

JAPANESE CONSUMERS AS TECHNOLOGY INNOVATORS

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JAPANESE CONSUMERS AS TECHNOLOGY INNOVATORS

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Table of Contents

Introduction.....	1
Roger’s Diffusion of Innovation Theory	3
Cultural Trends in Japan.....	6
History of Japan.....	7
Generation Y Consumers	9
High School Students	11
Working Women	11
Influences of Technological Innovation in Japan	13
Communication Methods	13
Businesses	16
Lifestyle	17
Technology as a Solution to Consumer Needs	18
To Improve Efficiency	19
Wallet Cell Phone.....	19
Smart Cards.....	21
To Improve Convenience	23
Restrooms	24
Electronic Menus	26
Vending Machines.....	28
To Express Themselves	29
Mixi	30
Nico Nico Douga.....	32
Deco-mail.....	34
To Gain Mobile Convenience	37
1seg.....	37
QR Codes.....	38
Electronic Dictionaries	40
To Interact with Others	42
Digital Terrestrial Television.....	42
On-line Games.....	44
Implications	46
Conclusion	48
References.....	51

ABSTRACT**JAPANESE CONSUMERS AS TECHNOLOGY INNOVATORS**

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With advanced technology and savvy Generation Y consumers who know how to make use of it, the Japanese market has become one of the most unique in the world. Japanese consumers increasingly use new technology to solve old problems. In addition, many Japanese companies provide technological solutions for their consumers as well as communicate with them through varied technologies. Often, many of these technologies are found only in Japan. Due to a highly competitive market and severe consumer scrutiny, these cutting-edge technologies that are successful in Japan tend to succeed in other countries as well. In fact, many technological innovations once unique to Japan have been adopted globally and are now mainstream. By innovating totally new technologies or creating a fusion of Western and Japanese technologies, the Japanese market has become an increasingly interesting market. This paper was created to provide other countries with information about how Japanese consumers use technology. The paper covers cultural trends in Japan, technology as solution, and recommendations for the application of technology. By analyzing the relationship between Japanese consumers and technological innovation, other countries businesses' will be able to figure out the changes of market trends. Moreover, this paper will offer opportunities for how these technologies might possibly be applied to other countries while considering social and cultural differences.

Executive Summary

Japanese consumers are technology innovators, because they are the first group of consumers to adopt new ideas and technology. This paper was created to inform how and why Japanese consumers adopt technology. The paper covers Rogers' Diffusion of Innovation theory, cultural trends in Japan, technology as solution, and implications for the application of technology in the future.

The first section explains the Diffusion of Innovation theory proposed by Everett Rogers. It covers the way members in a social system adopt to new ideas and technology. The second section explains what the cultural trends in Japan are. There are two parts: the history of Japan and Japanese Generation Y consumers. The first part discusses how the historical issues have influenced Japan to be a technologically advanced country. The second part covers two main influential segments of society: high school students and working women. They are the ones who have strong spending power and who take the initiative to try out new technologies without being afraid. Understanding historical and cultural factors is critical when talking about Japanese consumer behavior. The third section introduces unique technologies in Japan. It discusses how Japanese consumers adopt technologies to suit their needs. They use technologies in order to improve efficiency, improve convenience, express themselves, gain mobile convenience, and interact with others. By adopting technology, Japanese people solve problems as well as satisfy their needs. Finally, the last section provides some indication of how Japanese technology could be adopted by other countries.

An ability to innovate new technology has been and will continue to be critical in surviving the current business world. By observing Japanese consumers and technology, this paper provides key information of how consumers become technology innovators.

Technology Innovators

Introduction

With advanced technology and savvy Generation Y consumers who know how to make use of it, the Japanese market has become one of the most unique in the world.

Japanese consumers are considered innovators because they are not afraid of trying out new ideas and technologies. I consider myself a technology innovator because, like many other Japanese Generation Y consumers, I always try new technology first. I was born and raised in Japan, and when I turned 18 years old, I moved to the United States to study marketing. When I came to the United States in 2005, I realized that some technologies, such as cell phones, are more advanced in Japan than those in the United States and other countries.

There are two kinds of research in this paper: primary qualitative research and secondary research. Primary qualitative research is based on primary data that are “data gathered and assembled specifically for the project at hand” (Zikmund and D’Amico, 2001, p.125). Primary research can be conducted through observations, surveys, and experiments. Secondary research is based on secondary data that are “data previously collected and assembled for some purpose other than the project at hand” (Zikmund and D’Amico, 2001, p.125). Secondary data may come from internal sources, such as customer records and financial statements from company databases, or from external sources, such as government sources, and trade association statistics, and commercial sources (Zikmund and D’Amoci, 2001). I have done primary qualitative research in person by observing Japanese consumers and technology and conducted secondary research by using secondary data from databases, books, and the Internet.

It is Japanese consumers that have driven Japan to become a technologically advanced country. Japanese consumers increasingly use technology as a solution for the problems they have. Often, many of these technologies are found only in Japan. Due to a highly competitive market and severe consumer scrutiny, cutting-edge technologies that are successful in Japan tend to succeed in other countries as well. In fact, many technological innovations once unique to Japan have been adopted globally and are now mainstream. By innovating totally new technologies or creating a fusion of Western and Japanese technologies, the Japanese market has become an increasingly interesting market.

This paper examines Rogers' Diffusion of Innovation theory, cultural trends in Japan, technology as solution, and implications for the application of technology in the future. The first section explains Diffusion of Innovation theory proposed by Everett M. Rogers. It argues how, why, and at what rate new ideas and technology spread through culture. The second section explains what the cultural trends in Japan are. There are two parts: the history of Japan and Japanese Generation Y consumers. The first part discusses how the historical issues have influenced Japanese to be a technologically advanced country. The second part covers two main influential segments of society: high school students and working women. The third section introduces unique technologies in Japan. It discusses how Japanese consumers adopt technologies to suit their needs. They use technologies in order to improve efficiency, to improve convenience, to express themselves, to gain mobile convenience, and to interact with others. Finally, the last section provides some indication of how these Japanese technologies could be adopted by other countries.

Today, innovating new technology has become more and more important for all businesses. Being technology innovators is critical to survive in the fast-moving business

world. By analyzing the relationship between technological innovations and Japanese consumers, who are considered technology innovators, a key to becoming successful technological innovators will be revealed.

Roger's Diffusion of Innovation Theory

Everett M. Rogers, a sociologist, describes the way members in a social system adopt to new ideas and technology in his Diffusion of Innovation theory. According to Rogers, diffusion is “the process in which an innovation is communicated through certain channels over time among the members of a social system” (2003, p.5). He classifies members of a social system based on their innovativeness. As Figure 1 shows, there are five adopter categories: innovators, early adopters, early majority, late majority, and laggards.

Members in each adopter category have similar characteristics in terms of socio-economic status, personality values, and communication behavior. In terms of socio-economic status, members in earlier adopter categories are likely to be more educated, to have higher social status, a greater degree of upward social mobility, and larger sized units. Their personality values are also different from those of later adopters: earlier adopters tend to have a greater ability to deal with uncertainty, risk, and abstractions, a greater rationality, greater intelligence, and a more favorable attitude toward change. Finally, communication behavior of earlier adopters are different from those of later adopters: they tend to have more social participation,

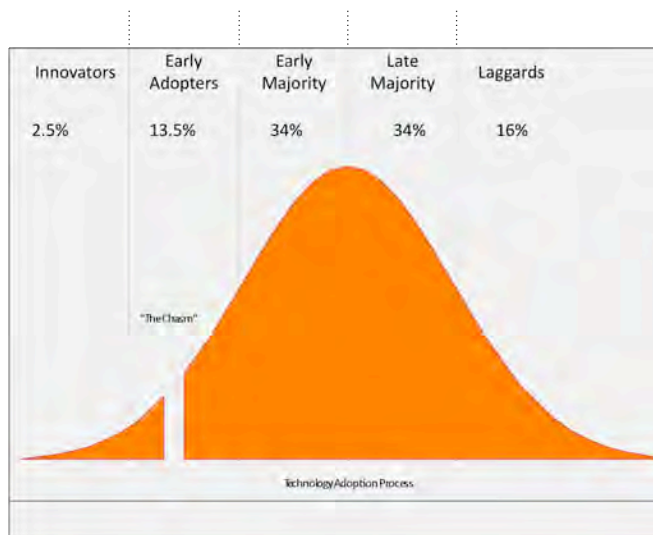


Figure 1: Adoption/Innovation Curve

greater exposure to mass media channels, greater engagement in active information seeking, have greater knowledge innovations, and a higher degree of opinion leadership. Although Rogers believes that there are no discontinuities between each adopter category, some scholars argue that a technological innovation could fall into a crack because nobody can figure out how to start using it except innovators (Rogers, 2003). Moore defines the crack between the early adopters and early majority as “chasm” (Moore, 2003, p.19).

Innovators include 2.5% of people who adopt an innovation first, in that way, its attribute is characterized as “venturesome” (Rogers, 2003, p.282). They are likely to be cosmopolites and have desire for the rash, the daring, and the risky. Rogers says that innovators can deal with higher levels of uncertainty about an innovation than the other adopter categories. It is innovators that play an important role in the diffusion process because they bring the new idea into the social system from outside of the boundaries. Therefore, innovators are often considered as gatekeepers (Rogers, 2003).

