfolio management based on patent benchmarking against competing American companies. Subsequently, however, with the ongoing globalization of IT platform research and development, and with Hitachi pursuing its Social Innovation Business globally in the future, the need has arisen to operate the business as "One Hitachi" in a way that transcends departmental and national borders, and to develop new strategies in IP management as well.

INTRODUCTION

THE information technology (IT) platform business, which focuses on servers and storage, started out with an export-based business model of exporting products that were developed in Japan. The subsequent establishment of overseas research and development centers led to an increasing number of products being developed overseas. The business is now part of Hitachi's Social Innovation Business, where it is proceeding with the utilization of such IT technologies as big data analytics.

Along with this shift in business strategy, the intellectual property (IP) strategy has also undergone major changes. This article describes how the IP strategy that supports the export-based business model arose and how it has been implemented, as well as how this IP strategy has changed in tandem with subsequent changes in business strategy.

HISTORY OF IT PLATFORM BUSINESS

Establishment of Export-based Business Model

The starting point for Hitachi's IT platform business was the establishment in 1937 of Totsuka Works for the manufacture of telephones and switching equipment. Kanagawa Works opened in 1962 to manufacture mainframes and, in 1989, together with the Electronic Data Systems Corporation, Hitachi

Data Systems Corporation was established in the USA to provide overseas sales offices for the overseas expansion of the mainframes business. Production of redundant array of inexpensive disks (RAID) storage products commenced in 1995, and Hitachi completed a full buyout of Hitachi Data Systems stock in 1999 to encourage storage sales in North America (see Fig. 1)⁽¹⁾.

With the USA becoming its key market, the storage business succeeded with the export-based business model of exporting products developed in Japan, including reaching fourth place internationally by market share in 2001 (see Fig. 2)⁽²⁾.

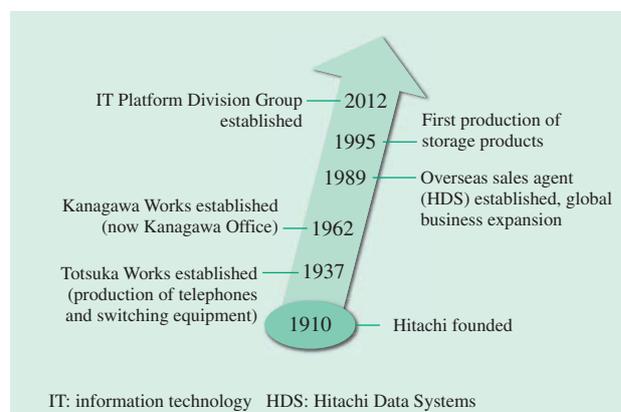


Fig. 1—History of IT Platform Business.

Hitachi's IT platform business started in 1937 with the opening of Totsuka Works. The business now focuses on the sale of storage products.

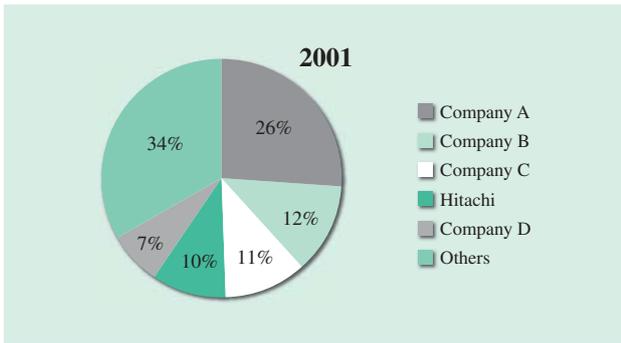


Fig. 2—Market Share of External RAID Vendors (Worldwide). Hitachi expanded its market share, reaching number four in market share in 2001.

Emergence of IP Risk

While Hitachi’s sales grew from 2000 to 2001, sales at the largest company in the storage market fell, shrinking from approximately five times to approximately double Hitachi’s sales, as shown in Fig. 3. However, whereas the number of storage-related US patents filed by this company grew year on year, the number of Hitachi patent filings fell to approximately one-sixth of its competitor’s, creating an imbalance between the two companies’ patent positions in terms of patent quantity (see Fig. 3).

