

NRI

Value of Japanese Internet Economy

Report

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Executive Summary

The Internet is the fastest-growing Japanese industry and is already larger than the transportation-machinery sector

- The Internet industry (Internet GDP※) has grown to about 20 trillion yen. This is the equivalent of 3.7% of GDP, and is larger than transportation manufacturing (e.g., automobiles and trains), one of Japan's leading industries.

※Internet GDP1 is calculated as the sum of the value of four elements (consumption, investment, government purchases, and net exports) as they relate to the Internet. Consumption expenditures include e-commerce (electronic commerce via the Internet) and Internet connection devices (e.g., PCs, mobile phones); investment expenditures include capital investment by telecommunications infrastructure companies; government expenditures include investment in IT systems by federal and local governments; and net exports include the net of exports and imports of IP communications equipment.

- The Internet industry accounts for a large share of GDP growth. Between 2005 and 2010, the value of real GDP grew 2.9 trillion yen, while the value of Internet GDP rose 4.9 trillion yen. There are no other industries that have the same growth potential as the Internet (all other industries have achieved less than 5% growth, compared with a steady 8% or so for the Internet industry).

- When we estimated the volume of purchases that were affected by information gathered via the Internet -- even when the purchase was made offline at a store -- we found that the Internet was involved in 21.8 trillion yen worth of consumption. That is the equivalent of about 19% of the consumer activity that takes place at brick-and-mortar stores (non-Internet purchases) in the categories covered by the Family Income and Expenditure Survey.

Local economies grow faster when small-and-medium businesses embrace the Internet

- There is a strong correlation between the level of Internet usage and local GDP growth and productivity.
- Small and medium enterprises are the key to Japan fully embracing the Internet -- 99.7% of all companies in Japan are small businesses, employing around 70% of all company employees
- Compared to large corporations, small-to-medium businesses (SMB's) must use resources and money efficiently. By using the Internet, they can realize efficient use of these resources. For example, many SMB's can realize productivity gains by boosting exports through cross-border e-commerce.

- For example: Hyogo Prefecture, in which 41% of businesses have a business, reports an average of 36,019 yen in sales per employee. On the other hand,

only 19% of Oita Prefecture's businesses have a website --and annual sales of just 16,759 yen per employee.

The Internet is accelerating the recovery from the earthquake

- The Internet has played a major role in helping business to recover in the wake of the Great East Japan Earthquake that hit Japan on March 11, 2011. Many companies were able to continue operations by carrying out basic business activities over the Internet, for

example, as a sales channel or even to secure financing. As Japan moves from the recovery phase to one of reconstruction, the Internet is certain to play a major role in this.

The Internet supports Japan's economic growth

- Internet-related services will continue to grow at a fast pace, thanks to robust consumer demand for Internet services, centered mainly on high-speed infrastructure (i.e. the optical fiber and wireless broadband markets), e-commerce and payment via the Internet.
- As a result, we expect the Internet's contribution to the GDP to grow to 25 trillion yen by 2015 (a 5 trillion yen increase compared with 2010).

- Consumer demand for the Internet should remain robust; meeting this demand is a major economic opportunity for Japanese business, and one that hasn't been fully realized. The potential economic effect of company websites alone is about 10 trillion yen for the coming 5 years, and yet only 1 in 4 Japanese businesses has a website.

Introduction

Japan's Internet infrastructure is one of the most advanced in the world. But the majority of businesses in Japan have yet to fully take advantage of this opportunity.

Currently Japan has 80 million broadband users and more than 100 million mobile phone subscribers with 3G or better services. Furthermore, the average Japanese mobile phone has a bigger display and a higher performance processor than other countries, allowing consumers to access to the Internet anywhere and at anytime--much as they would from a PC. Combined with Japan's population is slightly below 130 million, this connectivity has reached a level where it has become so pervasive that it can be considered a "daily necessity"

Japan has established an advanced communication infrastructure. It's ranked No. 1 globally in mobile broadband penetration rate, fixed broadband maximum speed, 3G mobile phone ratio, and optical fiber use ratio. However, Japan lags behind other countries in terms of Internet utilization (intensity of usage), ranking 9th in consumer Internet usage and 8th in corporate Internet usage. The highly advanced communication infrastructure creates the potential for Internet services that could become a driving force for the growth of Japan's information and communications.

A number of studies have examined how the Information Communications Technology (ICT) industry contributes to economic prosperity in Japan, but few studies have focused on the contribution of the Internet industry in Japan. The report sheds light on how the Internet industry has contributed to the Japanese economy so far, and how it may contribute in the future.

Position of Internet industry in Japanese economy

1 Internet GDP

The Internet industry has contributed to the Japanese economy in various forms. Those that have made the most direct contribution to GDP are Internet-related industries and

purchasing activity via the Internet. One can also observe the direct effect of the Internet on the Japanese economy in consumption activity influenced by the Internet (Figure 1.1.1).

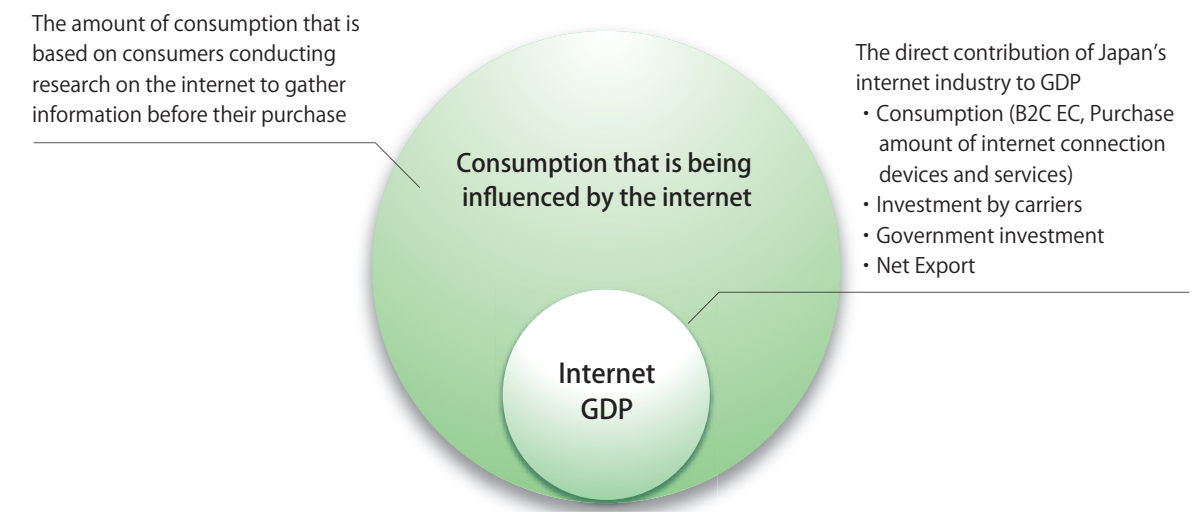


Figure 1.1.1 Broadly defined Internet GDP and narrowly defined Internet GDP

There are a number of studies which have analyzed the economic impact of the Information and Communications Technology (ICT) industry in Japan. ICT is composed of the Internet, as well as non-IP elements (communications, broadband, software development, etc.) This study focuses on the Internet arena only, and defines the Internet industry's direct contribution to GDP as Internet GDP. A standard "expenditure approach" is used to calculate contribution to GDP: it is the sum of the four key elements of expenditures: consumption, investment, government purchases, and net exports. Internet GDP is calculated as the sum of the value of these four elements as they relate to the Internet:

consumption expenditures include e-commerce (electronic commerce via the Internet) and Internet connection devices (e.g., PCs, mobile phones); investment expenditures include capital investment by telecommunications infrastructure companies; government expenditures include investment in IT systems by federal and local governments; and net exports include the net of exports and imports of IP communications equipment. Taking these four activities together, domestic Internet GDP in the narrow sense amounts to around 20 trillion yen, or 3.7% of GDP, making the Internet industry an important part of the economy (Figure 1.1.2).

Looking at GDP contribution by industry, it is clear that the Internet industry is larger than the transportation machinery and equipment manufacturing industry (e.g., automobiles)--

one of Japan's leading industries (Figure 1.1.3)--and an important component of the Japanese economy.

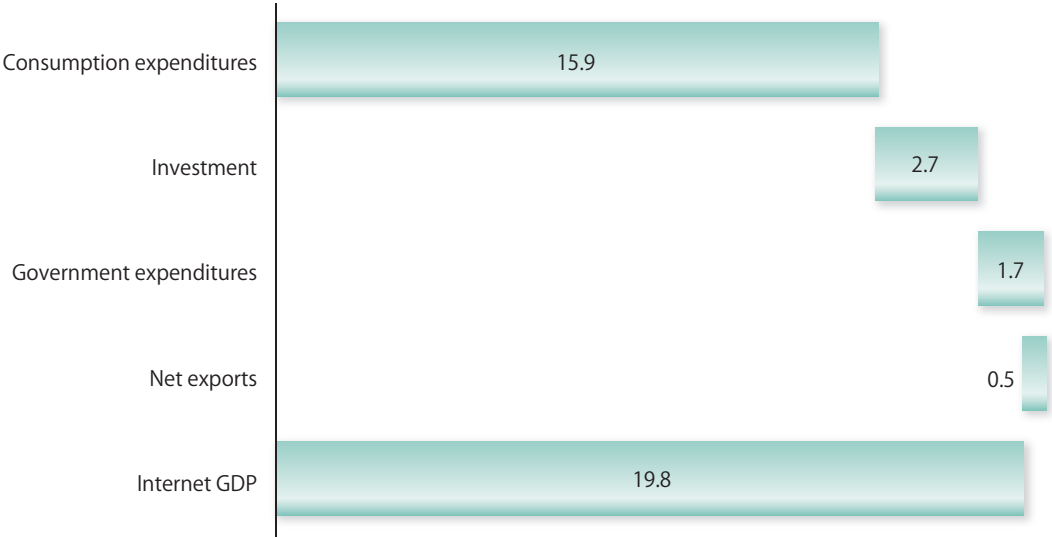


Figure 1.1.2 Results of calculation of Internet GDP (yen trillion)

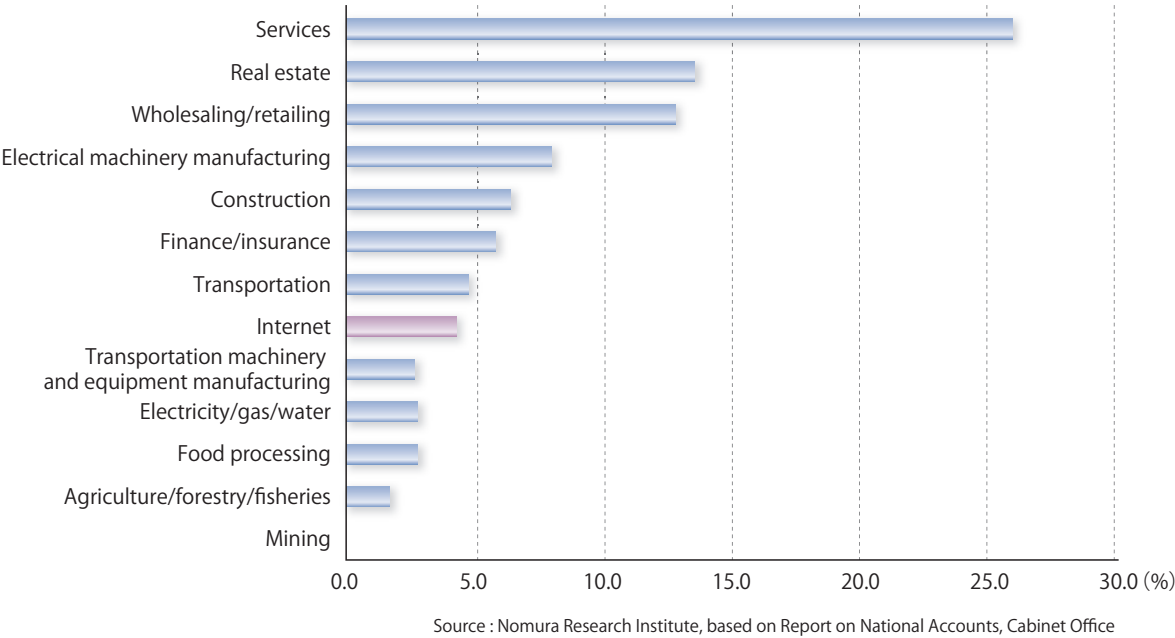
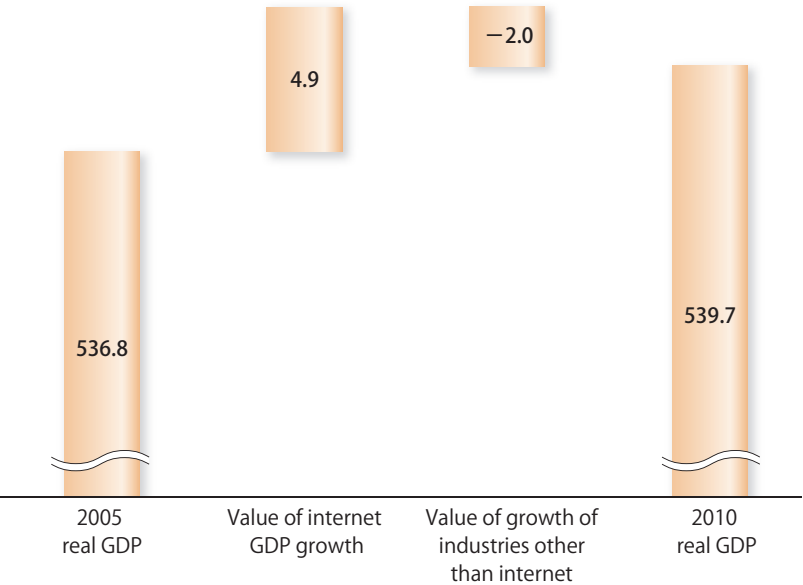