The next 13.5% of adopters are called early adopters, who adopt new idea after innovators have adopted an innovation. Since early adopters are respected by their peers in the local social system due to its successful use of innovations, the main attribute of early adopters is “respect” (Rogers, 2003, p.283). They are more localities, rather than cosmopolites. Moreover, because they are not far from the average adopters, they have the highest degree of opinion leadership, in which members in following adopter categories refer to early adopters’ opinions and advices about an innovation. Early adopters give an approval of an innovation by adopting it. As a result, they reduce the uncertainty of an innovation. Thus, early adopters are considered as role models (Rogers, 2003).

Early majority accounts for 34% of the adopters, who adopt an innovation more deliberately than early adopters. They are characterized as “deliberate” because they take some time until they adopt a new idea in order to deliberate it (Rogers, 2003, p.283). As Rogers describes, “Be not the first by which the new is tried, not the last to lay the old aside” (2003, p.284). Early majority functions as a link between relatively early adopters and late adopters in the adopter category due to its attribute of deliberating an innovation and majority number of its members (Rogers, 2003).

The next 34% is called late majority, who adopt an innovation after it is no longer perceived as risky. Late majority tend to adopt a new idea due to increasing economic necessity or peer pressures. Their main attribute is described as “skeptical” because they do not adopt a new idea until most of uncertainties are eliminated (Rogers, 2003, p.284).

Finally, the last 16% are called laggards, who adopt an innovation last. They make decisions based on what they have done before. Since laggards tend to be suspicious about change and innovations and interact with people who have traditional values, they are characterized “traditional” (Rogers, 2003, p.284). They do not adopt new ideas until they are sure that a new idea will not fail because of their limited sources (Rogers, 2003).

Japanese consumers are considered innovators in the adoption and diffusion processes, because they are the ones who select and try new technologies first. Japanese people have innovated new technology over time. For examples, in 1986, a Japanese electronics company, Toshiba, manufactured the first laptop computer for consumer usage. However, the behind-the-scenes architect was not the company, but an engineer in the company, Tetsuya Mizoguchi (Rogers, 2003, p.144).

Laptop computers were invented to satisfy Japanese consumers' needs for space and convenience. Since offices are smaller in Japan compared to those in Western countries, there is no space for desktop computers. Also, because many Japanese workers take their work home, they wanted computers to be portable. However, the corporate leaders first turned down Mizoguchi's request to support laptop R&D team since Toshiba had just failed in its personal computer at that time. "Not discouraged, Mizoguchi went 'underground' with the laptop project at the company's Ome factory, located some twenty-five miles from Toshiba's Tokyo headquarters" (Rogers, 2003, p.145). As a result of him taking risks, the laptop business succeeded: its laptops accounted for 46% of Japanese market, 38% of European market, and 21% of American market by 1989 (Rogers, 2003). Although laptop computers were first invented to satisfy Japanese consumers' needs, people all over the world now use them.

Toshiba's innovation of laptop computers is a good example of how Japanese consumers use technology as a solution for the problems or needs they have, as well as how other countries adopt Japanese technology. Therefore, there is a strong possibility for Japanese technologies that are popular in Japan, but unusual in other countries, to become mainstream in the future.

Cultural Trends in Japan

The characteristics of innovators in the adoption and diffusion processes match those of Japanese consumers. When talking about the Japanese consumers and the market, two main Japanese cultural issues need to be taken in consideration: the history of Japan and the influence of Japanese Generation Y consumers. Japanese's position as a technology innovator is deeply related to its history, which has contributed to form a cultural foundation

in the society as well as Generation Y consumers that are not afraid to take a chance on something new.

History of Japan

Understanding the history of Japan is critical in order to wholly understand the Japanese technological innovations. Although today Japan has the world's second largest economy (behind that of the United States), it was not so long ago that this firm position as an economic superpower was established. Technology has always been key to Japanese history and its success. Japan did not open its gate to the world until 1868. At that time, Japan was still emerging from feudalism. When Western countries introduced Western technologies, Japan quickly learned them because high levels of literacy among the population made it easy for innovations to be introduced and accepted (Deans, 1970).

However, by 1940 Japanese militarism and imperialism began to lead the country in a different direction. In 1945, Japan was defeated in World War II and was a nation in ruins. Although ashamed and demoralized from the war, Japan made a dramatic recovery. By the 1970s, just 25 years after World War II, Japan rose to become the third biggest economic superpower, following the United States and Russia. Because Japanese people devoted themselves completely to push economic growth, Japan was described as an "economic animal" (Deans, 1970, p.7). Japan became a production leader of such products as automobiles, cement, plastics, radios, and synthetic fibers and Japan even had the first world's fair held in Asia (Expo 70 in 1970) and first Olympics in Asia (1966 in Tokyo). These events showed Japan's economic progress (Deans, 1970).

Many factors favored Japan for its recovery and rapid economic growth. For example, after World War II, the Constitution of Japan was revised and it pledged a permanent peace

and a renunciation of war. In addition, because of Japan's location as a foothold in Asia, the United States committed to defense for Japan. This fact kept military costs low and made it possible for Japan to rebuild quickly after World War II. Another factor is the Korean War, from 1950 to 1953, in which the United States spent \$2.2 billion in military procurement in Japan. Besides these political issues, many other factors also favored Japan for its recovery and economic growth (Deans, 1970).

Further economic growth, called the "Heisei Period Boom," began in 1986 and ended in 1991. According to Tokutaro Shibata, the main factors that accelerated the boom were the increase in domestic private demand, fixed business investment, consumption of durable goods, and investment and consumption resulted in a surge in stock and land prices. However, in the middle of 1990, the bubble collapsed. Shibata explains the most critical factor of the Japanese depression in the 1990s as debt deflation caused by the instability of the financial system in the 1980s in Japan (1998).

Over the past decade, however, Japan has maintained one of the largest merchandise trade surpluses in the world due to its high technology goods, which include information and communications, electronics, automotives, and nanotechnology. The Japanese economy was damaged from the Lehman Shock in 2008, which is a financial crisis triggered by the bankruptcy of Lehman Brothers, a global financial service firm. However, Japan still maintains its status as the second largest economic superpower in the world (GMID, 2009d). Manufacturing and machine tools are still two mainstays of Japan's economy. There are strong demands for new and sophisticated digital products, improved convergence for audio and video products, as well as increased demands for technology, portability and efficiency

(GMID, 2009a). Thus, technology has enabled Japan to maintain one of the largest economic powers in the world.

Generation Y Consumers

One of the most important consumer groups that helped Japan become an economic power is the Japanese Generation Y consumers, born between 1977 and 1994, because they are the ones who take the initiative to try out new things, including new technologies, without being afraid. If Japanese consumers were innovators, Generation Y consumers would be lead users. Lead users are those who develop “an innovation and then convinces a manufacturing company to produce and sell the innovation, after the lead user has created a prototype of the new product” (Rogers, 2003). Generation Y are well educated, Internet savvy, and eager to shop. They are also considered the first global consumer segment because of their communication methods through the Internet. Generation Y consumers tend to buy and use brands or products to satisfy their needs for uniqueness or individuality. Japanese Generation Y consumers are known to be fashion conscious and prefer name brands. Finally, Knight and Kim describe that Japanese Generation Y consumers “have developed a diversity of perspectives and created patchwork culture that is not indigenous to any one country” (2006, p.271).

Smart companies are so aware of the strong influence of Generation Y consumers in the Japanese market that they try to appeal to these consumers through unique methods. For example, over the past 30 years, the idea of cuteness has come to dominate Japanese consumer culture and has had a significant effect on subsequent marketing strategies. In 1971, Sanrio first capitalized on this fad by creating accessories associated with writing. It began with cute stationery and diaries for the cute handwriting-crazed teenagers. The first

stage of cute-inspired products proved successful. Sanrio expanded its production to things such as dolls, bags, toiletries, lunchboxes, car accessories, cooking ware, and a range of other products. Sanrio created a range of cute cartoon characters to market its cute products. Some examples of these characters are Pochacco, Keroppi, Little Twin Stars, My Melody, and most famous of all, Hello Kitty.

From there, it was picked up by Japanese businesses and all kinds of products became marketed as cute. Recently, businessmen and executives have started adopting cute culture to market themselves and identify with consumers. The trend for cuteness has come into the technology industry as well. For example, in 2007, collaborating with Sanrio, NEC introduced “LaVie G Hello Kitty Model,” a pink Hello Kitty laptop decorated with Swarovski crystal glass.



Figure 2: NEC Hello Kitty Laptop

Although these strategies are seldom seen among the Western brands that have entered in Japan, using a unique emotional appeal to Japanese Generation Y consumers could become a sustainable competitive advantage for the brands. In order to survive increasing competition, it is critical for companies to examine how Generation Y consumers respond. One of the most appealing ways to communicate with these Generation Y consumers is using

technologies. The two main influential groups among Generation Y consumers with the biggest consumption are high school students and working women.