This led the competitor, in 2002, to file a lawsuit with the United States International Trade Commission and U.S. District Court alleging six patent infringements by Hitachi. Although a settlement was ultimately reached, the lawsuit demonstrated the storage business’s exposure to IP risk in the USA and led to a fundamental reappraisal by Hitachi of its IP strategy.

IP Management in Support of Export Business

A special project was launched in 2003 to ensure business continuity by reducing IP risk. Through this special project, business divisions, research laboratories, and the IP department worked together to implement both an aggressive strategy of building up a patent portfolio that could outdo other companies in terms of both quantity and quality, and a defensive strategy of rigorous “patent clearance” (confirming that products do not infringe on other companies’ patents).

The aggressive strategy involved setting a target of 300 patent applications annually in the USA in order to increase the number of US patent registrations relating to storage to 1.5 times the number estimated to be held by Hitachi’s largest competitor in the storage market at that time. It also involved improving patent quality by ranking each application by the quality of the invention and using this as a basis for selecting the countries in which to file patent applications and how to go about acquiring rights.

To acquire a larger number of US patents in a short time, Hitachi also looked at ways of shortening the time taken from filing an application until acquiring the rights.

First, the capability was established to manage each patent application individually and to provide thorough follow-up if a delay arose in the standard process so that the IP department would be able to complete a US patent application within 100 days of receiving the application request.

Then, accelerated examination was adopted for all applications in the USA to shorten the time taken

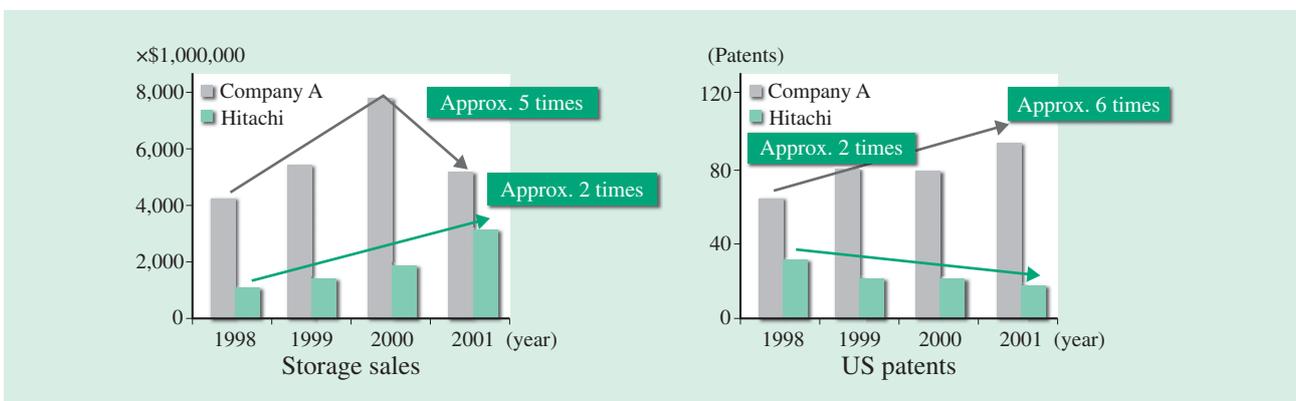


Fig. 3—Comparison of Hitachi and Company A.

Sales by a competitor (“Company A”), which were approximately five times those of Hitachi in 2000, had shrunk to only double Hitachi’s sales in 2001 (see the left-hand graph, based on the company’s annual report). Meanwhile, the number of storage-related US patents held by the company rose from approximately double the number held by Hitachi in 1998 to approximately six times as many in 2001 (see the right-hand graph, based on research by Hitachi using the United States Patent and Trademark Office).