Figure 1.1.3 Comparison of Internet industry with other industries

2 Growth potential of Internet industry

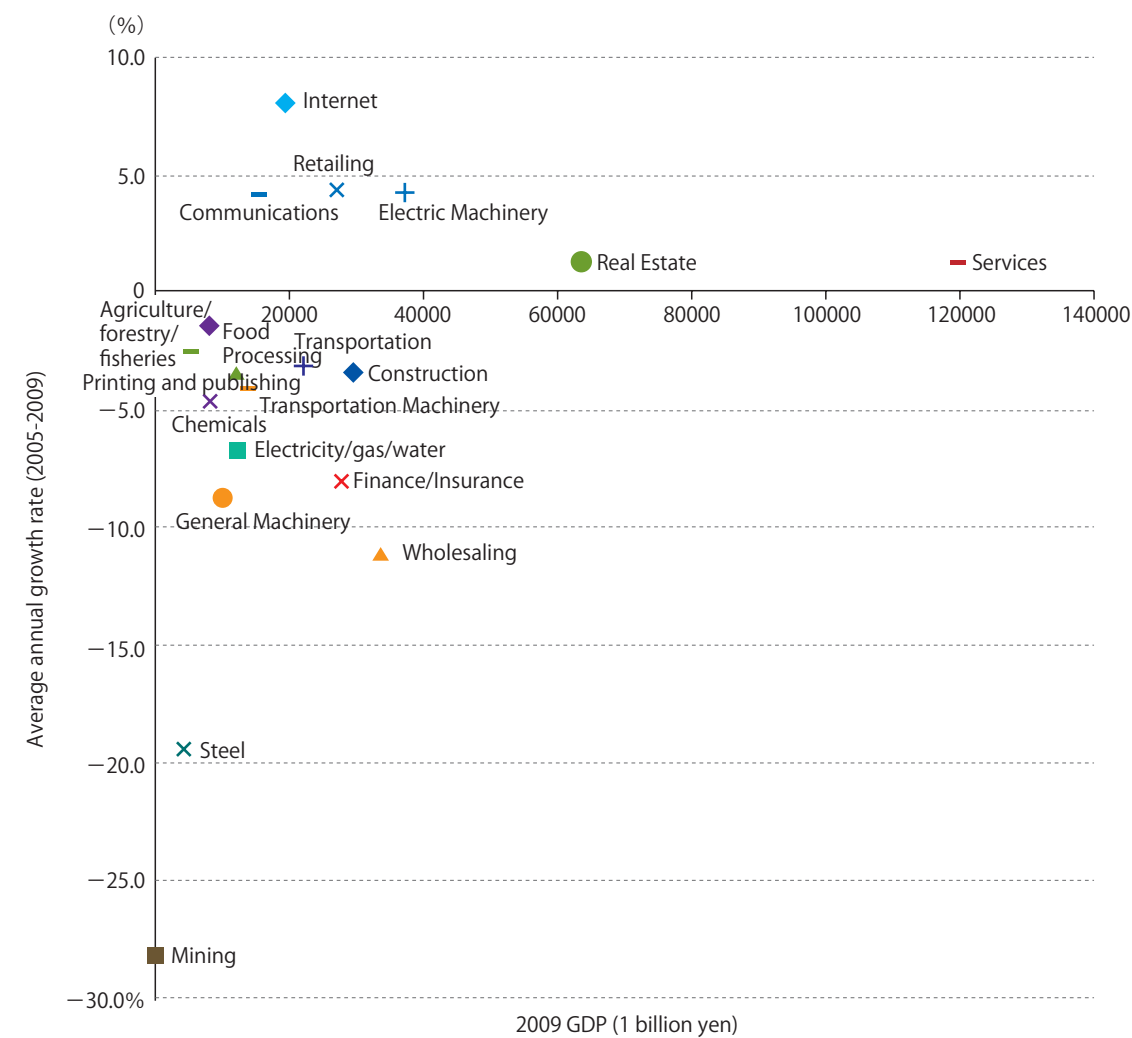
Amid the collapse of the bubble economy at the beginning of the 1990s and the subsequent low growth rates of the so-called "lost two decades," the Internet industry has contributed significantly to GDP growth in the most recent five years (Figure 1.2.1).

The Internet industry grew at a robust average annual rate of 7.9%. No other industry achieved comparable growth (Figure 1.2.2). It is clear that the Internet industry has become a very important contributor to growth in the Japanese economy as well.



Source : Nomura Research Institute, based on Report on National Accounts, Cabinet Office

Figure 1.2.1 Internet GDP as a proportion of real GDP growth



Source : Nomura Research Institute, based on Report on National Accounts, Cabinet Office

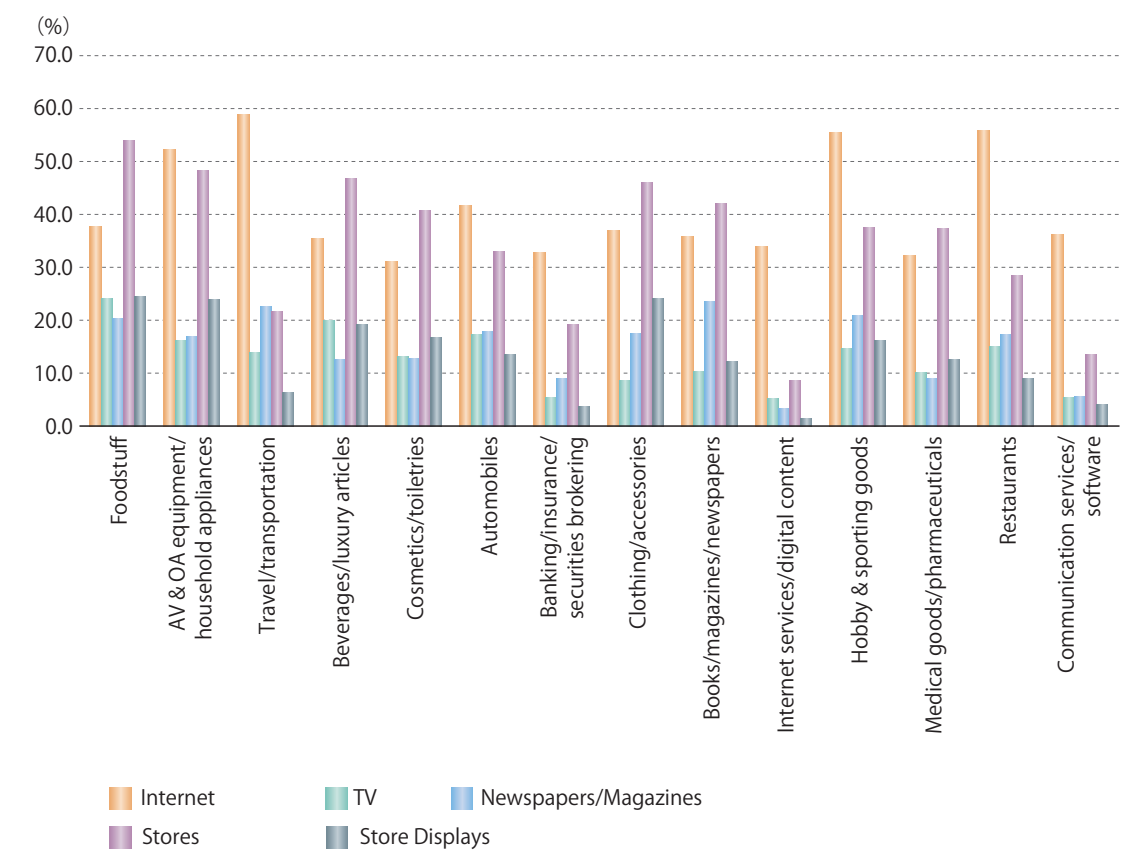
Figure 1.2.2 GDP growth by industry (2005-2009) and 2009 GDP

3 Consumption of Internet Industry

Thus far, we have been looking at the direct contributions made by the Internet industry. However, it also contributes to economic activity in a range of indirect ways. For example, consumers gather information through the Internet, making purchases based on the information they uncover via the web. In measuring the size of online consumer expenditures, we have included only the value of the e-commerce market. However, the Internet and physical retail store sales, restaurant expenditures, etc. are not

mutually exclusive. A portion of these expenditures could also be considered Internet consumption activity in a broader sense.

In fact, consumers frequently use the Internet to do research before shopping at stores and to search for restaurants or make online reservations. When it comes to household appliances, recreational goods, and restaurants, gathering information via the Internet is much more common than actual visits to stores and restaurants (Figure 1.3.1).



Source : IT/communication-related survey (conducted July 2011)

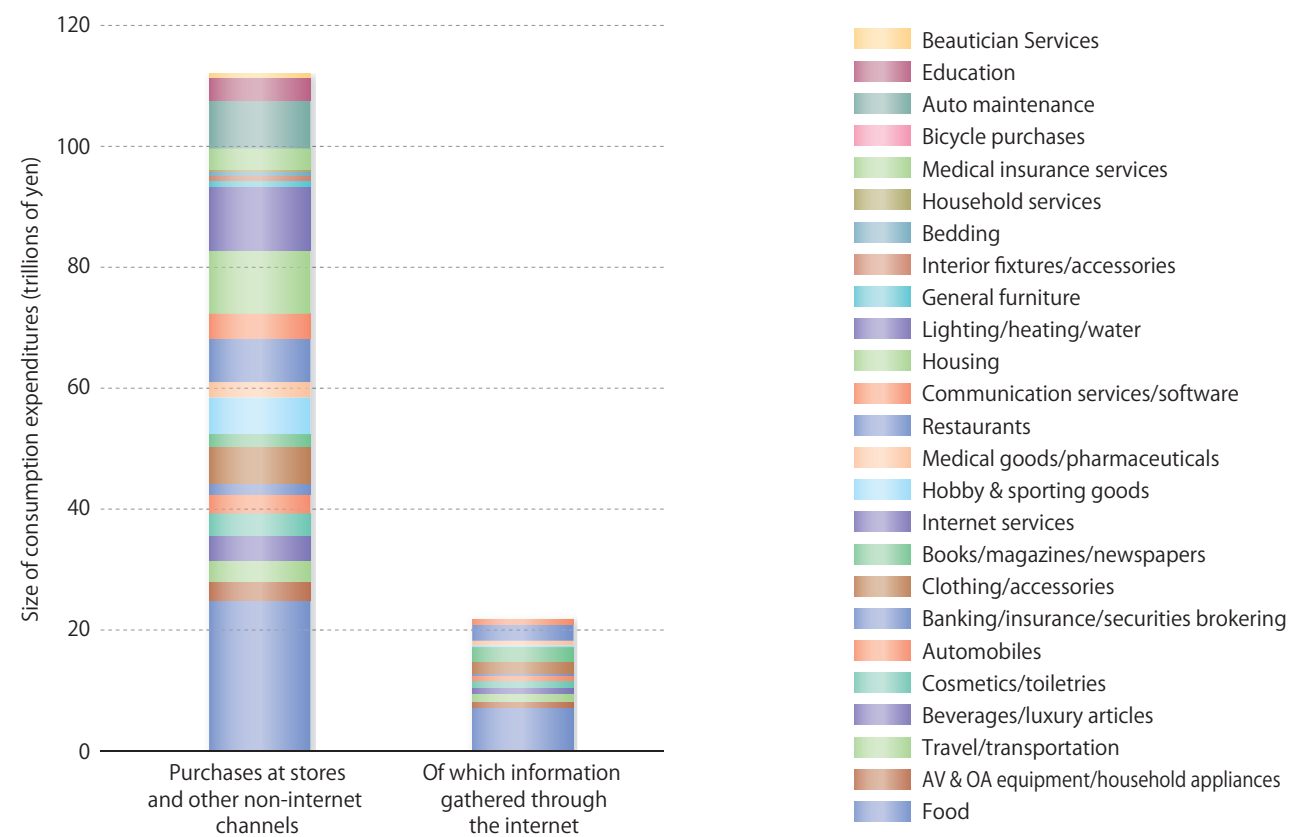
Figure 1.3.1 Information source when shopping at stores

To accurately express the impact of the Internet on economic activity, we also need to include the magnitude of these purchasing activities (Figure 1.3.2).

We estimate the value of the section indicated in Figure 1.3.2 (purchases influenced by the Internet) at 21.8 trillion yen (Figure 1.3.3).