High School Students

According to Time Magazine, high school students in Tokyo spend approximately \$275 per month (Drake, 2001). As Japan's birth rate decreased over the decades, "fewer children are surrounded by more rich adults and that means that the money spent on each child increases" (Creighton, 1994). These high school students spend a large portion of their purchasing power on electronic goods, and especially portable varieties of these goods, such as mobile phones, laptops, and video game machines (GMID, 2009b). Actually, more than 90% of Japanese high school students have their own mobile phones. Tasuku Igarashi argues that some high school students are so afraid of being isolated or disconnected from their friends that they keep their relationships via mobile phones through text-message communication (2008). They prefer communicating through text messages to telephone conversation due to its indirectness, synchronicity, and low costs (Igarashi, 2008).

Moreover, cute products were able to draw the attention of these Japanese Generation Y consumers throughout the country very quickly because they have little financial responsibility combined with large disposable incomes, thus making them the strongest consuming sector in the economy. Because manufacturers recognized them as the strongest consuming sector, they purposefully began marketing products specifically for them.

Working Women

Among the Generation Y consumers, Japanese working women are also becoming more influential due to their spending power. The background of how Japanese working women came to have both influence and spending power is strongly related to Western

influences. Japanese people have a strong yearning for Western culture because Japan has been trying to catch up to the Western technology, social system, and business environment since World War II. This historical issue has contributed to form a strong yearning of Western culture for Japanese people. The life style of Japanese people has shifted to more western way as globalization proceeds. One of the most significant changes in life style is the increased number of working women.

Bowman argues that the Japanese women in their 20s are “a significant economic force that is of huge interest to marketers” (2008). Since the majority is unmarried, their income is often completely disposable. These women spend money on themselves for items such as fashion, food, beauty, furniture, travel, and technology (GMID, 2009e). Furthermore, since many working women live on their own, they spend money on expensive electronic products including high definition televisions, laptops, and cell phones. In fact, the annual disposable income of Japanese female consumers has increased by 2.61% and 1.61%, while that of men has decreased by 7.35% and 3.5%, between 1995 and 2007 and between 2000 and 2007, respectively. With the disposable income, these working women are more willing to embrace high technology (GMID, 2009b).

Therefore, the main reason why new technologies spread faster in Japan than any other countries in the world is that Japanese Generation Y consumers are not afraid of taking initiative to try out new things. In fact, technologies that may still be viewed as futuristic in most countries, like wallet phones, are put to practical use and widespread in the Japanese market. Therefore, with the disposable income and challenging attitude toward new products, Japanese Generation Y consumers play a strong role in accelerating the technological innovations in Japan.

Influences of Technological Innovation in Japan

As stated earlier, Japan is a technological innovator. Japan has one of the highest technology research and development (R&D) spending as a proportion of GDP. Total spending on R&D reached a record of 16.9 trillion yen (approximately \$185 billion) in 2004 (GMID, 2005). With this huge amount of R&D funding, the technological innovation has changed Japanese society in many ways. There are three main areas that have dramatically changed within the past decade due to the technological innovation: communications methods, businesses, and lifestyle.

Communication Methods

The most pervasive change caused by technological innovation would be communication methods. The emergence of new media, primarily the Internet, has changed companies' marketing methods as well as the Japanese people's communication method. Since recent technological innovation has enabled consumers to access information easily, consumers are educated as never before. Therefore, companies also need to shift their way to communicate with consumers. Companies formerly used traditional medias such as print, radio, billboard, and television when they marketed their products or services.

Radio was first introduced to Japan in 1925. Although it became extremely popular through the wartime, it gradually lost popularity as television appeared. In 1953, NHK started the first broadcasting service. However, television was too expensive at first, so people usually got together at rich people's houses to enjoy TV programs. Most commercial television companies were established by 1960 and television sets started to spread throughout the country. By 1970, as average earnings rose in Japan, consumer spending on

electrical appliances also increased. In fact, almost 90% of Japanese households had television sets in 1970 (Deans, 1970).

The television industry was affected greatly by the emergence of new media. The technology change has made a huge impact on TV commercials, whose share of the advertisement revenue is high. For instance, people can now watch a program in many ways, and even skip the commercials by using digital video recorders such as TiVo. Now, marketers cannot depend on TV commercials to create a buzz anymore. Moreover, the emergence of digital terrestrial television in 2000 has caused a new movement. The government announced a complete digitalization of all TV broadcasting by 2011, terminating the analogue terrestrial broadcasting (GMID, 2009a). Manufacturers have focused their production on the digital format in order to benefit from this trend. This trend is accelerating the decline of the analog products while enhancing the digital products.

Companies are taking modern technology into further consideration in order to appeal to the target market. Especially when companies try to appeal to the Generation Y Consumers, they need to adopt new ways of advertising. Such methods could be advertising on social networking sites or distributing coupons via mobile phones. However, as the Advertising Age describes, the present is apocalyptic but the future is bright, and traditional media will not disappear (2009). The future trend is a fusion of traditional and innovative technologies for marketing. In fact, although traditional media, such as newspapers, have lost shares due to the emergence of the Internet, Japan still has the largest circulation in the world with more than 121 dailies and over 68 million copies. Eighty percent of the Japanese people read newspapers every day. Since many Japanese people commute by train for one or two

hours every day, people have plenty of time to read newspapers. Thus, despite the advances in new media, traditional outlets can still be important for any company (Kyodo PR, 2009).

Many smart companies have started using cross media to maximize the effectiveness of their advertisements. Some companies use a public relation (PR) method by creating news along with the TV commercials to maximize the visibility. Although public relations is very popular in the United States, it has just started becoming popular in Japan. Akemi Ichise argues that the importance of public relations is not well acknowledged by the Japanese businesses due to the lack of awareness of the need (2004). In other words, there is a huge possible growth in the PR industry, which enables businesses to combine traditional media, such as TV and newspaper, with the new media including the Internet.

Some TV commercials have QR Codes, an abbreviation of Quick Respond Codes. QR Codes are types of two-dimensional codes and navigate consumers to the companies' mobile sites. Since most Japanese mobile phones can read the QR Codes with their camera, it became a very strong tool to appeal to Japanese Generation Y consumers. Another example of cross media is listing a web address on a traditional and electronic billboard located at the center of the city, such as Scramble Intersection in Shibuya, known as a famous meeting spot (See Figure 3). The number of people who pass through the intersection is approximately 500,000 per day. Since these places are often used as meeting spots, there is a high possibility for the billboard ads to be exposed and for the web address listed on the ads to be



Figure 3: Shibuya Scramble Intersection

accessed by people who are waiting to meet with someone. Smart marketers adopt the new media along with traditional marketing methods such as the Internet, digital terrestrial television, and portable products. Some of these communication methods are often seen in Western countries as well. Other unique trends are found only in Japan or are more widespread there such as the QR codes.

Businesses

Recent technological innovations have created new businesses, such as the Japanese Internet cafés. A Japanese Internet café has many unique features (See Figure 4). A wall



Figure 4: Japanese Internet Cafe

separates each room. Hot and cold drinks, comics, magazines, food bars, and even shower rooms are available for customers. Customers can get up to six hours of computer time for \$17. Because staying at an Internet café is cheaper than staying at a hotel, there are even people called “net café refugees,” who often have low-wage jobs and sleep in armchairs at night. The Japanese Health, Labor, and Welfare Ministry reports there are more than 5,000 net café refugees who live in such Internet cafés. The industry

predicts that revenue for the cafes will increase by 50% to \$2.6 billion by 2010 (Rowley and Tashiro, 2007).

Technology has also created entire towns that specialize in electronic products. For example, although Akihabara, known as Akiba, was a sleepy town, it has become an electronics center of Tokyo. Since the Tokaido Express train line opened a station in Akihabara in 2005, the electronics town and the Japanese scientific research hub Tsukuba

have been linked together. This situation contributed to the flourishing of the Akihabara station area, opening a 22-story UDX building along with the 31-story Daibiru Building. As many companies move into this electronics center, the working population was increased by more than 10,000. The main attraction in Akihabara is Yodobashi Camera Multimedia Akiba, which is the largest electronics store in Japan. The store has 23,000 square meters and nine floors, where people can easily spend a whole day just browsing the store.

Not only known for its electronic stores, Akihabara also has thriving subculture venues as well. Virtual worlds, anime and manga shops, and maid cafes (where young women dress in French maid costumes and lavish attention upon customers) have contributed in transforming Akihabara into a paradise for Otaku, people with obsessive interests usually in anime, video games, and manga. The Japanese pop culture has spread in Akihabara because most electronics shops now offer manga, figurines, and game software. On weekends, the main street is closed to traffic and becomes a pedestrians' paradise as teenagers and young adults roam the street to shop for electronic products as well as to enjoy the Japanese subcultures. Because of technology, Akihabara is now becoming one of the most popular tourist attractions in Japan (Sanchanta, 2007).

Lifestyle

What the technological innovations have changed the most is the Japanese people's lifestyle. People pursue more convenience in order to improve their life. Not only businesses use technology for efficiency, but also consumers use technologies in order to improve the quality of their life. Japanese consumers are good at absorbing technological information and taking it into their lifestyle as a solution for the problems they have. However, there is an

important fact that needs to be noted in terms of adaptation of technological innovations: many Japanese people value cultural norms over technology.

