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Entering the Internet Race: The Early Years of the Internet and Internet Commerce in Japan

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Abstract

Ten years ago, Japan lagged well behind in the race to capitalize on the commercial and other possibilities of the Internet. Cumbersome government regulations and an Internet-averse business community combined with aspects of Japanese society to make the Internet less compelling in Japan than other countries. The advent of the mobile Internet resulted in an exponential growth in Japanese e-commerce and m-commerce, vaulting the country into the world lead in the development of profitable Internet-based business models. This essay summarizes the early history of the Internet in Japan and outlines the general contours of Internet commerce in the country.

Japan is one of the world's most innovative nations in internet commerce, particularly through the numerous implementations of its cutting edge mobile internet technologies. In the months to come, this column will introduce readers to the regulatory, technological, commercial and consumer aspects of the Japanese internet. There are important insights to be gained from Japan, which has experienced massive expansion in its mobile commerce, numerous experiments with micropayments and business-banking interface, and the adaptation of computer-based products and services for consumer use. It is important to realize, however, that only a decade ago Japan lagged well behind the leading industrialized nations and appeared to be in danger of being left behind in the global IT race. As a foundation for later discussions of current Internet applications and implementations, it seemed appropriate to begin with a general introduction to the early years of the Internet in Japan.[1]

Jura Mura, often referred to as the "Godfather of the Japanese Internet", battled with government officials over the right to bring the Internet into the country. Between 1979 and 1984, the Tokyo-born Murai constructed the Keio Science and Technology Network, Japan's first campus-wide local area network. Murai resented the government's iron grip on the use of the telecommunications grid and lobbied for a more democratic approach to technological developments. Faced with continuing opposition, he and his colleagues went ahead on their own. The first iteration of the Japanese Internet was a small initiative called JUNET, offering a dial-up service using regular public telephone systems and targeted primarily at the research community. Language, however, left Japan isolated: "The Japanese language and the prevalence of character codes incompatible with international standards results in a new kind of natural seclusion today for the individuals on the pasocom tsuusin (personal computer communications) islands of Japan."[2] The popularity of JUNET led, in 1987, to WIDE (Widely Interconnected Distributed Environment), a more substantial electronic backbone supported by several major companies, including Sony and Canon. WIDE also provided a crucial link between Japanese research centres, universities and companies and a rapidly expanding American network.

As happened elsewhere with the Internet, non-scientific and non-commercial users quickly recognized the potential of the new technology. The Japanese government, however, permitted only highly restricted use of the Internet and did not support efforts to broaden access and usage. Murai and his colleagues resisted the government's attempts to control the Internet and, in 1992, created the Internet Initiative Japan (IIJ).[3] This system ran afoul of the Ministry of Posts & Telecommunications' rigid regulations by offering a competing system to the slower, less efficient, and less contemporary network operation of the government-sponsored National Centre for Science Information Systems (the government sponsored research organization which had been charged with developing Japan's Internet capabilities.) The country's telecommunications structure remained a serious impediment to the development of the Internet in Japan. The dominance of Nippon Telephone and Telegraph (NTT) at one end, seemed to block out potential competitors, while the proliferation of several thousand Internet Service Providers, most offering Internet access within a narrow geographic range, resulted in a highly fragmented, second-tier service industry. The ISPs lacked the economies of scale necessary to secure premium band-width, resulting in much slower and poorer connections at much higher costs than were the norm in other major industrial nations. Over the years, private ISPs obtained access to better international connections, expanded throughout Japan (primarily by buying smaller companies) and improved service significantly.[4] Prices fell but not as dramatically as in the U.S. and other key markets.

A combination of factors - high telephone usage rates, the dominance of English on the web, the consequent limited number of Japanese language web-sites, browers unable to handle Japanese characters, corporate reluctance to adopt the Internet as a means of advertising, and the slow spread of computers for home use conspired to limit Internet traffic. It is hardly surprising, therefore, that through the mid and even late 1990s, Internet usage lagged behind that in many other industrialized countries. The January 1995 Kobe earthquake was at least partially responsible for convincing government officials and the public of the considerable benefits of the new technology as the Internet served as a vital means of sharing information at a time when other communications systems proved inadequate. (Between 1995 and 1996, usage in Japan expanded by 41%, by far the highest increase in the world in that time. Asia Pacific went up by 26% and Western Europe by only 15% in that year.)[5]