		Main information-gathering media			
		Internet	Magazines/ Newspapers	TV	Stores
Place of Purchase	E-commerce	Coverage of internet GDP			
	Stores	Purchases influenced by internet			
	Other mail-order				

Figure 1.3.2 Overall picture of the internet's impact on consumption



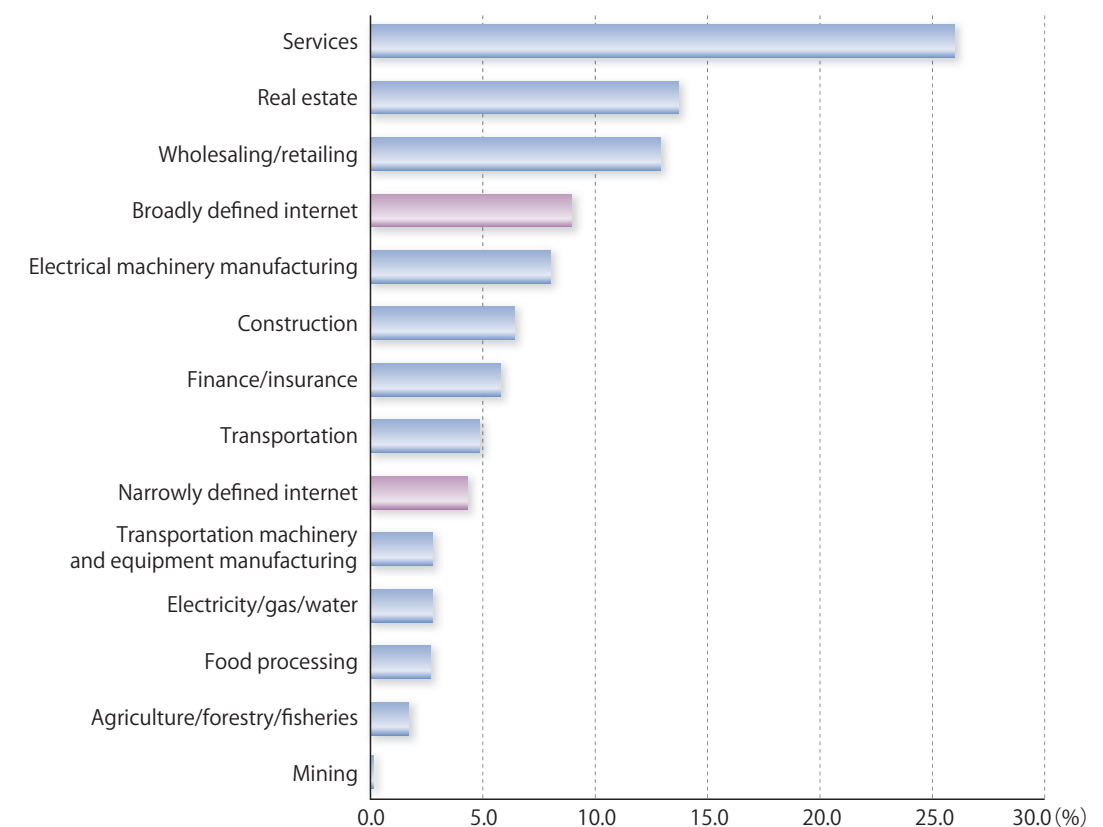
Source : Nomura Research Institute

Figure 1.3.3 Estimate of the size of consumption influenced by the Internet

This figure is equivalent to 19% of total consumer activity that takes place at brick-and-mortar stores (non-Internet purchases) in the categories covered by the Family Income and Expenditure Survey. It is an indication of just how greatly the Internet influences consumer consumption activity. The consumer e-commerce market is worth 7.8 trillion yen, but if we include purchases at physical stores (i.e., purchases other than through the Internet) where information obtained from websites motivated consumers to make their purchase, the market value affected by the Internet is around three times larger. If we take the broader definition of Internet-

related consumer spending and add purchases at physical stores (i.e., purchases other than through the Internet) that are influenced by the Internet to the consumer e-commerce market, the portion of Internet GDP pertaining to consumer expenditures is 29.6 trillion yen.

Based on this, we estimate the size of Internet GDP in the broader sense at 41.6 trillion yen (7.7% of the total GDP), which is larger than the finance/insurance and electrical machinery manufacturing industries (Figure 1.3.4). The size of the Internet market and consumption activity involving the Internet has become very substantial.



Source : Nomura Research Institute, based on Report on National Accounts, Cabinet Office

Figure 1.3.4 Comparison of size of broadly defined internet GDP with other industries

Internet's contribution to Japan's local economies and SMBs

1 Internet's contribution to local economies

Internet usage is closely linked to the health of local economies. For instance, the higher the percentage of companies that have their own website in a prefecture, the higher average sales per employee tends to be (Figure 2.1.1).

In other words, there is a strong correlation between productivity (based on individual company sales) and the degree of Internet usage (website ownership ratio). There

are also strong correlations between a region's e-commerce and GDP growth rates, as well as a given region's e-commerce and per capita GDP growth rates.

Consequently, greater rates use of e-commerce by businesses predicts higher regional GDP and productivity growth. Internet use facilitates productivity improvement and business growth, which in turn leads to growth in the local economy.

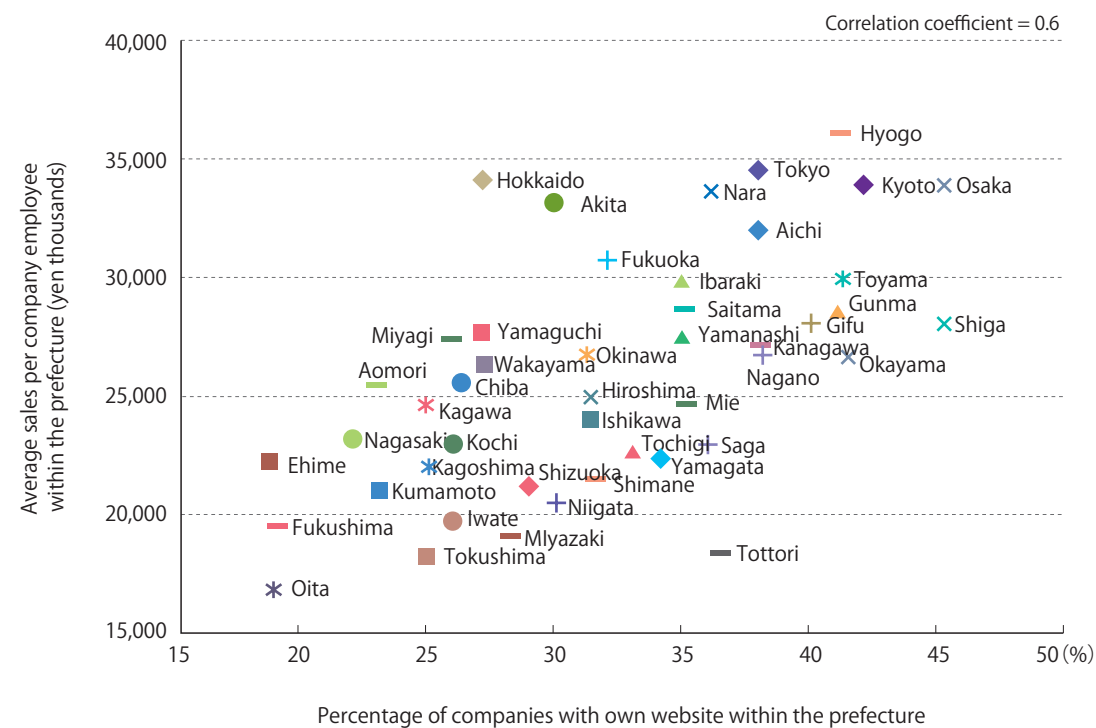
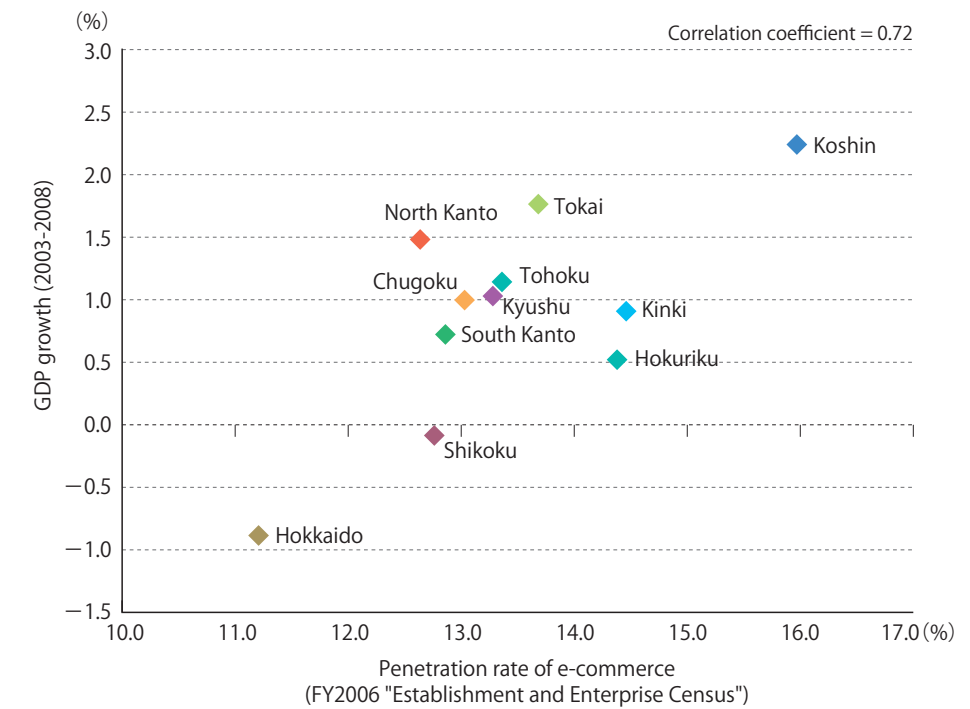
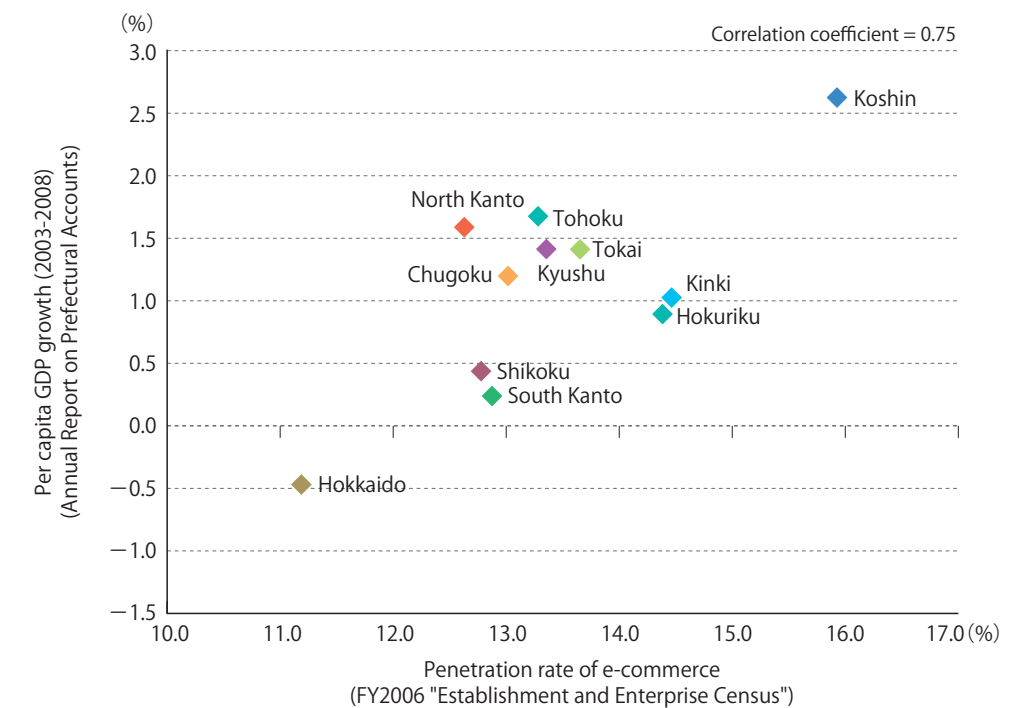


Figure 2.1.1 Percentage of companies with own website by prefecture and average sales per employee



Source : Nomura Research Institute based on Ministry of Internal Affairs and Communications' "Establishment and Enterprise Census" and Cabinet Office's Annual Report on Prefectural Accounts

Figure 2.1.2 Correlation between a region's implementation rate of e-commerce and GDP growth



Source : Nomura Research Institute based on Ministry of Internal Affairs and Communications' "Establishment and Enterprise Census" and Cabinet Office's Annual Report on Prefectural Accounts

Figure 2.1.3 Correlation between a region's implementation rate of e-commerce and per capita GDP growth

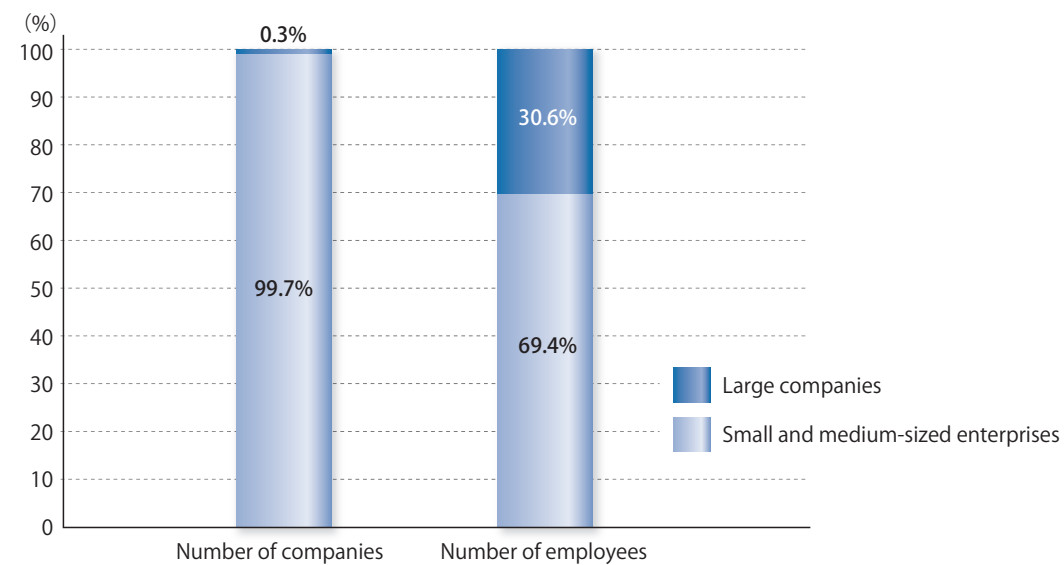
2 Internet's contribution to SMBs

As is widely known, Japanese economic activity is underpinned by small-to-medium size businesses (SMB's). According to a "White Paper on Small and Medium Enterprises in Japan" published by the Small and Medium Enterprise Agency, SMBs account for an exceptionally high 99.7% of all companies in Japan. They also account for roughly 70% of all company employees (Figure 2.2.1).