For example, while e-mail and fax became immediately popular in Japan, Microsoft's instant messaging system did not spread as widely as it did in the Western countries. Andrew Walmsley states that the system had fallen due to a lack of politeness and consideration because "communicating without creating an impolite intrusion is ideal" (p, 12, 2008). Since e-mail and fax do not require the receiver to be at the point of receipt when the document is sent in order to receive it, they satisfied the technological manners and were widely accepted by Japanese people. However, Japanese people are still very brave to try out and adopt something new. There are even inkjet printers for decorating your fingernails, earwax cleaners with a digital camera to see how clean your ears are, and the MP3 toilets to listen to the pre-loaded music (Walmsley, 2008). Thus, Japanese consumers take an active role in adopting technologies along with their cultural norms.

Technology as a Solution to Consumer Needs

Japanese consumers use technology in order to solve their problems or satisfy their needs. In many cases, the needs are deeply linked with their cultural norms. There are five main needs that Japanese people tend to use technology: to improve efficiency, to increase convenience, to express themselves, to gain mobile convenience, and to interact with others. Japanese people use technologies such as cell phones and smart cards to improve efficiency, while adapting technologies for restrooms, food services, and vending machines to increase convenience. Also, in these days, many Japanese people apply to social networking sites and video sharing websites and use text messages to express themselves. Moreover, they have gained mobile convenience because of a mobile digital broadcasting technology, QR Codes,

and electronic dictionaries. Finally, Japanese consumers are now able to engage in two-way communication through digital television and on-line games.

To Improve Efficiency

Japan is one of the fastest moving countries in the world. It is also a nation where the 7:21 train arrives at 7:21 every day, not 7:20 or 7:22. When a train is delayed by a few minutes, the railroad companies apologize to the passenger for its delay through announcement and distribute “a late certificate.” In Japan, one minute has more value than any other country in the world. Therefore, Japanese people adopt technologies in order to improve efficiency. These technological applications for improving efficiency can be found in cell phone, smart cards, and convenience stores.

Wallet Cell Phone

A technology that has increased Japanese people’s efficiency is Wallet Cell Phones, which are capable of making small payments, thus, eliminating the need to carry around cash. The Japanese mobile phone industry is the most technologically advanced in the world. This is mainly because of the progressive attitude of NTT DoCoMo, the first mobile phone provider in the world to offer the 3G platform of mobile communications. This 3G platform made it possible for mobile phones to have features including high speed Internet and video calling over the mobile airwaves (GMID, 2009b). Today, more than 50 million cell phone users in Japan are carrying phones capable of serving as wallets (Communications of the ACM, 2009). The rapid penetration of DCMX, a DoCoMo’s credit payment service brand, is especially impressive. When DCMX was first introduced in 2006, there were 1 million subscribers. However, within three years, the number of subscribers to DoCoMo’s credit payment service reached 10 million (JCN Newswire, 2009). Now, there are 420,000

DoCoMo's mobile payment platforms called "iD" throughout the nation. These iD platforms are available at convenience stores, electronics retailers, fast food restaurants, vending machines, and taxis. These stores include Lawson, Family Mart, McDonald's, and IEON.

The reason why the wallet cell phone has spread among Japanese consumers so rapidly is that people can use it to make payments for purchases instead of cash. First of all, wallet cell phones provide Japanese consumers with a solution for the Japanese inconvenient payment situation. Wallet cell phones might not become so popular in the United States, where people use credit cards for almost everything. In Japan, since many stores still do not accept credit cards for the purchases of inexpensive products, paying with cash is a must. Also, the debit card is not widely spread in Japan. That is why Japanese consumers have been looking for a more convenient substitution for cash and credit card. Being able to pay without cash at the stores such as convenience stores and fast food restaurants, where people usually get inexpensive products, was very attractive to Japanese consumers. In addition to the ease of shopping simply by holding the card over the iD platform, wallet cell phones help Japanese consumers improve the efficiency while they shop by eliminating the need to carry the cash and card or need to sign.

Secondly, people can gain monetary benefits by using wallet cell phones. One of the benefits is that it is easier to accumulate points for a credit card by using wallet cell phone. Since it used to be hard to use a credit card at convenience stores and fast food restaurants, people could not earn the points that they would be able to earn with credit cards. Another benefit for wallet cell phone users is discounts and coupons (GMID, 2009c). For instance, McDonald's is having a campaign called "iD coupon campaign" targeting wallet cell phone users. Once you register for the McDonald's free iD coupon membership, members will get

some discount coupons every once a while. With that coupon, customers can order and purchase food with discount simply by holding the phone over the iD terminal (See Figure 5). Furthermore, people who have purchased with the iD coupons will get additional iD coupons later (NTT DoCoMo, 2009). This is a win-win relationship: because the order completes just by holding the phone over the iD terminal, it enables to serve customers quickly. In that way, the company can reduce the traffic and improve the efficiency as well. Japanese consumers have improved its shopping efficiency through applying the wallet cell phone.



Figure 5: McDonald's iD Terminal

Smart Cards

Smart cards are more widely used than wallet cell phones. Smart cards first appeared for mass transportation systems, like Hong Kong's Octopus card and London's Oyster card (GMID, 2009b). Before smart cards were introduced, passengers were required to take out their tickets or train passes from their wallet and pass tickets through the automatic ticket window in order to have them punched. However, the smart cards have made it possible for passengers to go through the automatic ticket window much easier by simply waving the cards over the platform. As a result, it has reduced hassle and improved efficiency. The first smart card that was adopted by a railroad company was Japan Rail's Suica in 2001. Since

these cards require only close proximity to an IC card platform, they can be used without even removing the cards from a wallet. In addition to the ease of usage, adaptation of smart cards contributed to reduced traffic at the automated ticket window. During the rush time, the train station gets so busy that there are even people called “push men” to push people into the crowded trains (See Figure 6).

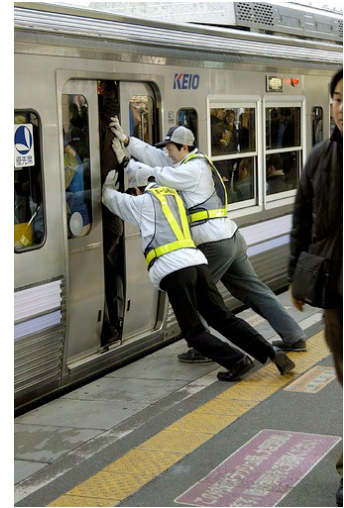


Figure 6: Push Men

Because people no longer have to either buy tickets or take out the pass from their wallet at every transaction, these smart cards became extremely popular among efficiency oriented Japanese consumers. According to a Nikkey Trendy Net survey, 72% of 15,092 people use some types of smart cards (Noorbakhsh, 2008). However, since the first introduction of FeliCa, a contactless IC card technology developed by Sony in 2004, smart cards have started having different usages. FeliCa stands for “Felicity Card” and the system was created to make people’s daily living easier and more convenient (Sony Global, 2009). With the FeliCa technology, use of Edy, a form of e-money, has been increasing. Some laptops are now equipped with “PaSoRi,” a FeliCa reader/writer, and users easily make e-payments by simply placing this card over the reader/writer. These laptops include SONY’s Vaio, NEC’s LaVie, and Toshiba’s Qosmio. Since these PaSoRi platforms are also compatible with the wallet cell phones, they have provided more efficiency to Japanese consumers.

Another example of usage for smart cards is Nanaco. Nanaco is a smart card for Japan’s largest convenience store chain, 7-Eleven, and it has 1 million transactions per day. Sales resulting from e-purse accounts for 10% of sales of 7-Eleven’s 12000 stores in Japan (Balaban, 2008). In the United States and the United Kingdom, the appeal to consumers is

the faster checking time and ability to avoid dealing with coins. However, in order to be accepted by savvy Japanese and cash-toting consumers, there must be extra benefits, like the wallet cell phone. Japanese consumers started using this service because of benefits from the incentives. Nanaco has a loyalty program and special promotions. Nanaco users can get 1% of the amount back from Nanaco. Another example is that consumers who bought Valentine's Day related products get points that are worth 100 yen (approximately \$1.15). Thus, the smart card has successfully grabbed Japanese consumers' heart by not only improving efficiency but also providing more benefits to them.

To Improve Convenience

Convenience is always a necessity for Japanese people. Japanese people are good at tailoring things already existing to something more convenient so that they will satisfy their needs. For example, although convenience stores originated in the United States, those in Japan offer more convenient services along with technologies. The number of convenience stores in Japan is more than 40,000, which is about one convenience store on every block in urban areas. Actually, convenience stores are the second-largest food service market in Japan in terms of traffic: they have 19 percent of food service traffic while supermarkets have 18 percent of traffic (Glazer, 2009). In order to satisfy the Japanese consumers' strong desire for all things new and fresh, convenience stores get foods three or four times a day from the factory. American people purchase fresh foods at large grocery stores, whereas Japanese people use convenience stores for "both one-stop shops for food and beverages and numerous convenient services, such as ATMs, movie ticketing, faxing and photocopying" (Glazer, 2009).