Convincing government officials of the importance of the Internet was critical. As Canadian Roger Boisvert, founder of Global On-line, Japan's first high quality privately run Internet service provider, explained it was important to show why the internet was valuable to Japan. He had to do so to make his proposed launch of an internet service provider attractive to the Japanese bureaucracy. He said, "I had to present it in a way that would make the government want to do it for me. I had to think of what was in it for Japan. I told them that if Japanese companies do not have access to the most up to date information in the world, then they will fall behind and the country will fall behind."[6] The government bought the idea sufficiently to give Boisvert permission to proceed. The general telephone service followed a similar pattern. In 1995, only two foreign telecommunications companies held the key Type 1 licenses. By 1999, that number had risen to 20. NTT's rates fell dramatically, but impediments to comprehensive Internet usage remained. The telecommunications transformation formed the foundation for the expansion of the Internet in Japan.

Gradually, the Japanese government overcame its resistance to the Internet and even began to slowly promote those aspects it deemed important. In 1997, the Ministry of International Trade and Industry (MITI)[7] allocated Y30 billion to electronic commerce pilot projects, attempting to jump-start the

somewhat recalcitrant Japanese retail sector.[8] However, until 2000, the government did not make a concerted effort to encourage the IT revolution nor did it do the one thing it really needed to do to increase Internet usage, which was to reduce the high cost of accessing the Internet by forcing NTT to restructure its telephone charging system. (In Japan, telephone users are charged for each local call. They do not, as in North America, pay a single monthly fee that is not tied to usage.) Internet usage in Japan grew but only slowly.

In the fall of 2000, the Japanese government committed 1 trillion yen to IT initiatives, promising such diverse measures as the establishment of a computer network connecting 4,000 schools, Internet training for seven million adult Japanese, regulatory changes to encourage greater use of IT in business and promote online government services, financial assistance to start IT related businesses, the introduction of a high speed phone network to smaller Japanese cities where fibre optic lines are not available and research and development monies to explore the potential of IP Version 6 which allowed the Internet to be accessed from cars and electrical appliances.[9] The government promised to move government services on line, bring computers into general use in its administrative offices (the country lagged well behind the industrial world norm in this regard), deregulate Internet fees, and support increased competition in IT.

The government introduced sweeping legislation - revising, eliminating or easing hundreds of different laws- to facilitate the expansion of e-commerce. In March 2001, the e-Japan Priority Policy Programme was established to put in place the steps needed to achieve e-government by 2003, create an e-commerce market of over 70 trillion yen, and to form the world's most advanced IT network. There were many related initiatives in telecommunications and commercial regulations, part of the government's effort to address the systematic challenges facing the national economy during the recession of the early 21st century.   In the main, Japanese efforts mirrored - with a lag in implementation - initiatives being undertaken in all of the industrialized nations.

The major change in Japan came as a result of a unique marriage of technological innovation and commercial creativity. Ironically, givent he history of domination by major telephone companies, it was an NTT subsidiary, NTT DoCoMo, and i-mode (Internet accessible mobile phones) that caused Internet usage to soar dramatically. In 1999, the mobile phone (keitai in Japanese) based internet was introduced by a company called NTT DoCoMo (which means "anywhere." Company ads also have it stand for "do communication over the mobile internet"). The firm came to market with a portable telephone with a small screen (about 11 lines) that allowed users to send e-mail and access a few internet sites. The system was named i-mode, with the "I" standing for information. Users push a button and change the mode from phone to e-mail. Within just over a year, DoCoMo had 5 million users and three rival companies entered the market. Remarkably, in one of the fastest technological uptakes in the lightening fast Internet revolution, by 2004 there were almost 64 million subscribers to Japanese mobile internet services.[10] Importantly, the service was unique to Japan, in that the websites are available only in Japanese and hence have little audience outside the country.