The definition of SMB varies country by country. In the case of Japan, the most recent data from is 2006 and the definition of a SMB is permanent employees of 300 or fewer (100 or fewer for wholesalers and service providers, 50 or fewer for retailers and restaurants) and capital of 300 million yen or less (100 million yen or less for wholesalers, 50 million yen or less for retailers, restaurants, and service providers). For the U.S., the data are for 2008 and the definition of a SMB is 300 or fewer employees. For Europe, the data are for 2008 and the definition of a SMB is 250 or fewer employees.

SMBs are the backbone of the Japanese economy, but they need to use capital and resources more efficiently than large corporations. Because SMBs cannot invest in large advertising budgets, the Internet and its capacity to inform a broad base of consumers about an unlimited number of products and services at low cost is a particularly powerful tool for marketing and sales. As noted earlier in the section on the Internet's contribution to local economies, there is a strong correlation between possession of a website/use of e-commerce and growth potential/scale of growth.

The results of Internet questionnaires conducted by Nomura Research Institute concerning each of the Internet services for business managers shown in Figure 2.2.3 also indicate that particularly profitable companies use Internet services for expanding sales channels at disproportionately high rates. Usage of services that provide and support a company's own domain and services that set up homepages



Source: Nomura Research Institute based on Ministry of Internal Affairs and Communications' "Establishment and Enterprise Census"

Figure 2.2.1 Proportion of SMBs in Japanese industry (2006)

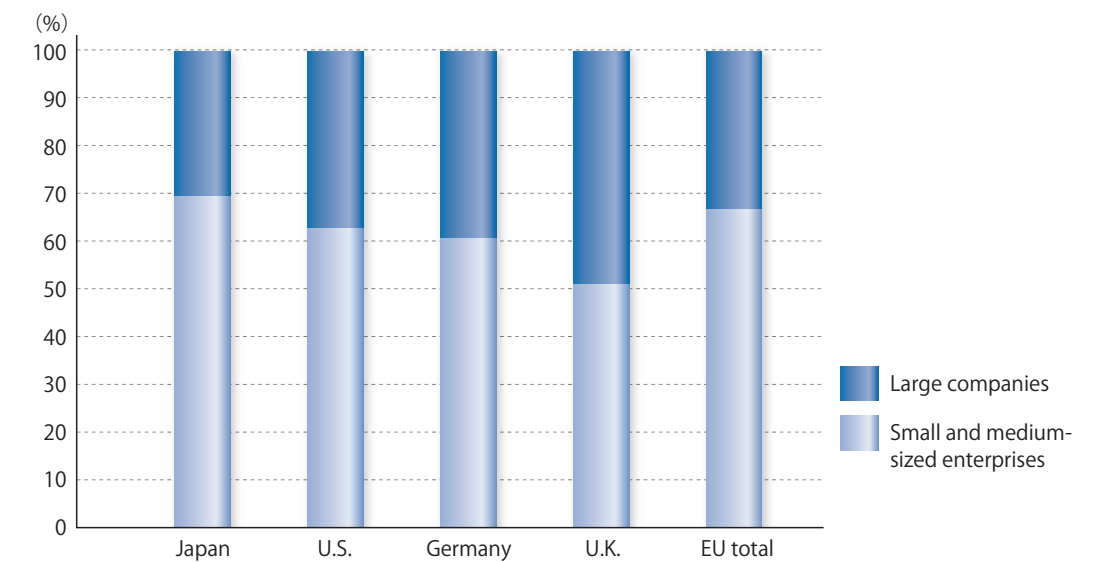
is particularly advanced.

Companies that frequently use the Internet acquire new customers at higher rates as well (Figure 2.2.4). The Internet is indispensable for SMBs to develop sales channels.

The Internet has contributed greatly to the needs of SMBs in ways other than enhancing sales channels. The results of a questionnaire given to managers of Japanese SMBs that

was published in a "White Paper on Small and Medium Enterprises in Japan" showed that securing personnel and raising funds were most often recognized by managers as key issues aside from enlarging sales channels (Figure 2.2.5).

It is also clear with regard to securing personnel, that the higher a company's growth rate, the more it uses various



Source: Nomura Research Institute, based on the following: Japan: Ministry of Internal Affairs and Communications' "Establishment and Enterprise Census"; U.S.: Department of Commerce's "Statistics of U.S. Businesses"; EU: Eurostat's "Structural Business Statistics"※

Figure 2.2.2 Proportion of SMBs in industry by country (on basis of number of employees)

※Time period and definition of SMBs are based on the statistics of each country. In the case of Japan, the data are for 2006 and the definition of a SMB is permanent employees of 300 or fewer (100 or fewer for wholesalers and service providers, 50 or fewer for retailers and restaurants) and capital of 300 million yen or less (100 million yen or less for wholesalers, 50 million yen or less for retailers, restaurants, and service providers). For the U.S., the data are for 2008 and the definition of a SMB is 300 or fewer employees. For Europe, the data are for 2008 and the definition of a SMB is 250 or fewer employees.

Internet services to recruit human resources (Figure 2.2.6).

The results of answers to other questionnaires showed that 60% of users of recruitment services responded that inquiries increased (Figure 2.2.7) and that the Internet is used to hire not only general staff and part-time workers but also to fill positions from division heads to board members. It is clear from these results that the Internet has played a pivotal role in recruiting personnel (Figure 2.2.8).

Recently, various Internet services have also appeared to raise funds. Together with services for recruiting personnel and developing sales channels (Figure 2.2.9), they have been making inroads into traditional methods. The oyster

restoration project we introduce in the next section is a prime example of a new form of fund raising using the Internet.

SMBs, which constitute the the greater part of the Japanese economy, face the same issues as the Japanese economy as a whole. The range of corporate Internet services that contribute to resolving these issues continues to grow along with the evolutionary development of the Internet. The figure 2.2.9 shows how companies have utilized Internet services from the first generation to the third generation.

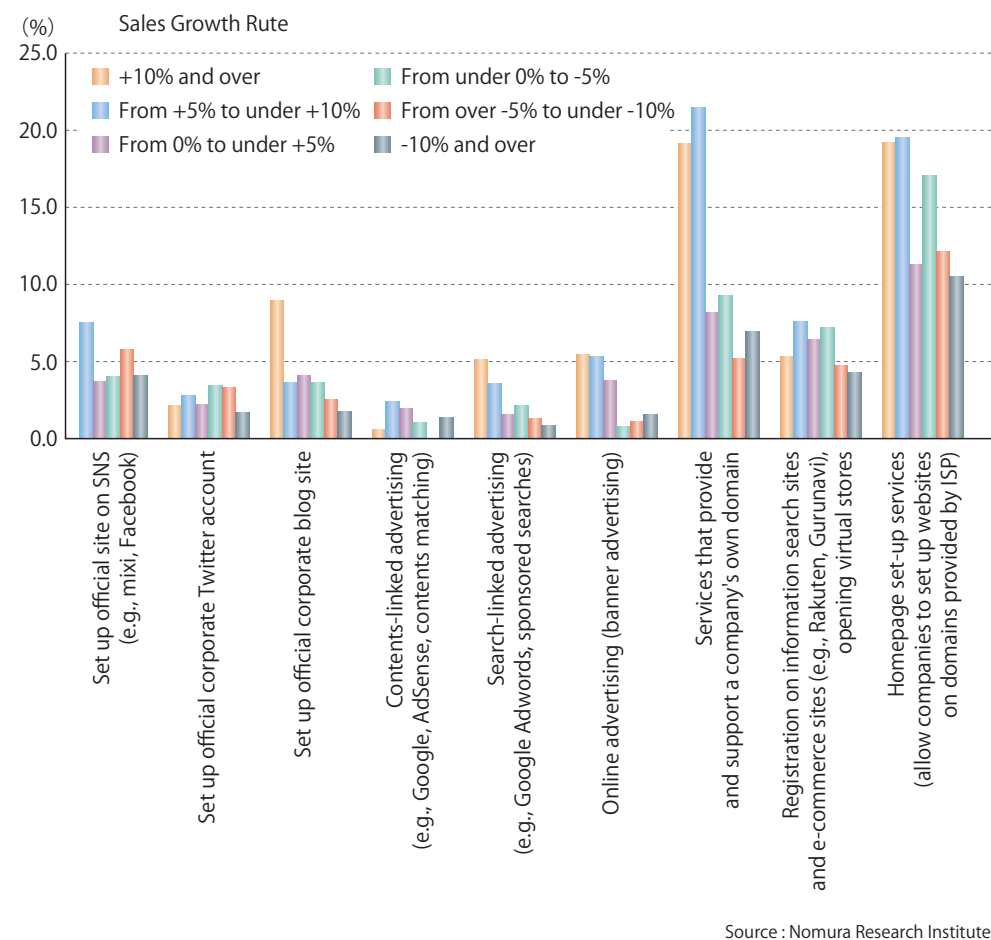


Figure 2.2.3 Usage rates of internet services for expanding sales channels by business results (YoY % change in sales) (n = 3007)

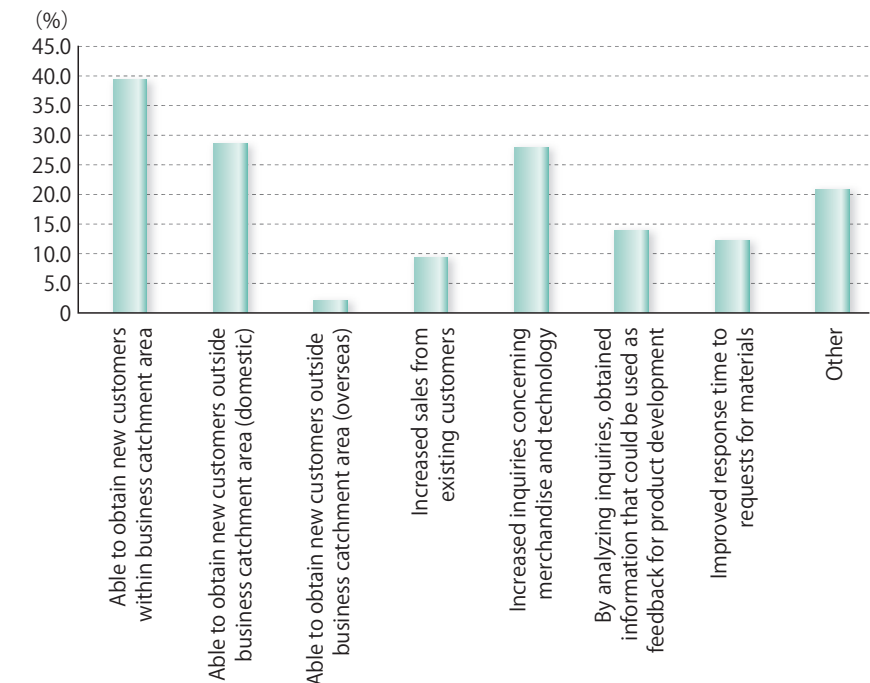


Figure 2.2.4 Effects of internet services for developing sales channels (n = 790)

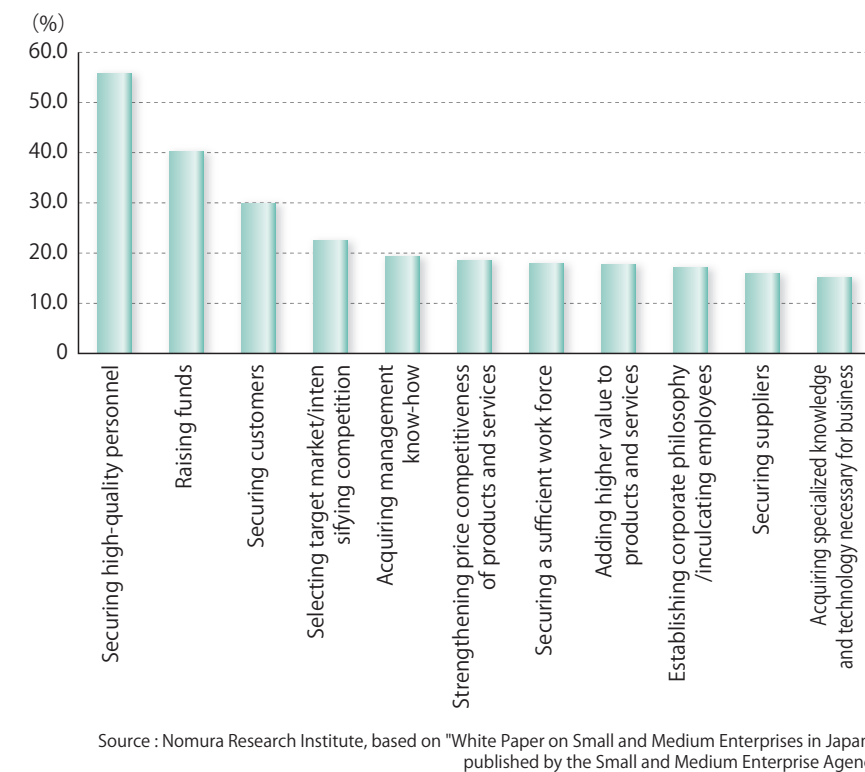


Figure 2.2.5 Post-establishment issues facing managers of small and medium-sized enterprises