Furthermore, while the average age of the heaviest users range from 25 to 34 in the United States, the average age in Japan is between 15 and 29. These young people visit convenience stores to find something new. In order to meet the need for new products, convenience stores use technology, such as information management, to keep tracking consumers' preferences and demographics. There are an average about 2,500 items per store, and about 100 products are replaced with new items every week (Glazer, 2009). Thus, the Japanese people's quest for convenience has contributed to improving something, and providing new and unique products and services.

Restrooms

One of the technologies that surprise many foreign people is Japanese high-tech toilets. When you enter the bathroom in Japan, the room lights up, toilet covers rise, and the seat heats up for you. You do not have to touch anything because everything is automated. Most of the toilets now offer a fake flushing sound to mask any undesirable noises. Again, many Japanese people value cultural norms over technology. The fake flushing sound meets two Japanese cultural norms: shyness and Mottainai spirit. First,



Figure 7: Eco Otome

the most important factor when you talk about the flushing sounds function is Japanese people's shyness: Japanese women get embarrassed by unpleasant noise. According to TOTO, the largest toilet company in Japan, Japanese women flush water 2.5 times every time on average, in which 1.5 times are used only to cover the noise. In August 2009, mobile toilet noise-masking machines called "Eco Otome" came on the market. Eco Otome is a handy-size and makes fake flushing sounds for 25 seconds when pressing buttons (See Figure 7). This

product became a hit among Japanese women and it was sold out one month after it was released (J-CAST News, 2009).

Another factor is Mottainai spirit. Mottainai means “wasteful” but conveys “a feeling of awe and appreciation for the gifts of nature or the sincere conduct of other people” (Chiba, 2002, p.6). Japanese people try to use something for its entire effective life or continue to use it by repairing it. The Mottainai principle extends everywhere: to the dinner table where many people consider leaving even a single grain of rice in the bowl rude to the cook. Although people would like to flush water to cover the unpleasant noise, they also want to save water. Since toilets use 10 liters of water per flush, Japanese women who flush 1.5 times extra to cover the noise waste 10 to 15 liters of water each time. Actually, after toilet noise-masking machines were attached to 520 toilets in 23 high schools in Tottori prefecture, they successfully reduced the water bill by 15% on average and saved 3,400,000 yen (approximately \$37,000) compared to the previous year. Thus, the fake flushing sounds were invented and become widespread (J-CAST News, 2009).

Today, the toilet has become more and more convenient to users (See Figure 8). Many of the toilets have a bidet function where a water spurt comes out. You can control the temperature, pressure, and direction that water with a keypad. There is even a dryer function where the toilet dries you off with a blast of warm air. Thus, even toilet is becoming more and more convenient by evolving people’s need into an innovation (Lim, 2007).



Figure 8: Japanese Toilets

Electronic Menus

The Horn & Hardart's Automat, known as Automat, was a cutting edge restaurant which served food automatically. Josepho Horn and Paul Hardart opened the first Automat store in Philadelphia in 1902. When you fed nickels into a slot, a glass door sprang open, and served you a meal. Although at their peak in the 1940s and 50s, it served approximately 350,000 people per day, it closed down the last automat restaurants in New York City in 1991 (Shannon, 1998). As the Automat closed down, it became clear that some people did not believe in automatic food services. A businessman, Yoash Torkman, once stated "I don't believe in screens, I believe in humans" (Red Herring, 2008). It is also true that a lot of Japanese people believe in humans when it comes to food services. However, automated food serving systems which is a similar concept to the Automat, can be found: restaurants using electronic menus and vending machines serving from hot coffee to food.

Japan is considered one of the best service offering countries in the world. You will get high levels of services wherever you go in Japan because hosting people with hospitality is a Japanese tradition. Nancy Gautier, Airports Council communication director, says "There seems to be both a business and cultural commitment to hospitality that underpins their customer service" (Ihlwen, 2009). It seems like this situation made it difficult for automatic food services to be accepted by Japanese consumers. However, restaurants using electronic menus and vending machines to serve everything from hot coffee to food are very successful. This is because Japanese people see these food services as different categories depending on the degree of automation technology.

The electronic menus can be found mainly at Japanese Izakaya style restaurants and sushi-go-round restaurants. This electronic menu let customers order their food directly from

a screen at their table instead of depending on waiters to take orders. Izakaya is a Japanese drinking establishment which serves food to accompany the drinks, and it is often compared to Spanish tapas. Sushi-go-round restaurant is where sushi loaded plates rotate in the shop. People usually look for neither a great service nor good atmosphere at these restaurants but they look for convenience and affordability.

Moreover, the reason why Japanese consumers adopt technology is that it is a combination of technology and human oriented services. Unlike Josepho Horn and Paul Hardart's Automat restaurant, waiters come to you to take the orders first and bring food to you at Izakaya. At the same time, customers can order food and drinks whenever you want through electronic menu. At the sushi-go-round restaurants, you can get sushi from the conveyor, order directly from the sushi chef, or order through electronic menu if you want to order much sushi at the same time (See Figure 9). In these stores, since there are also calling bells at the table to ask for waiters, the choice is left to the customers. The electronic menu enables Japanese customers to order without waiting for waiters or interrupting the atmosphere as well as make the menu clearer by providing pictures of food.

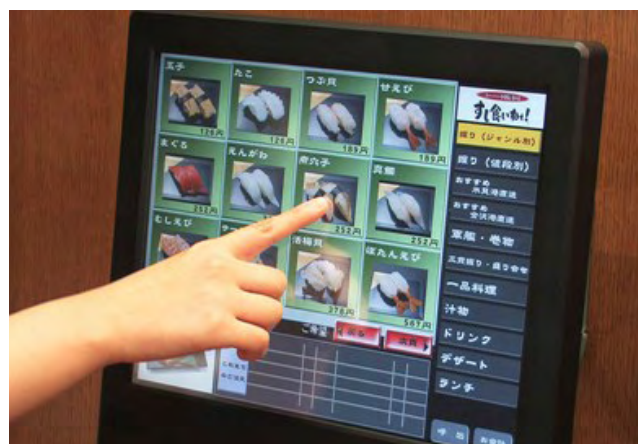


Figure 9: Electronic Menu at the sushi-go round restaurants

Vending Machines

Another example of Japanese innovation is vending machines. Japanese consumers use vending machines so often that Japanese vending machines sell many kinds of products: beverages, ice creams, hot drinks, flowers, fast foods, cup of noodles, canned foods, electronic devices, and even tobacco and alcohol. Actually, with 5.5 million vending machines, Japan has more vending machines per person than any other country in the world: one for every 25 people compared to the United States with one for every 46 people and one for every 200 people in European countries. Only 3 million out of 5.5 million vending machines sell beverages (Economist, 2005).

Unlike American vending machines, an average Japanese vending machine that sells beverages has 18 to 20 different beverages; such as bottled water, flavored and specialty water, carbonated drinks, juices, canned tea, and canned coffee. Japanese vending machines sell cold drinks and hot drinks within one vending machine: cold drinks have a green flashing light underneath and a red flashing light indicates that they are selling hot drinks, such as canned coffee, hot coco, and even corn soup, at a hand warming temperature. Actually, one-third of all coffee consumed in Japan is canned coffee from a vending machine (McCaughan, 2006). These canned coffees have high quality because of the severe competition. Since one vending machine usually offers more than five canned coffees and the vending machine from different vendors are usually lined up next to each other, there is always a competition all year round. Japanese consumers like trying new products and vending machines are always the easiest and most convenient way to try new products out.

What makes it more convenient for consumers to use is the compatibleness with wallet cell phones. As Figure 10 shows, these machines let customers pay with their wallet

cell phones and people can get point through point-collection system of wallet cell phone. Some vending machines have built-in video to advertise their new products, while others provide digitized QR Codes so that people can automatically long on to special promotion sites by just taking picture of the QR code with their cell phone cameras (McCaughan, 2006). These reason these technologies are widespread in Japan is not only because of the companies' efforts to offer better deals, but also Japanese consumers brave attitude to actually use these technologies. Through vending machines combined with other technologies such as digitized code and wallet cell phone system, Japanese consumers improve convenience.



Figure 10: Japanese Coca Cola's Vending Machine

To Express Themselves

Japanese culture is considered a high context culture. According to Edward Hall, an American anthropologist, high context culture is where “people prefer to use more implicit, unclear, and ambiguous messages whose meanings are found in the context, rather than explicit, clear, and straight forward messages” (Ito, 2005, p.457). In a high context culture,

members emphasize close connections over a long period of time, and most members know what to do and what to think from years of interaction with each other. This is mainly because Japan is a small island consisting of a homogeneous people. Moreover, unlike the low context culture where “messages oneself is important and everything must be spelled out” (Ito, 2005, p.457), expressing themselves is often considered as rude in a high context culture. For example, there is even a proverb “a stake that sticks out gets hammered down,” which means it is better to conform than to stick out. This proverb describes how Japanese people have focused on cooperativeness, and an idea that silence is a virtue for a long time. In fact, Japanese people depend on contextual cues, such as facial expressions, gestures, eye glances, length and timing of silence, tone of voice, and grunts rather than explicating statements (Ito, 2005, p.457).