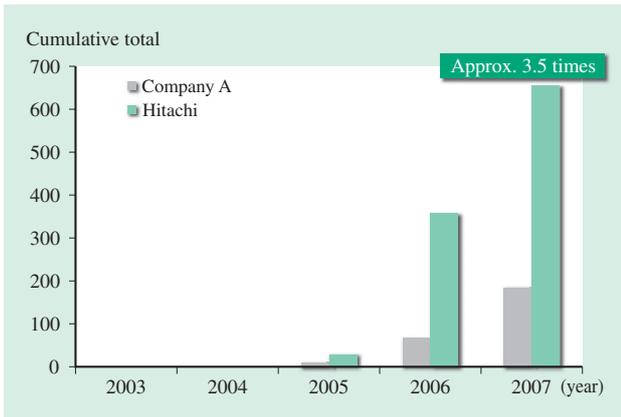


Fig. 4—Trend in Number of US Patent Registrations by Hitachi and Competitor.

Work by a special project succeeded in increasing the number of US patent registrations relating to storage for applications made by Hitachi after 2003 to approximately 3.5 times that of its major competitor (“Company A”) (based on research by Hitachi using the United States Patent and Trademark Office).

from filing an application until acquiring the patent rights. This succeeded in shortening the examination period by one year. The opportunity was also taken to give technical lectures to the US patent examiners who assessed patent applications to ensure that patent examinations would be conducted properly and quickly by improving their technical understanding.

As a result of the special project, the total number of US patent registrations relating to storage reached

approximately 3.5 times that of the competitor company in 2007 (cumulative total filed from 2003 onward) (see Fig. 4).

In this way, the special project conducted patent benchmarking against competitors with regard to storage products, and established an IP management plan that included targets for number of filings and plans for acquiring rights and conducting clearance. This IP management plan is implemented by the business divisions, research laboratories, and IP department in Japan working closely together, and has contributed to the continuity of the storage business.

IT PLATFORM BUSINESS GLOBALIZATION AND IP MANAGEMENT

IT Platform Business Globalization

Around 2007, Hitachi Data Systems began actively seeking to acquire companies to expand its data content services that support the management and storage of data. In 2007, for example, it acquired Archivas, Inc. based in Waltham, Massachusetts to expand its content management services⁽³⁾. In 2011, amid rapid increases in the quantity of data, primarily content data, being handled by companies, it acquired BlueArc Corporation based in the UK to enhance its competitiveness in terms of file storage devices for managing content data⁽⁴⁾. Hitachi also commenced development in the USA of the Hitachi Unified