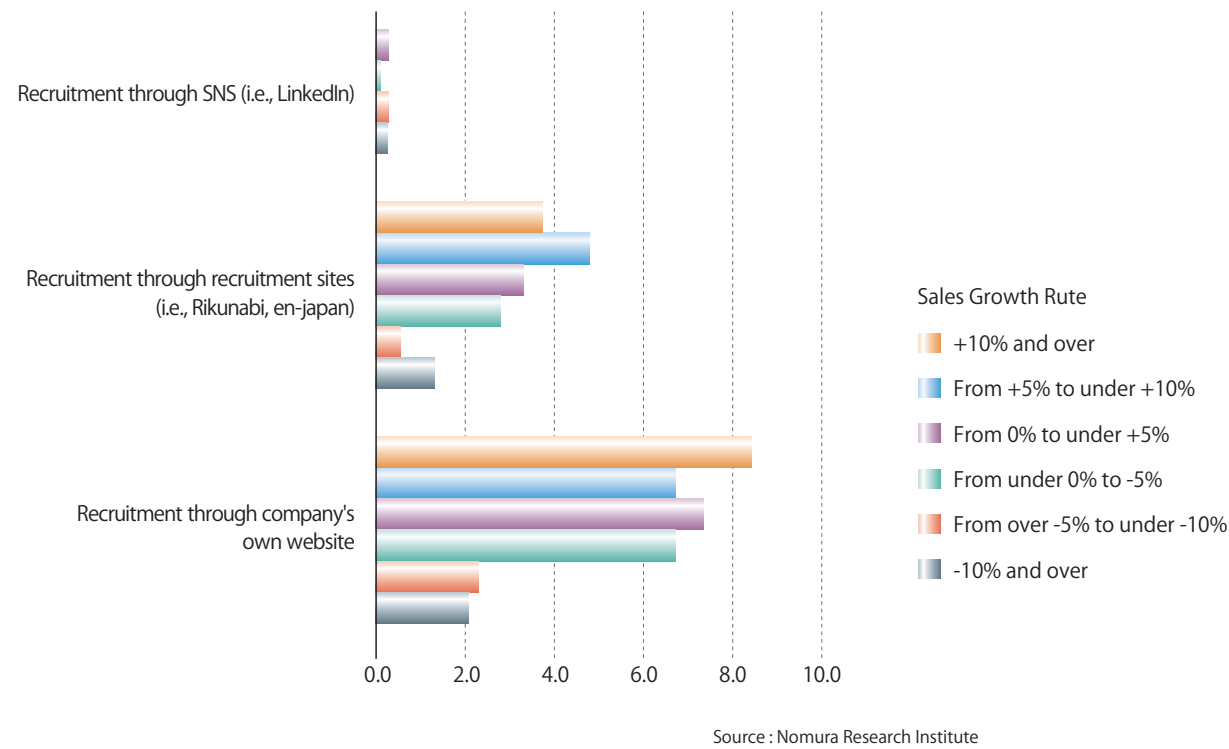


Figure 2.2.6 Usage rates of internet recruiting services by business results (YoY % change in sales) (n = 3007)

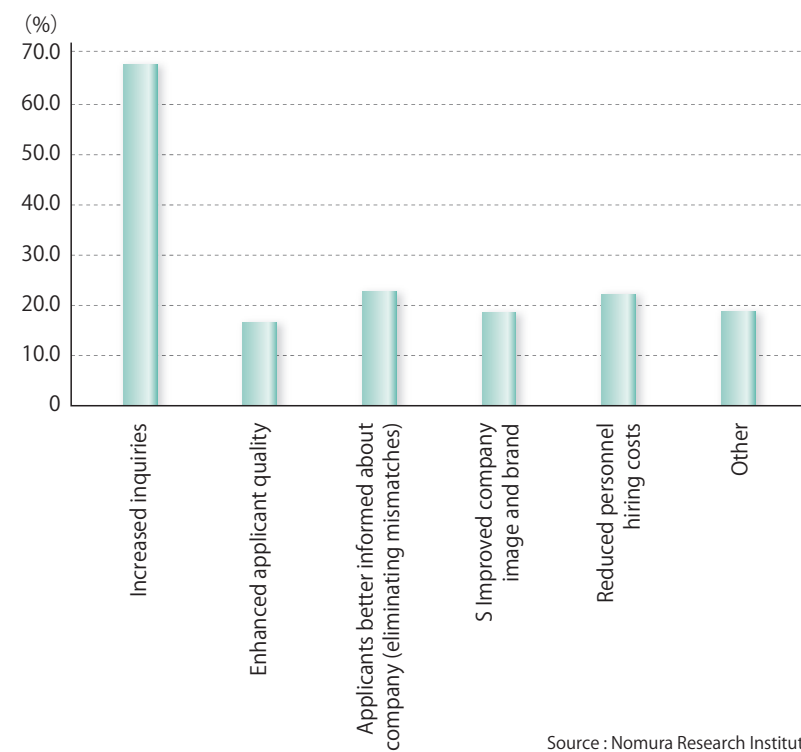


Figure 2.2.7 Results of using internet recruitment services (n = 790)

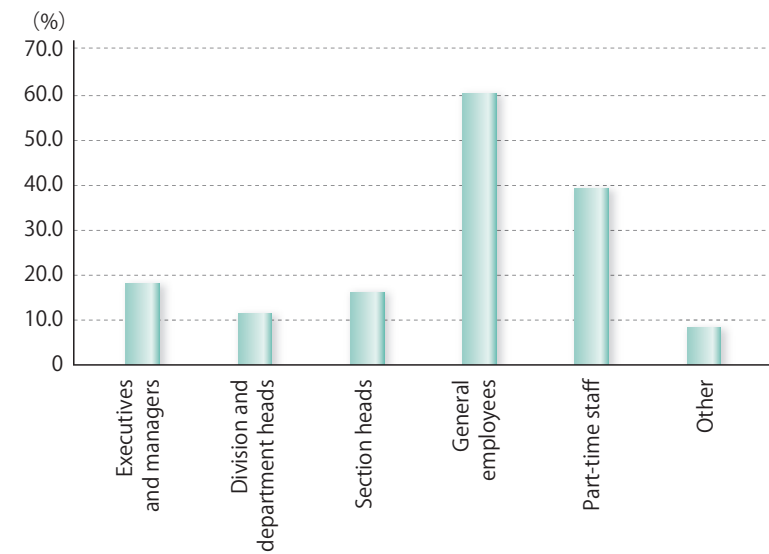


Figure 2.2.8 Personnel hired through internet recruitment services (n = 191)

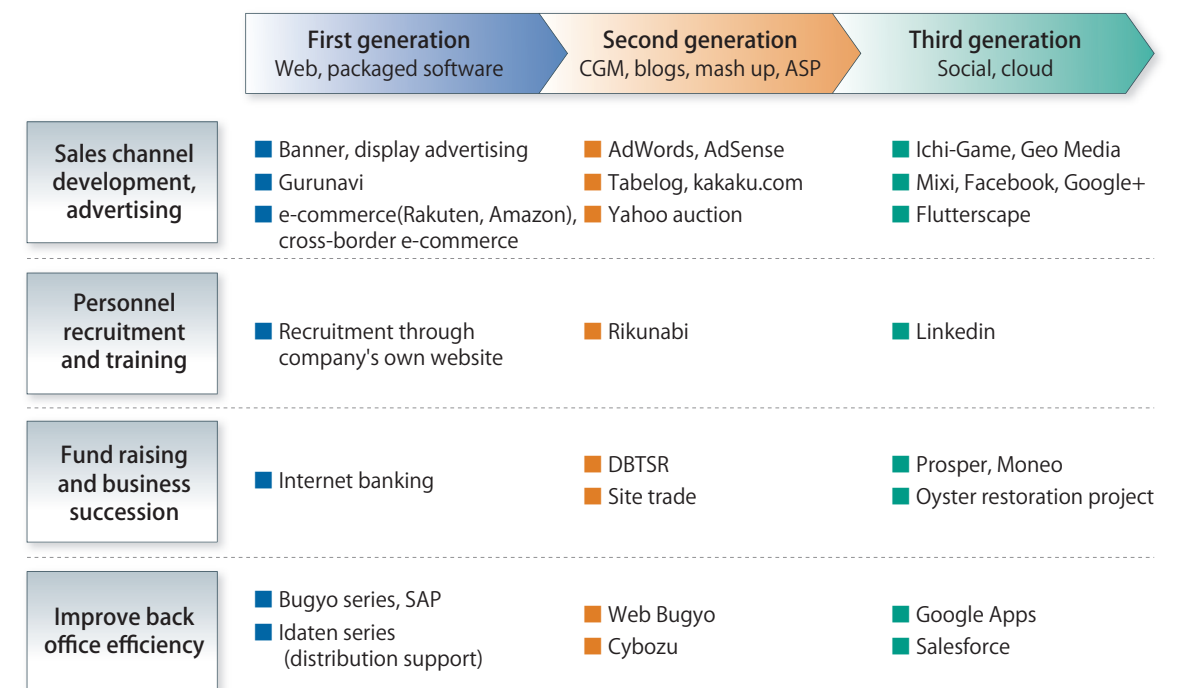


Figure 2.2.9 Evolution of internet services for companies

3 Examples of How SMBs Utilize the Internet

Compared with large businesses, SMBs have tight constraints on resources and funds. They therefore need to utilize those resources efficiently. Our data shows that SMBs achieve most efficient use of these resources by utilizing the Internet. In this section, we will present some specific examples.

● Strapya Next

Strapya Next is a company that designs and sells cellphone straps. It was founded in 1997, and started out as a one-person business. Strapya has increased its revenue sharply since it started selling primarily via the Internet in 2003. Although most of that revenue comes from Japan, Strapya has used the Internet to open online sales channels to sell overseas. By offering goods on its own site and online malls in Europe, the US, China, and Indonesia, the company

has increased its revenue to several hundred million yen annually. The US accounts for the biggest percentage, but sales also extend to various Asian countries, including China, Singapore, Thailand, Malaysia, and Hong Kong.

When selling cellphone straps overseas, Strapya takes advantage of a number of online tools beyond simply offering goods on online malls. For example, Strapya provides information about the cultural phenomenon of attaching accessories to cellphones in Japan. It produces original videos that show staff presenting merchandise, and works to heighten recognition by putting them on YouTube. By spreading information online widely in this way, Strapya has been featured in popular blogs, without doing any “outreach” in particular. It has also created a fan page on Facebook, to which 14,200 fans have signed up. According to Strapya, it also occasionally exhibits at trade shows, but

believes that Internet marketing tactics like the above are more effective.

The ease with which SMBs can spread information and expand sales channels is probably the main form of value the Internet offers them. In addition, if a company builds its own site and communicates information, even to a limited extent, it is more likely to appear in searches and be described on other sites; this viral effect is how Strapya Next has succeeded. Such initiatives can serve as a model for other Japanese SMBs.

● Mizuho Brush

Mizuho Brush, founded in the 1970s, manufactures and sells brushes for make-up, watercolor painting, and other purposes using traditional craftsmanship. Until 2000, it manufactured brushes to order, mainly as an OEM, but in 2003, it started retail and Internet sales. Since then, its

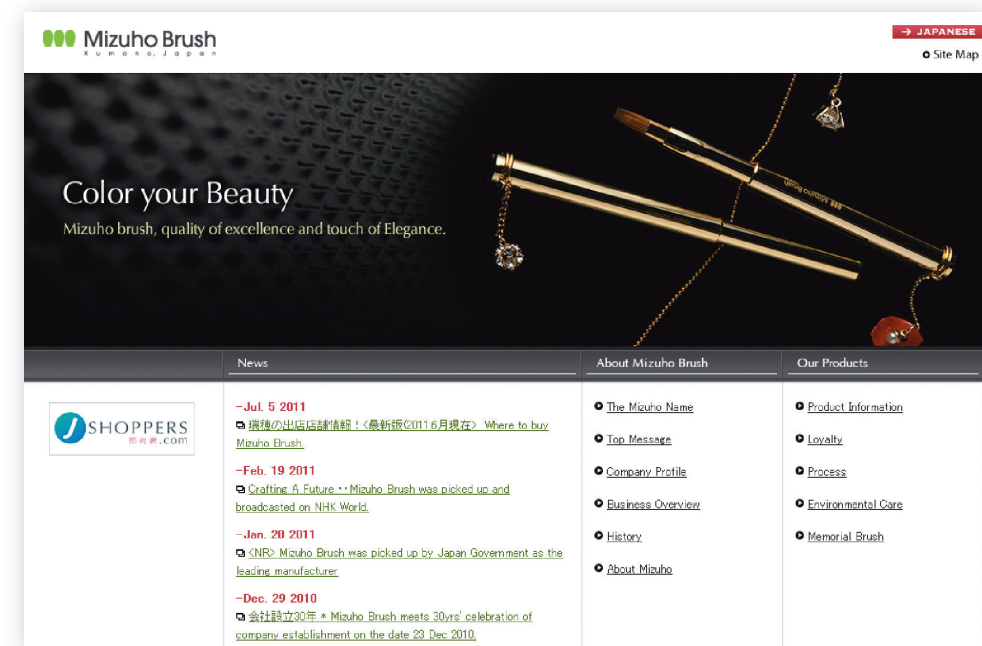
revenue has grown steadily; beginning in 2008, it sold overseas as well, through online mall Jshoppers, targeting the overseas market. In fiscal 2010, overseas sales accounted for 5% of revenue, but the percentage is growing year by year, and the company expects online overseas sales growth to continue.