However, as globalization proceeds, the way Japanese people communicate has also changed towards a more Western way. Although many Japanese people might hesitate to express their feelings face to face, they are most likely to feel more comfortable to express their feelings indirectly, such as through blogs and Social Networking Sites (SNS). This is why blogs and SNS spread dramatically after they were introduced. Through these technologies, Japanese people finally found the way to express how they feel.

Mixi

One of the most popular methods for Japanese people to express their daily life is using a blog, especially Mixi. Mixi is a Japanese SNS and as of June 2008, has approximately 15 million users, which increased by 40% from 10.7 million in 2007. Kenji Hall states that “Mixi may not have the global reach of social networking giants Facebook and MySpace, but in Japan it’s king” (Hall, 2008, p.1). In fact, Mixi accounts for 41%, 12.4

million, of 31 million visitors for all social networking sites in Japan, while MySpace accounts for 1.2 million visitors and Facebook accounts only for 538,000 visitors (Hall, 2008, p.1). Unlike other countries, Japanese people use Mixi more than other global SNS because it is tailored for net-savvy Japanese people.

One of the main reasons why Japanese people like Mixi is because of its squeaky-clean image. Many other SNS and dating sites sometimes turn into a fertile soil for crime. However, Mixi has many functions that keep it from becoming such a site. Example of this are the invitation function which allows only people invited by a Mixi insider to be members, the nickname function that lets users hide behind a pseudonym, and the “footprint” feature that allow users to track visitors. These features allow users to protect their personal information while preventing troublemakers from entering as much as possible.

Mixi’s constantly improving and efficiently oriented functions for diaries attract Japanese users more. It became a cell-phone-friendly SNS by letting users update anytime and anywhere. This feature attracted more Japanese consumers not only because it enabled users to update what is going on or what they are doing at the moment, but also it was more accessible for Japanese Generation Y consumers, who tend to use cell phones more often than computers. Also, Mixi has more than 240 pictographs including emoticon and moving symbols (See Figure 11).

As stated earlier, Japan is a high context culture that relies on facial expressions and gestures. Therefore, although it is hard to project implicit feelings through blogs and SNS, these pictographs help Japanese users to convey their feelings more precisely without meeting face to face. Since Japanese cell phones have many pictographs, by adopting the similar pictographs, more people started using Mixi. Moreover, users can insert photographs

and videos within a diary, allowing their diaries to become more vivid and exciting.

Although Mixi was launched in 2004, it is still increasing the number of new users, about 1 million every three months.

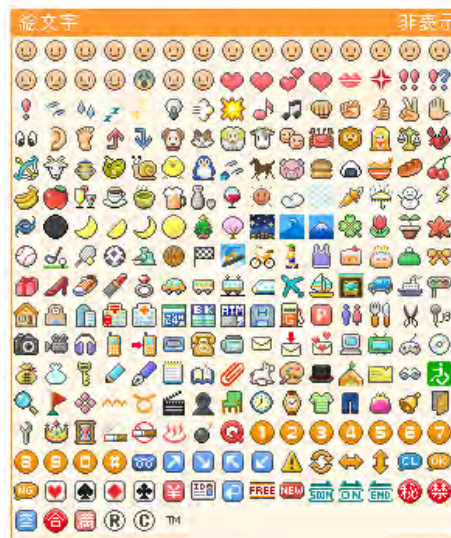


Figure 11: Mixi's Pictograms

Now Mixi is considering offering further upgrading services. For instance, Mixi Echo is a micro blogging service, similar to Twitter, which enables users to send text messages of up to 50 characters for free. Mixi is also offering decoration page services for cute-obsessed Japanese consumers: users now can decorate their pages with Disney or Hello Kitty characters for a fee. By offering these services, Mixi will be able to cover most of the functions that other global SNS offer. These SNS and blogs have brought a huge change to the way Japanese people express their feelings and share their lives with others.

Technological innovations will keep changing the way people express themselves.

Nico Nico Douga

Nico Nico Douga, which means Smiley Smiley Video, is one of the most unique video sharing websites in Japan. It was created by a company called Dwango in order to

provide Japanese people with a way to express their feelings more conveniently and casually. Since the foundation of Nico Nico Douga in 2006, it has offered Japanese people a new way to express themselves. Although Nico Nico Douga is a video sharing website, it is not like YouTube. What makes Nico Nico Douga so unique is that users can write directly on the moving image. Actually, Nico Nico Douga got an idea from 2-channel, the most popular bulletin board system (BBS) in Japan. Lisa Katayama describes 2-channel “It’s become one of the few places where Japanese people can say exactly what they feel without concern for decorum or propriety” (2008). Applying this 2-channel style of community to a web video sharing service, users can add the comments directly on top of the video as they watch the video. As Figure 12 shows, all the comments that former users wrote can be seen as part of the video. These comments scroll from right to left and are visible for about four seconds. Nico Nico Douga is becoming more and more popular among Japanese Generation Y consumers who express themselves in a unique way.



Figure 12: Comments on Nico Nico Douga

In fact, Nico Nico Douga is the 5th most visited website in Japan. There are 14 million registered users, more than three million uploaded videos, and more than two billion comments (Nico Nico Pedia, 2009). Most of its users are Generation Y consumers. At first, more than half of users were in their twenties, but the number of teen users has been increasing. Today, 46% of the users are in their twenties, making one out of 3.1 people in their twenties Nico Nico Douga users, while more than 30% are teens. An average number of times users play videos per day is 19 million while the average number of comments per day is 2.6 million. In August 2007, Nico Nico Douga started a mobile service and it enables users to access the site on cell phones provided by DoCoMo, au, and Softbank. Most of the videos are user-generated content (Nico Nico Pedia, 2009). Japanese people's willingness to express themselves drives them to create these videos.

Deco-mail

As stated earlier, cuteness, called *Kawaii* in Japanese, has been dominating Japanese society. *Kawaii* began morphing into its modern definition in the early 1970s when the cute craze began. It started with the fad of cute handwriting. Teenage Japanese girls began writing in a new childish style in 1974. The new cute handwriting became a nation-wide phenomenon and it was estimated that over five million young people were using this new style. The thickness of strokes in traditional Japanese writing varied. The new style was written preferably with mechanical pencils, where the thinner the lines the better. Middle schools and high schools began banning this handwriting and saw it as a discipline problem. There are a variety of different names to classify this style of writing: *maruiji* (round writing), *konekoji* (kitten writing), *mangaji* (comic writing), and *burikkoji* (fake-child writing) (Kinsella 1995, p.222; Roach 2004). Thus, Japanese people fuss over writing.

Although technology has enabled people not to need to write anymore, Japanese people did not give up applying cuteness to any messages.

In fact, in order to be able to convey feeling more accurately, Japanese Generation Y consumers came up with a variety of face marks called *Kaomoji*. These face marks are different from Western emoticons. While Western face marks are to be seen from the side, Japanese face marks are to be seen from the front. They are made with many different symbols and often combined with onomatopoeia to make them more vivid. These face marks were first created by Japanese cute-conscious adolescents for expressing the senders' feelings in text messages. The dominant groups of text message users are high school and university students while older people tend to use text messages to communicate with their families. Then, since many cell phone companies introduced pictographs to text messages, face marks have become less popular than they used to be. However, because these face marks are more descriptive than pictographs, many people still use them when they write in the Bulletin Board System (BBS). Today, now that people use text messages to communicate with each other more than anything else, people came up with a way to make them look cuter and more descriptive: "Deco-mail."

definition	emoticon	emoticon with onomatopoeia
excited	$O (\geq \nabla \leq) O$	♪ \ (^ ω ^ \) (/ ^ ω ^) / ワーイ♪
sad	$(^ ; \omega ; `)$	。・°・(/ ㄩ `)・°・。 うわあん
surprised	$\Sigma (^ \nabla ^ *)$	ヒイイイイ!!!! (° □ °) /
mad	$\{ \{ \{ p (\bullet ^ \square ^ \bullet) q \} \} \}$	ε = 怒 ε = (め ` ω ^) / コラ! マテ!
shocked	$\Sigma (\overline{\square} \overline{111})$	/ (\overline{\square} \overline{;}) \ まじ〜〜?
cat, dog	$(= ^ \cdot \cdot ^ =)$	(U · x · U) ーワンワン!!

Figure 13: Japanese Emoticons

Deco-mail is an abbreviation of "decoration mail" and was first introduced by NTT DoCoMo. It enables cell phone users to decorate text messages "by changing their

background and/or font color, and by attaching to them images and even animations, on top of the traditional melodies” (NTT DoCoMo, 2009). Although it can be made through Deco-mail compatible cell phones, these Deco-mails can be received by non-compatible machines and even by regular computers due to its written format of HTML. The usage is easy. First, add animation for cell phones from NTT DoCoMo’s website called i-mode, and add them to the text like normal pictograms (See Figure 14). Second, change the size and color of text as you wish. Third, add photos taken with the camera, some of which have almost the same high quality as a normal digital camera. Then, you can move text in fun ways: blink to flashes on and off, ticker to scrolls from right to left, swing to move to right and then back once it reaches the edge of the screen. Finally, change the background color.