Mobile Internet users have access to a wide range of commercial services, ranging from train schedules, restaurant menus, hotel and dinner reservation systems, taxi cabs, GPS services, and numerous information sources, including news, sport scores (especially beloved sumo results), weather and traffic reports. Much of the information is targeted at specific age groups- there are a high percentage of young female users - and a considerable amount of content is free. Importantly, Japanese consumers have shown themselves ready to pay for Internet services and content, capitalizing on the micropayment system facilitated by the mobile internet. By 2000, several national magazines appeared catering to young keitai users, offering updates on new web-sites, downloadable games, music sites, and related information. Companies recognized that there were literally millions of potential consumers using their keitai and raced to bring their services to market, thereby making the telephone terminals ever more useful and the service that much more cost effective. One of the most successful has been Bandai, a noted Japanese animation firm, which offered a very basic service: for as little as 100 yen (less than $I) a subscriber could receive a new cartoon image for their phone daily. Thousands of users signed up immediately.

DoCoMo users have access to about 4,000 official i-mode sites (sites that DoCoMo monitors to ensure that they are interesting, appropriate and easy to use) and 60,000 unregulated internet sites. The official sites are by far the most popular and DoCoMo is very careful about which sites are approved. One service that did not initially meet DoCoMo's standards for safety was ImaHima ("Are you free now?), a "socializing and scheduling service enabling mobile customers to locate and contact friends, schedule parties and events, meet new people and find information and activities based on their current location

via mobile phone." DoCoMo was worried about the potential for criminals to meet victims through the service and changes were eventually made to the system to satisfy this concern.

Among the unregulated sites are both many abridged versions of regular websites and others that have been especially designed for the mobile environment. Not all of the content is serious. In fact, as one writer summed it up, "Much of that content is about sex, sports, sex, astrology, sex, animation and sex." [11] Nonetheless, along with sex, sports, astrology and animation are the practical sites listing transportation routes and schedules, restaurant and concert information, updated sports scores, stock prices, short games, and music clips. There also many unique sites - a Starbucks locator service; a site "that brokers deals between drivers and cargo companies,"[12] Photonet that lets subscribers deposit their personal photos which can then be accessed by prospective dates,[13] Warikan-kun "where after-work groups of imbibing colleagues can easily calculate how much everybody has to pay - including a discount for people who came later (and presumably drank and ate less) and a proportionately higher charge for the boss"[14] - and many others.

Of i-mode's over 1800 official sites, approximately 1200 are free. The free sites make money by selling products or services through their web-sites. Tsutaya, a big video and CD rental chain, earned more than Y100 million per month in 2000. (Tsutaya also sends redeemable electronic coupons to its i-mode users. During these video rental promotions, revenues from rental fees jumped by sixty percent.)[15] Some securities companies have made Y800 million yen a month. According to the President of DoCoMo, the fee-charging sites usually charge between 100 and 300 yen to subscribe. Most need about 10,000 subscribers to remain in business. While for some firms 10,000 subscribers is a big stretch, there are others with over two million subscribers, each paying about 200 yen a month resulting in monthly sales of about US$4 million. About half of all i-mode users pay for content and those users who pay subscribe to an average of 2.2 content sites.

The Japanese mobile internet system is succeeding because it is simple to use, portable and offers an easy payment system making it very attractive to consumers. Equally, the combination of ordering over the Internet and an exceptionally efficient home delivery system and the use of convenience stores and depots at train stations to pick up parcels has made e-shopping very convenient.   At the same time, both content providers and the parent company are able to make money. Content providers earn revenue through subscription fees and/or through the products or services they sell through their web-sites. DoCoMo makes money by charging a 9% commission to the content providers and charging users monthly fees and data downloading costs. A typical i-mode user spends about 400 yen (US$3.25) a month on content subscriptions and 2,000 yen (US$17) on downloading content.

The combination of benefits to consumers, content providers and the parent companies created an overnight success. Usage soared and rival firms moved quickly into the market. What differentiates Japanese m-commerce from e-commerce models in the rest of the world is that it is practical, easy to implement (the web-sites have to, for technological reasons, be simple and manageable) and, most importantly, profitable.