Mizuho Brush wants to communicate the nature and quality of its products to its customers. For example, to communicate how its products “feel good to the touch,” the company focuses on videos on its own site. It also utilizes its Facebook page and Twitter, to grow via word-of-mouth. Because the main customers of Mizuho Brush products are women who are sensitive regarding make-up as well as professional make-up artists, the company hopes that such people will serve as influencers, and utilizes the Internet to further this end.



Source : <http://www.strapya-world.com/>

Figure 2.3.1 Strapya Next



Source : <http://www.mizuho-brush.com/english/index.html>

Figure 2.3.2 Mizuho Brush

How the Internet was utilized in post-quake recovery

During the East Japan Earthquake on March 11, 2011, the Internet played a key role in economic activities.

The quake adversely affected businesses in various ways. On the Sanriku coast, the tsunami destroyed physical business infrastructure, including ports, seafood cultivation, and seafood processing plants. In nearby areas, physical damage was slight, but many businesses had their sales and other economic activities affected by harmful rumors and by reluctance to buy. Businesses with sluggish sales needed to let people know they would continue business as usual, via services such as Google's Business Finder.

For example, to overcome the mood of voluntary-restraint that spread immediately after the quake, the managing director of Iwate sake brewery Nanbu Bijin ran a highly influential "Don't hold back (no more voluntary-restraints)" campaign on the Internet.

In coastal areas physically damaged by the tsunami, some businesses solicited funds for rebuilding essential facilities via the Internet in the form of part-ownership

systems. One such effort was the Oyster Recovery Project. In Ofunato, which was severely damaged by the tsunami, the fish market had not been restored even a month after the quake, so even if fishermen could go to sea, they couldn't sell their catch. There were cases such as "Sanriku Fresh Fish Market," where fishermen showed live video from their boats via the Internet, and sold their catch online. In this section, we present examples of how the Internet was used in post-quake recovery.

● Hanasake Nippon

According to the Iwate Sake Breweries' Association, among Iwate's 23 sake breweries, three on the coast were totally destroyed. Others had to halt production due to blackouts. Nanbu Bijin, which is located some distance inland, was able to maintain production, albeit on a smaller scale than normal, despite some disruption.

Usually, March and April are months of high sake consumption, due to welcome and farewell parties and

cherry blossom viewing. Immediately after the quake in March, there was great concern about food and water shortages, leading to panic buying at supermarkets and other stores. While food and water shelves were emptied, many alcoholic beverages, including sake, stayed on the shelves. Half the shipping destinations for Nanbu Bijin are outside Iwate, but due to a mood of voluntary-restraint throughout Japan, as people thought "This is no time to be drinking," the company's March shipments were 40% lower than in the previous year.

Says Managing Director Kuji: "When I visited coastal areas to provide support, and talked to people in the sake industry there, I realized that "If people impose voluntary-

restraints, that won't do the quake-hit areas any good." When I tweeted "Please support the people affected by having a drink," it spread on Twitter very fast, and created a big effect, with celebrities, including manga artist Rieko Saibara, declaring in blogs that they would "only drink Tohoku sake." I also banded together with other sake brewers, uploading a 2-minute video entitled "Iwate Asks People to Hold Cherry Blossom Parties." This was covered widely in the media, especially on TV, and the video was watched hundreds of thousands of times. Consequently, there were lots of inquiries through e-mail and Facebook about where to buy and drink Tohoku sake. As a result, Nanbu Bijin's April revenue recovered: not a single Tohoku



Figure 3.1.1 Hanasake Nippon

Announcing the Sanriku Oyster Recovery Support Project!

Aiming to make the sea full of tasty oysters again in Sanriku, a world-leading oyster cultivation area



iLINK Inc. President: Hiroaki Saito
Grand Oystermeister Japan Oyster Association
Manager, Kakiya; Fresh oysters delivered to your door
(Left in photo; On the right is a Sendai oyster producer)

"Oyster Recovery" Part-Owners Wanted

One 10,000 yen share = About 20 Sanriku oysters after recovery
If you love oysters, please help

Details & how to apply

Source : <http://sanriku-oysters.com/>

Figure 3.1.2 Oyster Recovery Project

sake brewery closed down due to the quake, all thanks to one short Tweet on the Internet

According to Kuji, “The publicity wasn’t deliberate, but one outcome was that people who didn’t drink much sake before started to do so. Tohoku sake tastes so good that people may become fans just by giving it a try.” Kuji’s message encouraging people to eat Tohoku’s food and drink its sake comforted many people who felt frustrated because they wanted to “do something for Tohoku, but couldn’t find a way of doing something.” Information transmitted by the Internet can spread quickly to reach people that couldn’t be reached before. For Tohoku’s sake, use of the Internet, where information spread easily even during the difficult conditions following the quake, enabled these businesses not only to overcome their immediate challenges, but also to gain new fans, at little cost and in little time, with real-time results.

● Oyster Recovery Project

The coast of Miyagi and Iwate Prefectures, where damage due to the East Japan Earthquake was severe, is a leading area for seafood production in Japan. Among the diverse range of Sanriku seafood, oysters are especially famous. In addition to selling mature oysters, Sanriku ships seed oysters for cultivation to fisheries throughout Japan and even worldwide. When oysters faced extinction in France, Sanriku seed oysters were used to save the industries. When the quake struck, seed oysters were scheduled for shipping to France again. The quake devastated the Sanriku coast and its oyster farms. Supplies, nets, processing sheds and dormitories were totally destroyed.

Hiroaki Saito, President of iLINK, originally sold oysters via the Internet. The blow to a key oyster area has cut off his business lifeline. The area needed to recover quickly. As a solution, Saito thought of part-ownership, which has been introduced in some oyster fisheries. Buying a share in an

oyster fishery is a form of investment, enabling the purchaser to receive oysters every year. Saito wondered if this system could be introduced over a wide range. When he mentioned the idea to an acquaintance who had experienced the Hanshin-Awaji Earthquake, his friend urged him to begin right away. On March 26, about two weeks after the East Japan Earthquake, the Oyster Recovery Project began as a, a part-ownership system.

The Oyster Recovery Project invites part-owners to invest 10,000 yen per share, and will provide oysters when the fishery has recovered. The funds raised will be used to replace essential supplies such as ropes and build new sheds. This project, which started about two weeks after the quake, raised 200 million yen by August 2011.

iLINK was originally a small, relatively-unknown business in Sendai. Even when it started the project, it had limited means of promotion. So President Saito acted himself to take advantage of the Internet to spread information easily and at low-cost. He used various media, including e-mail, to send out a press release himself. Others used the press release as the basis for articles in various online media. Subsequently, news of the project quickly spread online, among Internet users via Twitter and other social networks. Finally, newspapers and TV stations picked up the information was picked up by newspaper, reaching mainstream audiences around the country. What began as small-scale publicity using the Internet ultimately became major news that moved people to action. iLINK and Sanriku oyster fishermen, ordinarily obscure, were able to utilize several key functions of the Internet.

Raising funds is always an important issue for SMBs, who can use the Internet to raise funds in new ways. The more fund-raising methods can be diversified, the more likely it is to find a match between the business and the actual providers of funds. The Oyster Recovery Project exemplifies this.

● Sanriku Fresh Fish Market (“Sanriku Toretate Shijo”)

In fact, there are various other examples of SMBs who’ve turned to the Internet to raise capital.

President Yagi of Sanriku Fresh Fish Market, is currently in an office converted from a warehouse, on a hill overlooking the port of Sanriku-cho. He sends out pictures of Sanriku-cho on the Internet in real time while receiving orders for seafood. His original office was swept away by the tsunami in the East Japan Earthquake, and the current office is also in a location that was submerged by the tsunami. However, he uses his humble as a base for restoring Sanriku-cho’s fishing industry, and the company also aims to achieve recovery based on a new business: selling other traditional foods from Sanriku online.

For a decade, Yagi has worked to energize the fishing industry, using the Internet, in Sanriku-cho Port in Ofunato, Iwate. His core business is the online sale of seafood from Sanriku-cho. Yagi considers the Internet to be a medium that can convey not just information, but also people’s emotions and personalities. For example, when fishing boats leave the harbor, they take a camera and send the pictures to Ustream, to show the world what they’re doing. One of these is live video of fishing and of salmon swimming upstream. The live videos enable customers online to see that Sanriku-cho seafood is not merely merchandise, but has a story that includes nature and fishermen. This enables customers, vendors, and producers to connect closely with each other. For example, there is growth in orders for “seafood selections” for 10,000 yen, rather than just for “items” like five oysters and three sauries. The Market already has over 10,000 regular customers, with a very high repeat rate of 85%.

During the East Japan Earthquake, the connection with those customers saved the Sanriku Fresh Fish Market. Customers themselves were worried about the Market and

Sanriku-cho, and made contact, Yagi says the Internet served as a safety net for economic activities. During the first month after the quake, fishing restarted, and video was streamed live on the Internet. The first catch sold out online in an hour. Yagi also organizes the “Bring Work to Sanriku!” Project, where women in Sanriku-cho make accessories from leftover nets and sell them. This project, too, with its videos and other information on the Internet, originated from a comment from a customer asking, “What happened to Mrs. XX, who used to work by the harbor?” Sanriku-cho is currently working to restore its fishery, but progress can’t be made very fast. It was therefore important to provide work for women in the port. Sharing the problem on the Internet led to a business selling micangas. Already, 200 women have gained work in this way.

Yagi thinks it is necessary to further boost work that connects the Internet and the fishing industry. Even without the East Japan Earthquake, Japan’s fishing industry was troubled. The trend had been one of decline, and Yagi thinks the quake accelerated that. However, during his decade of activities linking the Internet and the fishing industry, Yagi has actually observed that the Internet has the power to connect customers and producers and to create empathy. Fishing villages have an abundant natural environment and distinctive cultures. Yagi believes that the fishing industry, where dramatic events are part of daily life, provides ideal content for the Internet. From now on, he would like to create ways of selling seafood via the Internet as a cultural and culinary experience, rather than just as goods. If the fishing industry can connect with customers through the Internet and through fishing culture itself, rather than just through seafood, fishermen will gain new forms of added value and new economic activities will arise.

The future of the Internet industry and how it will further contribute to the Japanese economy

1 Promotion of Internet use expected to drive Internet industry growth

The Internet industry has grown rapidly and become a major industry. In this section we set out the future direction of the Internet industry (Internet GDP) and discuss the growth potential of Internet GDP.

According to a Ministry of Internal Affairs and Communications' "International Comparative Survey on ICT Infrastructure," Japan is ranked top in many indicators of communication infrastructure and usage among the 25 countries that participated in the survey (Figure 4.1.1).

Japan has established an advanced communication infrastructure and is ranked No. 1 in the world in mobile

broadband penetration rate, fixed broadband maximum speed, 3G mobile phone ratio, and optical fiber use ratio. However, Japan lags behind other countries in terms of Internet utilization, ranking 9th in consumer Internet usage rate and 8th in corporate Internet usage rate.

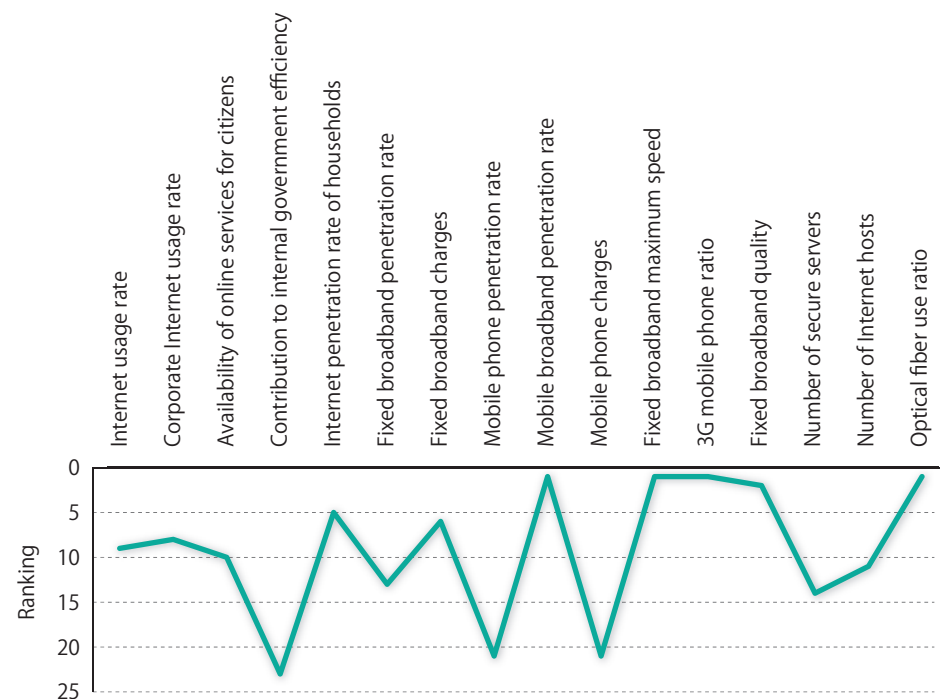
Japan's existing ICT infrastructure gives everyone access to the world's fastest and most affordable broadband services. The number of subscribers to the Fiber-To-The-Home (FTTH) optical fiber network connection service reached 20,236,000 as of the end of March 2011. Approximately 41% of all households have access to high-

speed Internet through the optical fiber network. This is up 2.3% from the previous quarter already a high rate of growth. The number of subscribers has increased in recent years as providers have strengthened sales promotion by appealing to customers both on price and range of service offerings, including payments, 3D and HD video contents, and so-called quattro-play integrated services that bundle fiber optic high-speed Internet connectivity, IP telephony, IP TV, and public wireless LAN with a mobile Internet connection.