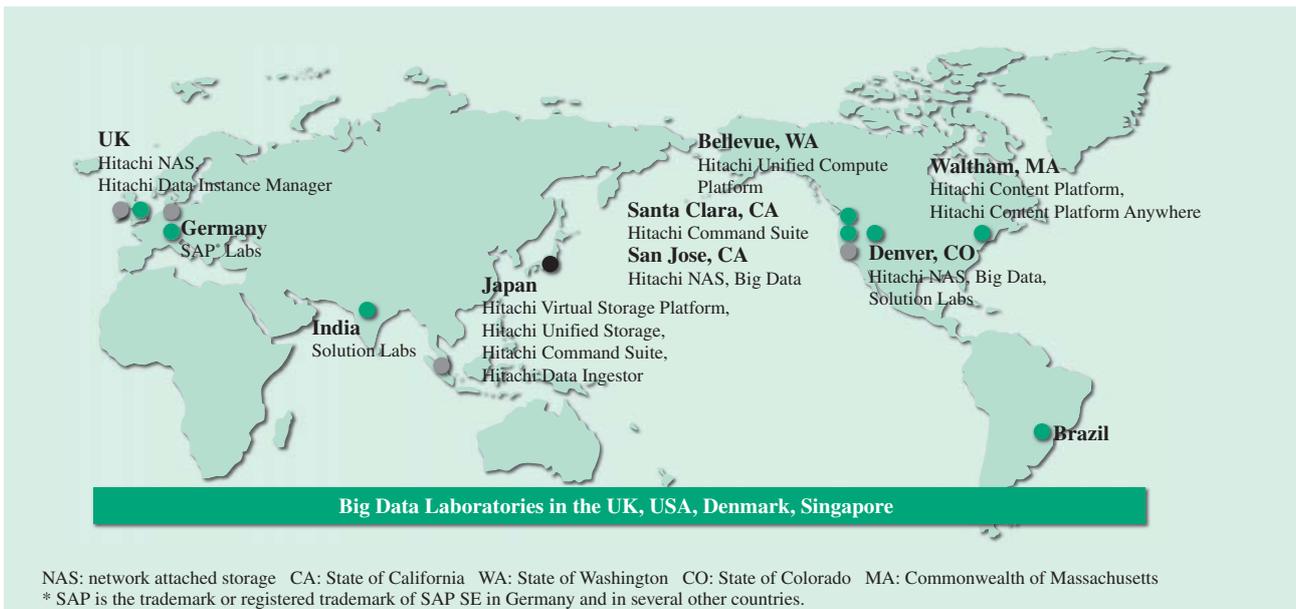


Fig. 5—Global Research and Development Centers and Products Developed at each Center. To support its global business operations, Hitachi has increased the number of its research and development centers outside Japan. The green dots represent development centers and the grey dots represent research centers.

Compute Platform to encourage the use of converged platforms for servers and storage, and established a Big Data Laboratory to serve as a research center in the USA in 2013 (see Fig. 5).

IP Management in Support of Global Business Activity

Hitachi also manages patent portfolios for each product, filing applications with reference to assessments, based on product strategy, of the importance of each of the inventions that result from the research and development conducted at these companies acquired by Hitachi Data Systems or at Big Data Laboratories. For file storage and content management products, for example, Hitachi conducts patent benchmarking against competing products and formulates and implements IP management plans that include targets for number of filings and plans for acquiring rights for each product.

As a result of this IP management performed in the USA and other countries outside Japan, the number of patents for inventions created overseas is rising steadily year-on-year, and the patent portfolios for each of the products handled by Hitachi Data Systems, together with the patent portfolios built up in Japan, support the global deployment of these products. Based on its patent portfolios, Hitachi also publishes

information about patents that cover its products through websites and other media (see Fig. 6)⁽⁵⁾. Hitachi Data Systems also helps promote Hitachi's technical capabilities by including patent information in messages and other external communications.

USE OF IT IN SOCIAL INNOVATION BUSINESS AND ASSOCIATED IP MANAGEMENT

Use of IT in Social Innovation Business

Hitachi currently operates its Social Innovation Business globally, supplying safe and secure social infrastructure that is enhanced by IT. Pursuing this business requires Hitachi to use big data analytics that utilizes IT to solve the problems facing society and its customers.

For example, the shale oil and gas development business needs to reduce its development costs. In response, Hitachi is planning an oil and gas service to support oil field development by collecting information about oil field locations, environmental regulations, and geology in the cloud (infrastructure), performing data searches on the cloud (content), and conducting analyses (information) (see Fig. 7)⁽⁶⁾.

Future IP Management

As Hitachi shifts direction to focus on its Social Innovation Business, which uses IT, IP management faces major challenges.

The first challenge is to have a greater local focus. The Social Innovation Business involves Hitachi undertaking proof of concept (PoC) projects with customers based on an understanding of their problems and collaborating with them on solutions. In light of the fact that PoC projects are undertaken together with customers in different parts of the world, it is important to provide IP support for undertaking collaborative creation with customers as close as possible to the site where the PoC project was conducted. Accordingly, there is a shift away from Japan-focused IP management toward having the sites where collaborative creation takes place take the lead in IP management. In other words, having a greater local focus will be a challenge for the future. In the case of the oil and gas service described above, for example, solution development is largely being undertaken in the USA. Accordingly, Hitachi has adopted an organizational structure in which the US IP office also takes the lead in formulating and implementing IP strategy.