As Figure 15 shows, a completed Deco-mail no longer looks like a mere text message. Deco-mail broadened the possibility of what text messages can convey: they carry not only information, but also an emotion. Although it seems a subtle difference, this subtle difference has a huge meaning to people in Japan, where communication depends on context. It has enabled more precise communication. Thus, Japanese people’s need for cuteness, contextual cues, and convenience gave birth to Deco-mail.



Figure 14: Deco-mail Template



Figure 15: Deco-mail

To Gain Mobile Convenience

Japanese consumers value smaller-sized products more. One of the reasons why smaller products attract Japanese consumers so much is originated from the desires for cuteness. However, the main reason comes from an enthusiasm for mobile convenience. The smaller the product is, the easier they carry. This fanaticism toward mobile convenience has spurred Japanese people inventing products that are smaller and more efficient: Nintendo DS, a portable game machine, enabled people to play games everywhere. Digital cameras are becoming smaller while offering higher quality than ever. Sony's VAIO P-series laptop grabs Japanese consumers' heart by its small and fashionable figure and convenience. This yearning for mobile convenience has made things that have never been portable before mobile.

1seg

Average Japanese people spend one or two hours on the train every day. While they are taking trains, many people read newspapers or books; other people listen to MP3 players, and some take naps. Today, there is a new entertainment to make this time more productive and exciting: people can now watch TV anywhere. Thanks to the technological innovation, even TV broadcasting service has become portable.

One of the most successful revolutions is 1seg. 1seg is a mobile digital broadcasting service. 1seg has enabled mobile service devices such as cell phones, Global Positioning Systems (GPSs), laptops, and PDAs to receive regular high definition (HD) broadcast signals. 1seg was named after its fundamental: "Since HD signals are sent out with 13 segments, one segment could be reserved for a special signal to be picked up by properly equipped devices" (Sanzalone, 2008). In 2006, KDDI au launched cell phones with 1seg that

have the ability to watch television. Although 1seg was not an indispensable feature at first, it soon became one of the must-have features for all cell phones. By late 2007, because of the manufacturers' efforts to improve the quality, 63% of all shipped phones, 3 million cell phones per month, became 1seg compatible cell phones. Now that many people expect cell phones to have the 1seg service, most cell phones have this service.

Actually, it is hard for some products to be accepted by technology savvy Japanese consumers. Even when Apple's iPhone was launched in Japan for the first time, the excitement of the launch did not last for long: its sales were only 200,000 units. Unlike the United States, since free wireless Internet service is not available in Japan, people cannot wholly enjoy the benefits of iPhone. However, the main reason why iPhone did not sell well is because the iPhone does not have the 1seg feature. Also, initial iPhones were not 3G, so they would have been slow to consumers. On the other hand, with 1seg feature, people can watch programs as long as there is a signal. Japanese consumers are picky about technologies.

However, a further development of 1seg can be expected because broadcasting will be completely digital by July 24th, 2011. Sanzalone describes the relationship between technological innovation and Japanese consumers: "It's interesting to see how Japanese consumers have willingly become part of this change, not in the name of progress, but simply because they wanted a little entertainment and news while taking the train home" (Sanzalone, 2008, p.12).

QR Codes

Another technology that has provided Japanese consumers with mobile convenience is QR Code. It is a small square containing an assortment of black and white dots which

contains an Internet address. Xue Dou describes that “QR Code communication process is typically initiated by consumers, the process is less intrusive and more engaging, leading to what should be the ideal model of consumer communication in the networked marketplace” (2008, p.61). In 2002, the first cell phone with QR Code reader was introduced by J-Phone (currently Softbank) and QR Codes started being used in mobile communication.

By 2007, almost all cell phones are equipped with a QR Code reader and approximately 80% of users actually scan QR Code with their cell phones. 90% of QR Code users use it to connect to Web sites. This function satisfies a desire of Japanese people to gain useful information anywhere and anytime. QR Codes usage is no longer limited to advertising media or to the packaging of products. It can be used in many ways: uploading contact details on business cards, buying tickets for a concert, listening to a sample song on a CD and so on. It can be easily scanned with cell phone cameras by simply taking pictures and it loads the relevant page quickly (Economist, 2005).

As Figure 16 shows, one of the unique features of QR Code is that it is often used with many traditional media: 84% of all magazines, 51% of all flyers, 32% of all newspapers, 25% of all direct mail, 24% of all catalogs, 20% of all personal computers, 14% all of posters, and 6% of all business cards now make use of QR Code (Info Plant, 2005). For example, in 2006, one of the biggest Japanese publishers, Shougakukan, had a campaign to promote its mobile phone comic Web site through QR Codes. Posters with comic characters made with QR Code mosaics were placed in Shibuya subway station. Thanks to the QR Code, Japanese people are now able to access the comic Web site more quickly. This campaign encouraged more people to read comics on the mobile screen.

The reason why QR Code has been widely spread is its costs: since anybody can generate QR Codes by using free software application, QR Code does not cost very much. Since more and more cell phones are equipped with camera in other countries, this technology could be applied easily. Moreover, since many QR Code can be combined with traditional media, it could help the recent situation where the demand for traditional media is going down.



Figure 16: QR Code

Electronic Dictionaries

As globalization proceeds, the need for English communication skills has also dramatically increased. However, the Japanese English language education system has been criticized for many years. This problem has something to do with Japanese history. Since Japan opened its gates to the world in the 19th century, Japan has focused its English education on the development of reading and writing skills rather than the development of communication ability, so they can absorb Western technologies quickly (Kikuchi, 2009). Although improving the quality of the English learning education system still remains an issue, a technological innovation has made it easier for Japanese people to communicate with foreign people or learn foreign languages: electronic dictionaries.

In 1979, Sharp introduced the first electronic dictionary called IQ 3000. The dictionary only had 2800 words in its English to Japanese dictionary and 5000 words for Japanese to English dictionary (Sasahara, 2005). Thereafter, Casio, Sharp, Seiko, and Canon have since gone into the market, and contributed to create electronic dictionaries that are smaller and have more contents. Today, some of them specialize in a single language, but most of them contain two or more languages. It is common for an electronic dictionary to have several English dictionaries such as the Oxford dictionary, which has more than 183,000 words, and the Genius dictionary, which has 96,000 words. Moreover, these electronic dictionaries usually include other dictionaries such as legal dictionaries, travel dictionaries, and medical



Figure 17: Casio XD-SF 6300

dictionaries. The most popular electronic dictionary, Casio's XD-SF 6300, has more than one hundred entries from novels to President Obama's Speech. It even pronounces English words and sentences, so that people can check the pronunciations of the words.

The number of dictionaries sold has been steadily increasing: 2,040,000, 2,380,000, 2,380,000, 2,510,000, and 2,800,000 were sold in 2003, 2004, 2005, 2006, and 2007 respectively. According to the survey, 66.7% of Japanese people have electronic dictionaries today. The age groups who utilize these electronic dictionaries are high school and college students, 80% of which use electronic dictionaries. Furthermore, 70% of the users said they always carry their electronic dictionaries to work and school (Sasahara, 2005). Thus, electronic dictionaries have become a necessity for Japanese people. This pocket-sized electronic dictionary has improved mobile convenience because users can look up the

information wherever they want. In 2008, Sharp introduced a color electronic dictionary that is equipped with 1seg function called Brain, the PW-TC980. Thus Japanese electronic dictionaries have been evolving, and it will keep increasing the Japanese people's mobile convenience.

To Interact with Others

As technological innovation moves forward, the way people interact with each other has also changed. Although face-to-face communication is still the most preferable communication method, people are looking for a more convenient way to communicate with each other. For example, a telecommunications technology allowed people to transfer copies of documents through fax. Then, the Internet appeared, and it enabled people to send digital messages without the presence of receivers. The Internet technology developed Internet phones, such as Skype, and made it possible for people to talk no matter where they are. As globalization progresses, online conferences have become an essential tool for many businesses. Thus, technology has made great progress on communication methods. Today, what used to be a one-way communication is becoming more and more two-way communication, so that people can interact with each other.

Digital Terrestrial Television

Television has always been a significant source for people to gain information. However, Japanese TV stations are facing a transition period because of the emergence of new media such as the Internet. As the number of viewers has declined, the revenues from advertisements have also declined. Commercial television dominates most of the share in Japan where cable television is not as widespread as in the United States. There are five national stations and one public television: Fuji Television Network (Fuji TV), TV Asahi

Corporation (TV Asahi), Nihon Television Network Corporation (Nihon TV), Tokyo Broadcasting System Television (TBS), TV Tokyo Corporation (TV Tokyo), and Nihon Hoso Kyokai (NHK). While the public television NHK is funded by subscription fees paid by television owners in the similar way as the BBC is funded in the United Kingdom, the other five commercial TV stations revenue depends on advertisements earnings. As advertising revenues fell due to competition from the Internet and bad economy, some of the stations face the danger of extinction. As a result, four out of the five national commercial TV stations had a deficit for the fiscal year of 2008. The only TV station that generated surplus, Fuji Television, communicated with viewers through technology. The termination of the analog terrestrial television by 2011 provides new communication methods (GMID, 2009b).