Japan is a global leader in infrastructure. This is the result of a number of factors, including aggressive investment in ICT by telecommunications carriers and other companies, inexpensive Internet connection charges as a result of competition between companies, enhanced backbone lines and the high quality of service this enables, and

uninterrupted advances in technological innovation. As the sustained growth in the number of subscribers to the various services indicates, this development should continue.

According to market forecasts based on the results of market surveys conducted by Nomura Research Institute on broadband-related services, the high growth in Internet-related services will continue to be driven by robust consumer and corporate demand for high-speed infrastructure (optical fiber and wireless broadband markets) and Internet services such as consumer e-commerce. And as Internet usage advances, consumer demand for infrastructure is expected to increase, further driving an already world-class infrastructure. This virtuous cycle is expected to continue in the coming years and be the main engine of growth in Japan's Internet industry.(Figure 4.1.2)



Source : Ministry of Internal Affairs and Communications' "International Comparative Survey on ICT Infrastructure"

Figure 4.1.1 Japan's ranking among 25 countries surveyed on indicators of communications infrastructure and usage

(Units: 100 million yen)

Market and area		FY2010	FY2011	FY2015	CAGR (%) ^{※1}
B2C net business market	B2C EC (e-commerce for consumers)	73,123	82,815	118,006	10.0%
	Internet auctions	9,221	9,717	11,699	4.9%
	Music distribution ^{※2}	3,186	3,614	5,174	10.2%
	Mobile contents ^{※2}	5,885	6,162	6,729	3.4%
	Pay VOD (video on demand) ^{※2}	647	746	1,182	16.3%
B2B net business market	Data centers, SaaS/ASP markets	16,960	19,490	28,390	10.9%
Fixed broadband infrastructure market	Broadband lines	17,585	18,630	21,192	3.8%
	(of which optical fiber)	11,671	13,089	16,466	7.1%
Mobile infrastructure market	Mobile carriers (mobile phone business revenue)	70,841	72,820	85,377	3.8%
	Wireless broadband	2,384	2,863	4,230	12.2%

※1 : CAGR (Compounded Annual Growth Rate) expresses annual average growth for each market in the five-year period FY2010-FY2015.

※2 : The markets for music distribution, mobile contents (e.g., music, games, video, books), and pay VOD each have some overlap.

Source : Nomura Research Institute, based on "IT Market Navigator 2011"

Figure 4.1.2 Projected growth of Internet-related service markets

Currently, fixed broadband, mobile infrastructure, and B2C EC (e-commerce for consumers) account for nearly 80% of the total market. We expect the market as a whole to grow at a high rate in the future, even as the proportion accounted for by fixed and mobile infrastructure declines. We also expect high growth to continue for the advanced infrastructure of optical fiber and wireless broadband. In short, greater use of a wide variety of Internet services together with advancements in and diversification of infrastructure will gradually shift the growth driver from infrastructure to services.

● B2C net business market

The B2C net business market for PCs and mobile phones has been growing steadily and we expect this trend to continue overall. We forecast the net business market as a

whole will expand from 10 trillion yen in FY2010 to 15 trillion yen in FY2015, an increase of around 50%.

The main growth driver will be the e-commerce market for consumers. Consumer e-commerce can now be seen across all generations between 10 and 69 years of age. It is a commonplace daily activity. Consumer e-commerce accounts for the largest share of the net business market and is projected to reach 12 trillion yen in FY2014. Mobile consumer e-commerce (i.e., for mobile phones) is expected to lead market growth in the next five-year period, with its share of the total consumer e-commerce market rising from 17.5% (FY 2010) to over 20% (FY 2015) and its market value topping 2.5 trillion yen (Figure 4.1.3).

● B2B net business market

The data center market has grown on the back not only of

huge growth in data communications volumes but also rising corporate interest in business continuity and compliance. Data centers are already being used for Business Continuity Planning (BCP) and more recently have been attracting renewed attention as cloud computing service providers.

In addition, there is a need for the construction of speedy and flexible information systems as the environment surrounding user companies becomes more severe. As a result, user companies are switching from owning information systems to using them. Amid this trend, SaaS/ASP providers are being viewed favorably by user companies for their ability to quickly build information systems and at lower cost than the proprietary systems they once developed themselves. The combined market for data centers and SaaS/ASP is projected to grow from 1.696 trillion yen in

FY2010 to 2.839 trillion yen in FY2015.

● Fixed broadband infrastructure market

The fixed broadband infrastructure market is expected to continue to grow with the steady increase in subscribers to optical fiber lines. By the end of FY2015, the number of subscribers to all broadband lines is projected to reach 36.67 million and the value of this market 2.1192 trillion yen (of which optical fiber will account for 26.69 million subscribers and 1.6466 trillion yen of the market) (Figure 4.1.4).

● Mobile infrastructure market

The number of mobile phone subscriptions is projected to rise from 117 million in FY2010 to 134 million in FY2005 (Figure 4.1.5). Several factors are expected to support this

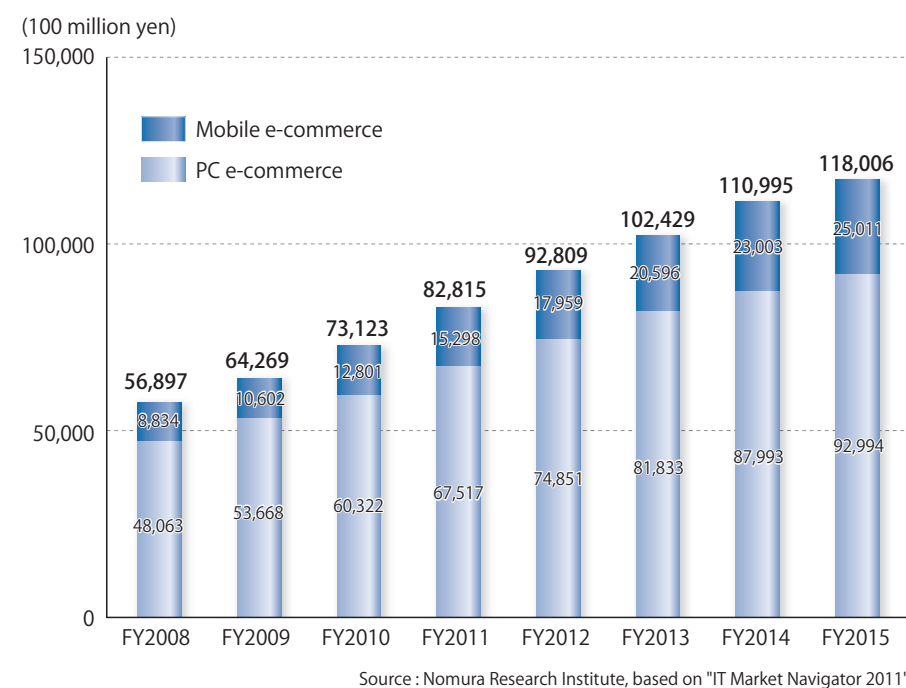


Figure 4.1.3 Projected growth of B2C EC market

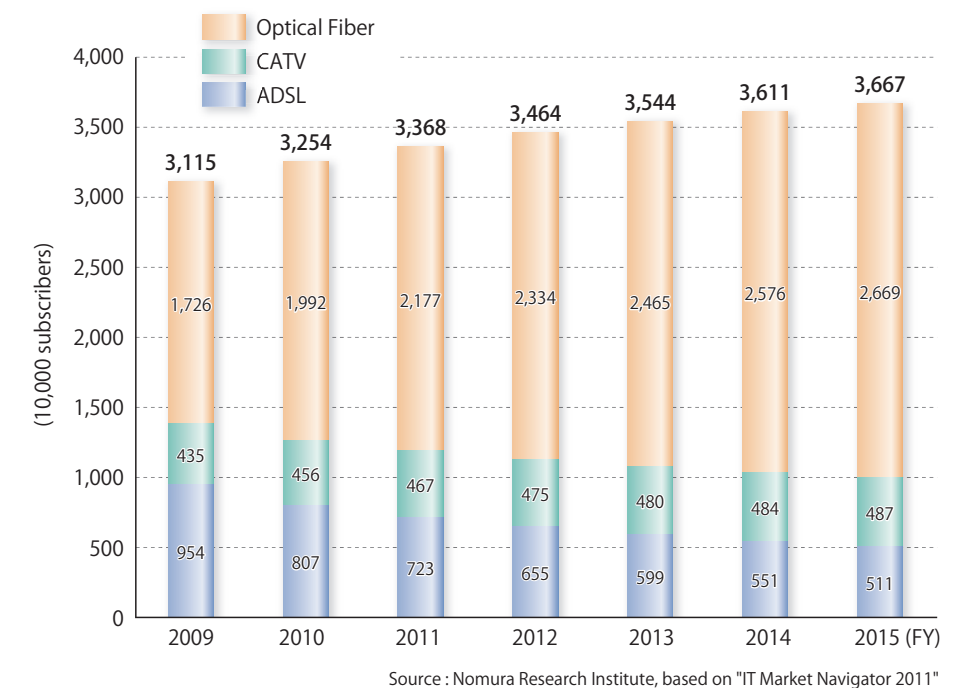


Figure 4.1.4 Projected change in broadband line subscriptions by type of line

growth, including new subscribers from young age groups and a rising ownership ratio among senior citizens, an increase in multiple phone ownership by individuals, rising corporate subscriptions, and increasing data communication plans. Moreover, we believe that a rise in data communications accompanying the spread of smartphones will underpin a recovery in ARPU (average revenue per user). And the growing use of mobile handsets that can display video and other rich content is expected to spur the spread of WiMAX, HSPA, and other higher speed services and the introduction of new wireless technologies such as 3.9G LTE (Long Term Evolution). As a result, mobile service providers' revenues are projected to reach 8.5 trillion yen by

FY2015.

ICT infrastructure is set to expand further and become more technologically advanced. Advancements in ICT infrastructure have given rise to new businesses and markets such as cloud computing services (encourages Internet use), which in turn have led to further upgrades in infrastructure. The upshot of this expansion of the Internet industry should be increased consumer spending on the Internet, mainly telecommunications fees and e-commerce, and increased business investment. As a result, Internet GDP promises to grow to 25 trillion yen by 2015 (a 5 trillion yen increase compared with 2010).

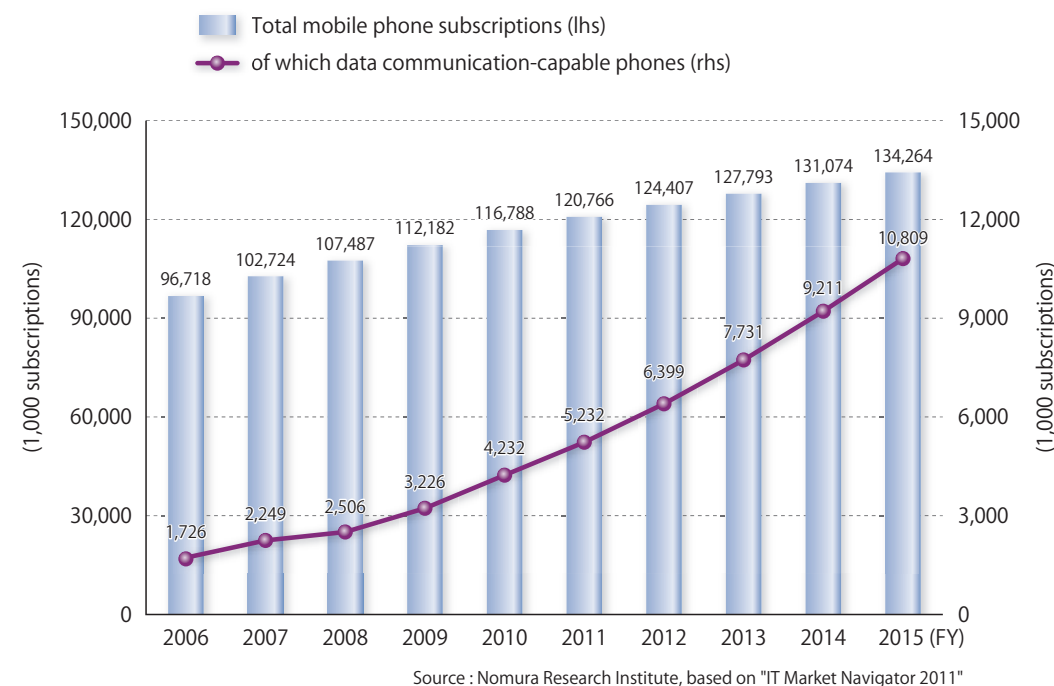


Figure 4.1.5 Projected growth of mobile phone subscriptions

2 The economic effects of Internet industry expansion

As we have noted, consumer demand in the Internet industry should remain robust. To meet this demand, companies need to embrace the advantages offered by the Internet. In this section, we estimate the impact on the economy of increased Internet use by companies (particularly in the form of possessing a website). To calculate the economic effects, including Internet GDP and peripheral areas, we adopted an approach that estimates the economic impact of increases in value-added at SMBs rather than an expenditure-based method.