The mobile internet in Japan has succeeded because it is so well suited to Japanese life. Many Japanese people spend a good portion of their day away from home. It is not uncommon for people to travel two hours each way to work on a daily basis; many activities require long waits in line. The mobile Internet phone allows access to the Internet at any time from anywhere. For commuters, the Internet is accessible from the train or bus, while walking or even riding a bike. Students waiting for classes in the library or the cafeteria, salarymen walking to work, office ladies planning to meet friends for dinner, young couples searching for a movie, business people in urgent need of financial information, and countless others quickly recognized the value of the mobile Internet. By the early 21st century, a full commuter train would often have a dozen or more people surfing the Internet (interspersed with telephone conversations). People riding bikes or walking along crowded urban streets can be seen working with their keitai. I-mode is particularly great for hima otsubu (literally "crushing free time"); coffee shops are also filled with people typing away on their phones. I-mode users, therefore, have very different usage patterns from people who go online with their personal computers. While the average time spent online for a Japanese personal computer internet user is thirty minutes, the typical i-mode subscriber goes online for about two minutes. People will use i-mode for very short periods of time while waiting in line or commuting by train or bus.[16]

The world of the mobile internet in Japan continued to expand. In January 2001, DoCoMo launched its Java technology which makes possible many more complicated functions like networked games, real time stock prices, chat software, business support programs and, possibly most importantly, software

enabling secure mobile commerce transactions. New competitors, including KDDI, J-Phone and J-Sky, entered the marketplace, adding new services and, equally importantly, competitive prices. By 2002, companies were launching 3G systems which added music and video capabilities. Next came the digital camera equipped cell phones capable of taking, sending and receiving photographs. Japanese companies continue to explore other possible uses of the wireless technology and have partnered with overseas firms to develop markets in other countries (with France proving to be the most successful international implementation to date).[17]

DoCoMo and its competitors established a new technological platform for the internet in Japan, sparking an m-commerce revolution that is one of the most significant and successful commercial applications of the internet age. Its export of the mobile technology through alliances in Asia, North America and Europe have met with mixed success but the technology was exceptionally well-suited to Japan. The technology-savvy Japanese consumers, frustrated with expensive desktop Internet systems, flocked to a new service which was well-suited to the social, economic and cultural dynamics of the Japanese system. Commerce followed rapidly on the heels of technological innovation, capitalizing on the wide distribution of the i-mode to develop m-commerce business models which included easy to use micro-charging systems and which held enormous potential as a platform for internet banking and financial services.

The success of the mobile Internet, and the continued comparative weakness in the desktop Internet market, illustrates several key characteristics of the Internet revolution. First, much like the technology itself, the Internet finds its ways around blockages and bottlenecks, the most of important of which in Japan related to government regulation. Secondly, technology and the adaptation of new services and products is often closely related to cultural and social norms and realities. The mobile Internet works exceptionally well in Japan because it is suited to the national situation and because Japanese consumers are more likely to try new technologies than in other countries. Perhaps most importantly, the Japanese experience reveals a fundamental truth about the Internet: while the impact of the technology has often been over-hyped and exaggerated by promoters and commentators, the reality is that the Internet has had profound and rapid implications for societies around the world, often outstripping the dreams and aspirations of the early developers.

Subsequent columns on Internet commerce and banking in Japan will examine more specific aspects of the Japanese situation, ranging from specific commercial applications to government regulations, subsidies and policies relating to Internet finance. Japan remains at the leading edge in terms of practical, affordable and commercially viable applications of Internet technology, particularly in the innovative field of mobile commerce, and the national experience provides useful insights for businesses, government officials, and students of the Internet around the world.

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[1] This essay is based, in large measure, on Ken Coates and Carin Holroyd, Japan and the Internet Revolution (Houndsmills: Plagrave Macmillan, 2003) and Ken Coates, "Back in the race: Japan and the Internet," Japan After the Economic Miracle: In Search of New Directions, P. Bowles and L. Woods, eds., (London: Kluwer Academic Press, 2000).

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[4] For a review of the ISP situation, see Daniel Grunenbaum, "Internet Service Providers in Japan," The Journal, vol135, no.1 (January 1998).

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[7]

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[9] "Ministries apply for billions for IT", Japan Times, 7 October 2000; "11 trillion yen plan gets official nod", Japan Times, 20 October 2000.

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[11]Larimer, Tim. "Internet a la i-mode",Time magazine, March 5, 2001, p.54.

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[16] Yutaka Mizukoshi, Kimihide Okino and Oliver Tardy, "Lessons from Japan", Telephony, January 15, 2001, p.95.

[17] Daniel Scuka, "NTT DoCOMo's I-Mode Clone Grows Quietly in France," Japan Media Review, 24 July 2004.