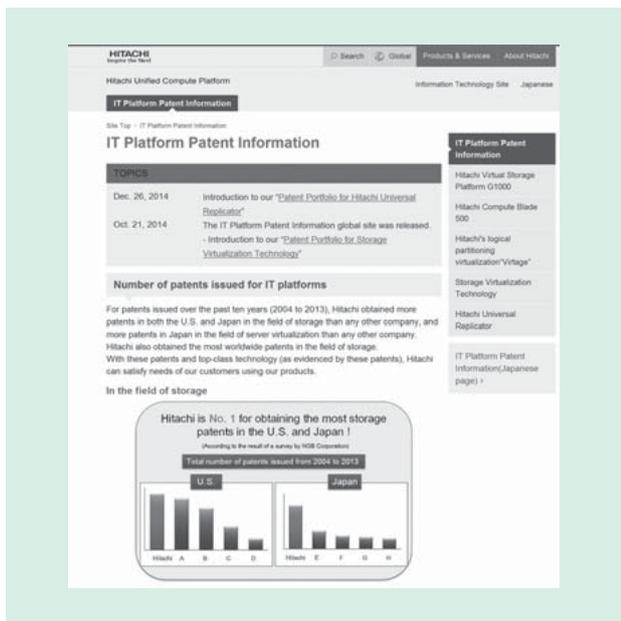


Fig. 6—Patent Web Page for Hitachi's IT Platform Business. The web page presents information about patent topics such as the patents that cover technologies used in products and the size of the patent portfolio for each technology, in Japanese and English.

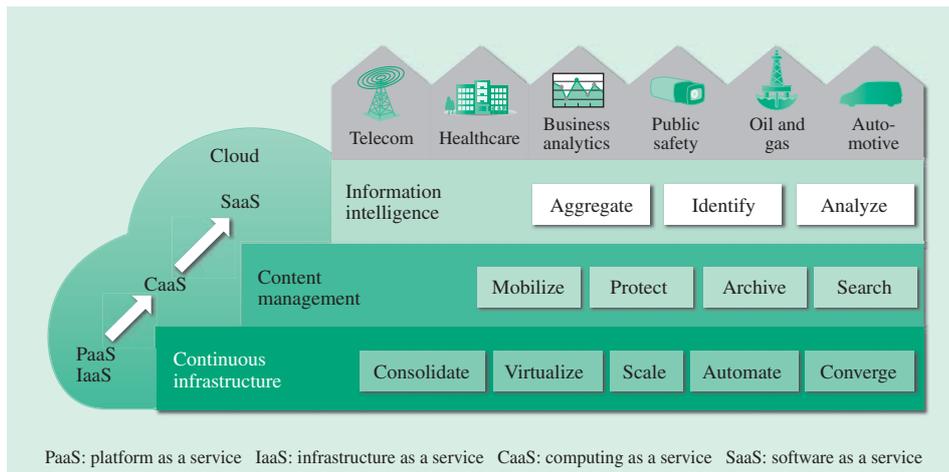


Fig. 7—Use of IT in Social Innovation Business. The utilization of big data analytics through the use of IT is essential to Hitachi's pursuit of its Social Innovation Business.

The second challenge is the need for IP management to transcend departmental and national borders. Looked at in terms of IT, delivering a solution demands that development be undertaken on a “One Hitachi” basis that transcends departmental and national borders, requiring vertically integrated development that combines things like IT infrastructure technologies such as servers and storage, content management technologies such as search and data protection, and information intelligence technologies such as collation and analysis. Accordingly rather than formulating and implementing IP strategies for each product as in the past, it is important to implement IP strategies that promote partnerships with customers and transcend inter-departmental borders between the customer-facing departments and the departments that develop the IT infrastructure and other core technologies, content management technologies, and information intelligence technologies. Because the relevant departments are spread across the USA, Japan, and the rest of the world, there is also a need for a deepening of global IP management that transcends national borders. Accordingly, as a first step in that direction, Hitachi is seeking to share its IP strategies for the IT sector by having Hitachi Data Systems staff attend the IP strategy conferences that in the past have been held by the Information & Telecommunication Systems Company at Hitachi, Ltd.

CONCLUSIONS

In the past, Hitachi's IT platform business has adopted an IP strategy that involves rigorous management of patent portfolios for each product based on patent benchmarking against competitors to support an export-based business model.

Now that the Social Innovation Business is operated globally, however, there is a need to change IP strategy also. In the future, in addition to implementing IP strategies that use IP to encourage partnerships from sites close to the customer in order to support collaborative creation of solutions with customers by customer-facing departments, Hitachi will also promote the sharing of IP strategies between relevant departments to support solution businesses operating as “One Hitachi” that transcend departmental and national borders.

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