Having a website is one of the most basic ways in which a company can use the Internet. As shown in Figure 4.2.1, the productivity of companies that have websites is around 1.4x greater (on a sales basis) than companies that do not have websites (Figure 4.2.1).

Furthermore, the number of registered co.jp domains,

which companies predominantly use, increased sharply from the latter half of the 1990s through the 2000s. In the last decade registrations continuously grew at a rate of 4.5% a year, and this trend looks set to continue (Figure 4.2.2).

Accordingly, we expect Internet (website) usage to increase in the future, boosting the productivity of SMBs in particular. Assuming domain registrations continue to grow at the same pace over the next five years, an additional 8% of companies will have homepages in the co.jp domain alone. Because a high proportion of large companies already have their own homepage, we expect most of the new websites to be created by SMBs. Although SME's share of GDP is unclear, their contribution to value-added is 52-54% according to the trend in share of value-added by company size shown in Figure 4.2.3. We can presume their share of GDP is similar.

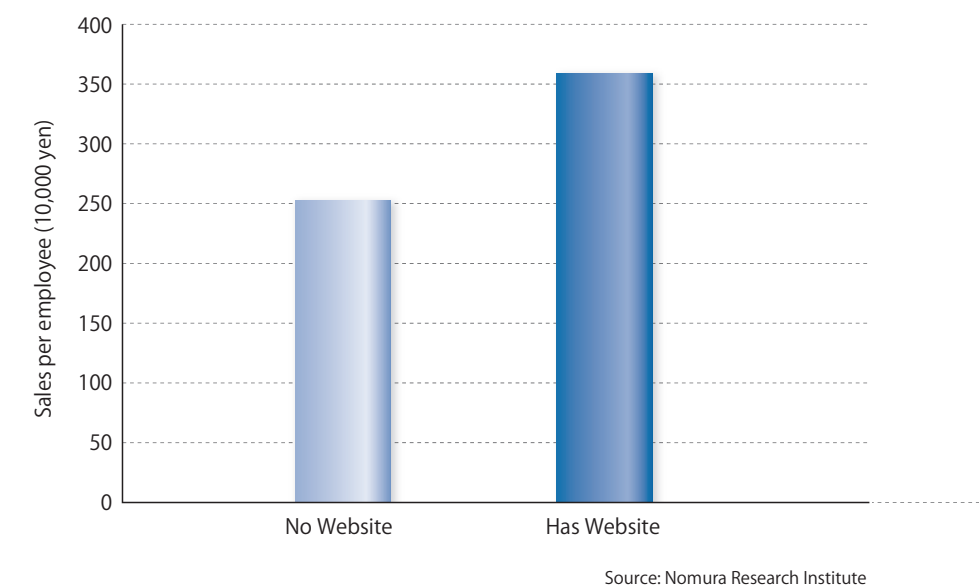


Figure 4.2.1 Relationship between sales per employee and having/not having a website

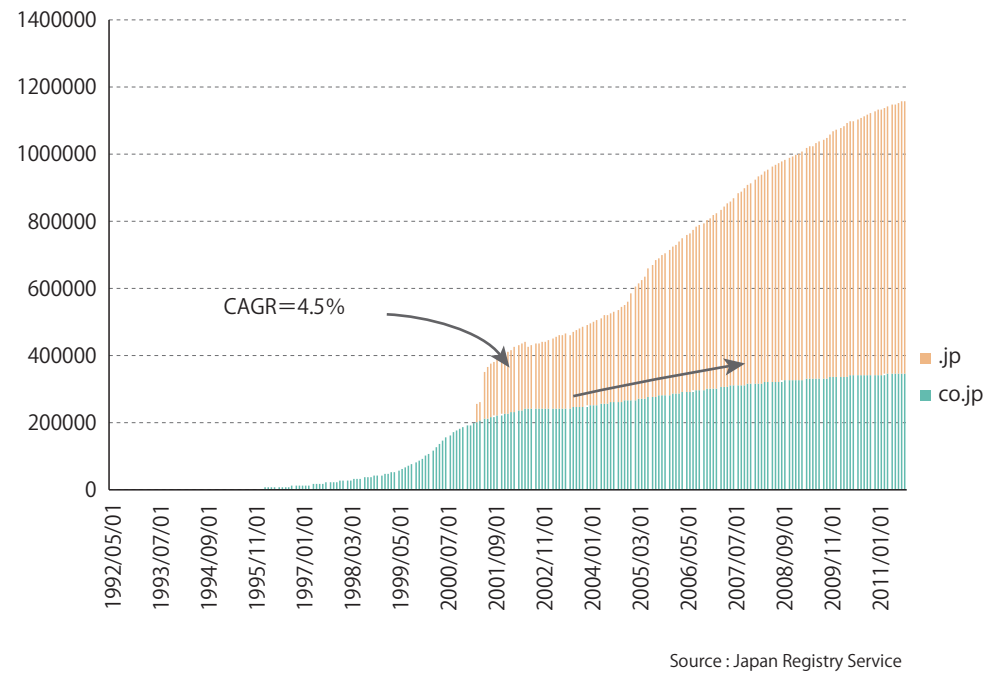


Figure 4.2.2 Trend in number of co.jp/.jp domains

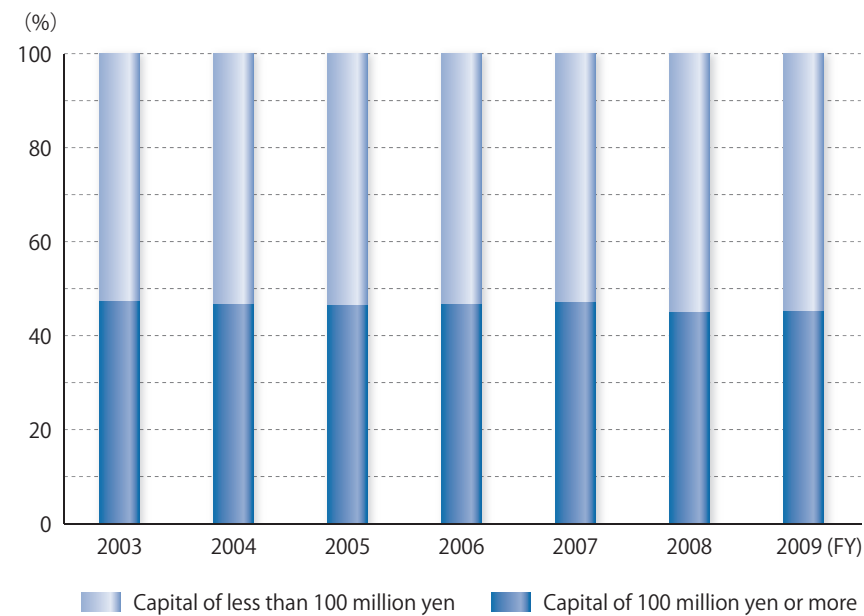


Figure 4.2.3 Trend in share of value-added by company size

In order to see what effect the sales base has on GDP, an indicator of value-added, we present Figure 4.2.4 to show the correlation between the value-added of SMEs (capital of less than 100 million yen) and sales.

As shown in Figure 4.2.4, the correlation between sales and value-added is high at SMEs. Accordingly, we made a pro forma calculation in which the rate of increase in sales equals the rate of increase in value-added (GDP). As a result, if the ratio of corporate homepage ownership increases at the current pace, we would expect the economic effect in five years time to be around 10 trillion yen [GDP of 596 trillion yen (assuming 2% growth) x SMEs' share of value added of 53% x 8% increase in SMEs with homepages x the 40% higher rate of sales growth of companies with homepages = approximately 10 trillion

yen].

In the 20 years since the 1990s, the Internet has continued to spread and usage has also continued to grow. The diffusion of the Internet not only affected related industries but also brought about changes at Japanese companies, who are users of the Internet. ICT infrastructure will continue to develop and become increasingly sophisticated. Advances in ICT infrastructure will spawn new business opportunities, further promoting infrastructure advancements. Internet-related innovation will continue. The early adoption of leading-edge infrastructure and the active introduction of new services will necessitate maintaining the already globally high levels of ICT infrastructure diffusion and usage.

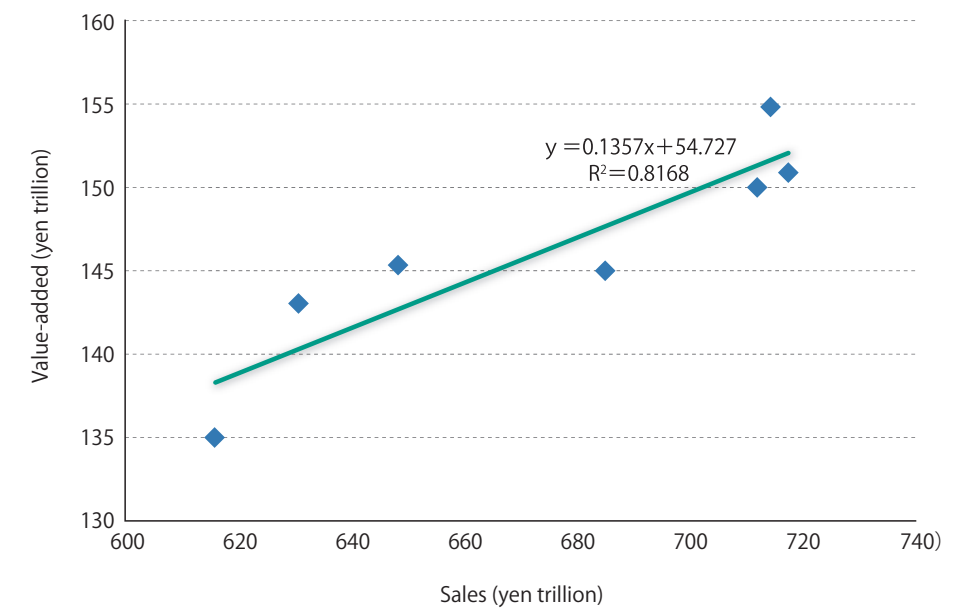


Figure 4.2.4 Correlation between SMEs' sales and value-added (2003-2009)

Appendix Methodology

1

● Internet GDP

Consumer consumption activity : The size of the e-commerce market is based on the Ministry of Economy, Trade and Industry's e-Commerce Market Survey; PC purchases on MM Research Institute data; mobile phone sales value on JEITA data; mobile phone sales agent financial information on Nomura Research Institute estimates; and network expenditures on Ministry of Internal Affairs and Communications' "Basic Survey on the Information and Communications Industry."

Corporate investment : Aggregated from IR information of telecommunications companies.

Government investment : Nomura Research Institute estimates, based on Gartner data, Ministry of Internal Affairs and Communications' "Basic Survey on Government Informatization," and Association for Policy Informatics' "Local Government Computer Master List."

Imports/exports : Ministry of Finance trade statistics

● Internet influenced consumption

We calculated the size of sales at brick-and-mortar stores that are influenced by the Internet by obtaining through questionnaires the percentage of purchases at physical stores in the categories covered by the Annual Family Income and Expenditure Survey of the Statistics Bureau of the Ministry of Internal Affairs and Communications, figuring out what ratio of those purchases were the result of information gathering on the Internet, then multiplying that ratio by the amount of annual household expenditures. Expenditures were taken from the FY2010 Annual Family Income and Expenditure Survey. For Internet diffusion rate, an assumption in our calculation, we used the figure from the "Communications Usage Trend Survey" compiled by the Ministry of Internal Affairs and Communications of 78.2% as of the end of 2010. The number of households was 49 million.

2

● Company website ownership ratios and average sales per employee by prefecture

We selected at random from Tokyo Shoko Research's database 100 companies in each prefecture and investigated whether they have their own website. We then plotted the results for each prefecture and average sales per employee.

● Manager questionnaire

Survey overview

1. Target: company managers and executives
2. Method: Internet questionnaire
3. Conducted: August 2011
4. n=3007

3

● Market size forecasts: Nomura Research Institute estimates, based on questionnaire results and interviews with industry participants

Overview of questionnaire survey

1. Survey target: From among the 60,000 people on the registry monitor aged 15-69 that live in Japan and use the Internet, we assigned sample numbers to each age group in accordance with the population distribution.
2. Conducted: August 2010
3. n = 2069

● Internet GDP forecast

We used Nomura Research Institute's forecast for consumer e-commerce. We assumed the markets for PCs and mobile phone handsets will be flat. We assumed corporate investment will grow at the same pace as the communications infrastructure market. We assumed government expenditures equal to the current level and the imports/exports trend line between 2005-2010 will be sustained.

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