The switch to the digital terrestrial television enables two-way communication between TV stations and viewers. With the blue, red, green, and yellow button on remote controller for digital terrestrial television, viewers can now participate in the TV programs. Fuji Television is the station that utilizes the benefit of the digital terrestrial television. Its most popular live sports channel, Sporto, takes polls during the program using the function. There are other possible usages to make the most of this function. For example, viewers will be able to pull the information about the bag which the actress is wearing in the TV show and purchase it if she likes on site through television shopping. This future television shopping service will not only increase convenience to consumers, but also boost profits of TV stations.

Since the Internet appeared, consumers have become more active. For the websites like YouTube enables any person to express whatever he or she wants. This communication

change has altered how TV stations communicate with their viewers. Therefore, it is required for television to let viewers participate in making these programs.

In the future, people may be able to even smell food on a TV screen. An experimental TV set called “Smellite” has an ability to transmit scent through a TV set by using a technology called Digital Smell Technology (DST). Smellit is equipped with 118 different scent cartridges and emits an odor as an image shows on a TV screen. It is still underdevelopment, but it will definitely herald the next step of what digital television is going to become (Web Marketing, 2009). Thus, Japanese digital TV has been changing to be able to interact with people. Technology made it possible for people to interact with each other no matter how far they are apart.



Figure18: Smellit and Scent Cartridges

On-line Games

One of the most popular Japanese subcultures is the video game culture. Nintendo and Sony are both based in Japan. They produce game systems such as Nintendo DSi, Wii, PSP, and Play Station. The number of units sold of Sony’s PSP for the week of April 26th, 2009 was 41,187, which was the record high for the company. Following the PSP sales, that of Nintendo’s DSi was 37,495 (Lee, 2009). The demand for home consoles also stays strong: the number of units sold of Sony’s Play Station 3 during the same period was 23,351 while

that of Nintendo's Wii and Microsoft's Xbox 360 was 18,439 and 7,016, respectively.

Although games used to be played by one or two people, thanks to the development of the Internet, now players can connect to people around the world.

Nintendo, a leading company of the game industry, started providing a Wi-Fi connection service with its products such as the Wii and DSi in 2009. Nintendo offers three benefits through this service: easy, safe, and no costs. Users can use the Internet connection for free as long as there is a wireless connection. Since many Japanese cell phone require a fee usually based on the length of the Internet connection, this feature is very attractive to Japanese consumers.

DSi, a new version of DS, has several new features such as two cameras, music players, sound recording feature, and thinner case with larger screen. The most significant improvement is the Wi-Fi support which enables users to download games, use the Internet, and play games with other DSi users. For example, with the Wi-Fi connection, Mario Kart users of Mario Kart, Nintendo's popular game software, can now race with not only users in Japan, but also users in all over the world. Four players can race online. If users choose the criteria, the software automatically matches players with similar criteria. Another example is chatting. With another software called "Animal Crossing: Wild World," four players can play by intercommunicating their characters, and communicating with friends through chat (Nintendo, 2009).

For now, Nintendo has its own Wi-Fi stations at places like toy stores, electronic stores, and supermarkets, since the availability of wireless connection is still limited in Japan. However, these game companies' Wi-Fi connection service may become a trigger for the wireless Internet to spread throughout Japan. In fact, Starbucks Coffee just started providing

wireless Internet with 111 stores in Japan from November 1, 2009. Therefore, it is assumed that more people are going to communicate through technology than before.

Implications

Technological innovation has become more critical than ever before. As a result, countries and corporations continually strive to compete with each other by developing new technology. Japan has played an important role in leading this trend in technological innovation. Like Toshiba's innovative laptop computers, there is a strong possibility for the Japanese technology introduced in this paper to be adopted and implemented by other countries in the future. However, innovators need to make sure that these new ideas and technologies are presented differently to each adopter category in order to be accepted by them. Otherwise, a technological innovation could fail in the middle of the adoption curve.

Geoffrey A. Moore (2002) argues that discontinuity could occur between each of five adopter categories (See Figure 1). Moore argues "It is important to maintain momentum in order to create a bandwagon effect that make it natural for the next group to want to buy in" (2002, p.14) He believes that there are cracks between each adopter category, mainly between the innovators and the early adopters, the early adopters and the early majority, and the early majority and the late majority. The first crack is a relatively minor gap and it occurs "when a hot technology product cannot be readily translated into a major new benefit" (Moore, 2002, p.17). Innovators need to present how to start using a technological innovation as well as the benefits of the technological innovation. If a technological innovation is not attractive enough for the early adopters to choose over other traditional alternatives, it is most likely to fall into this crack (Moore, 2002).

The most dangerous crack, called a chasm, in the adoption and innovation curve lies between early adopters and early majority. Many new technologies fall in this chasm because of different adoption behaviors of early adopters and early majority. Early adopters expect inevitable risks followed by a technological innovation because they adopt new technology to gain competitive advantages. On the other hand, the early majority expect the risk to be minimized because they adopt new technology to improve productivity. Therefore, the early majority tends to rely on opinions from others before they adopt a new technology. Moore argues that a chasm occurs when promoters of technological innovations are “operating without a reference base and without a support base within a market that is highly reference oriented and highly support oriented” (Moore, 2002, p.22). That is why many technological innovations fail between early adopters and early majority.

Another crack exists between the early majority and the later majority. A technology falls into this crack when it is not easy to adopt because the late majority are less likely to be technologically competent. Therefore, by the time a technology is introduced to the late majority, a technology needs to be user friendly in order it to be successfully transferred to other members in the social system (Moore, 2002)

A technological innovation needs to meet three main criteria in order to spread through a social system: to present the usage and benefits of a technological innovation attractive enough for early adopters to choose it over traditional alternatives, to establish a strong reference base for early majority, and to make it easy for late majority to adopt it. Since Japanese consumers are considered technology innovators, their main challenge is to successfully transfer the usage and benefits and make a strong reference base of their technological innovations. If the Japanese technological innovations could successfully cross

the cracks, especially the chasm, then there will be more opportunities for them to be adopted by other countries.

Conclusion

As a Japanese Generation Y consumer, who was born and raised in Japan, I have observed Japanese consumers and Japanese technological innovations. In this paper, I to provided information about why Japanese consumers are technology innovators, and described how Japanese consumers use technology as a solution. Since Japanese consumers adopt technological innovations while valuing cultural norms, Japanese technology has become one of the most unique in the world. It is clear that understanding technological innovations could provide a key to become successful technological innovators.

Rogers described how a new idea and a technological innovation spread through culture in his Diffusion of Innovation theory. There are five adopter categories: innovators, early adopters, early majority, late majority, and laggards. Japanese consumers are considered innovators because they are the ones who select technologies first. Two cultural issues have influenced the characteristics of Japanese consumers as innovators.

The history of Japan made a great impact on the Japanese consumers' venturesome characteristics. Among all Japanese consumers, Japanese Generation Y consumers, including high school students and working women, have most of the venturesome characteristics because of their strong spending power. They are the ones who take the initiative to try out new technologies without being afraid. Technological innovations have influenced Japanese society in many ways, such as communication methods, businesses, and lifestyle. The emergence of new technology, including the Internet, has changed the way companies market to Japanese consumers as well as the way Japanese consumers communicate each other.

Also, technological innovations have created new businesses opportunities; such as Japanese Internet cafes and even towns that specialize in electronic products. Moreover, technology has influenced Japanese consumers' lifestyle. Today, technology is not only a tool for businesses to improve their efficiency but a way for consumers to improve quality of their life. These changes have driven Japan to become an even more technologically advanced country.

Most importantly, Japanese consumers use technologies in order to solve problems as well as to satisfy their needs: to improve efficiency, improve convenience, to express themselves, to gain mobile convenience, and to interact with others. Some of the examples talked about in this paper were: wallet cell phones and smart cards as solutions to improve efficiency; restrooms, electronic menus, and vending machines as solutions to improve convenience; Mixi, Niko Niko Douga, and Deco-mail as solutions to express themselves; Iseg, QR codes, and electronic dictionaries as solutions to gain mobile convenience; and finally, digital television and online games to interact with others. Japanese consumers are good at tailoring technology in order to satisfy their needs, in that way, they are considered technology innovators.

As Rogers' adoption and diffusion process shows, there are certainly some possibilities that Japanese technology could be applied to other countries. For these technological innovations to continue being successful, cracks, especially a chasm, between each adopter categories need to be crossed successfully. By presenting the usage and benefits of the Japanese technological innovations, and by establishing a strong reference base, Japanese technology will gain more opportunities to be adopted by other countries.

Since the ability to innovate new technology has been and will continue to be critical in surviving the current business world, innovative Japanese consumer behavior will keep providing Japan with an advantage. Moreover, analyzing how Japan has successfully become a technologically-advanced country will provide other countries with an opportunity to find out the key to success in the future. Although Japan is such a small country, Japan has developed its position as an economic superpower by pursuing technological advancements. However, it is Japanese consumers that have driven the country to be an innovative economic super power. This is why Japanese consumers are considered technology innovators.

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