

Ntt docomo



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NTT DoCoMo i-mode: value innovation at DoCoMo. (2003). Recuperado de la base de datos de UESAN (031397) 16088 INSEADBlue Ocean Strategy Institute The Business School for the World18 BOS005 NTT DoCoMo i-mode TM: Value Innovation at DoCoMo 08/2009-5079 This is a modified version of the original case 'NTT DoCoMo i-mode' 'M: Creating a Solution for the Masses' (number 05/2002-5036), written by Yasushi Shiina, INSEAD MBA 2000. Jason Hunter prepared this freely adapted version, under the supervision of Professors W. Chan Kim, Renee Mauborgne and Ben M. Bensaou.

It is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Copyright© 2003 INSEAD-EAC i-modeTM is a registered trademark of NTT DoCoMo, Inc. in Japan. TO ORDER COPIES OF INSEAD CASES, SEE DETAIL ON THE BACK COVER. COPIES MAY NOT BE MADE WITHOUT PERMISSION. Every ten years, Japanese companies come up with a new mobile device that shakes the world. Sony's Walkman was launched in 1979 and Nintendo launched Gameboy in 1989. And in 1999, we invented i-mode.

I Mari Matsunaga Kouji Ohboshi is a worried man. It's early 1999, and NTT DoCoMo's Chairman is anxiously waiting to hear how the press conference for i-mode- his company's new mobile Internet system - has fared. He has every reason to be nervous. Although DoCoMo is a leader in the Japanese mobile industry, the market is showing signs of saturation and Ohboshi has gambled a large stake of his company's future on the development of the new system. The report arrives and his worst fears are realized: the press conference was a debacle.

The launch of i-mode couldn't have gone worse. With only seven reporters attending, i mode's extravagant debut had fallen on deaf ears. Those journalists present were among Japan's least charitable. With the Internet boom waning, reporters were more skeptical than ever. Mobile Internet services had failed elsewhere so why should they work in Japan? Why not wait, like everyone else, for the third generation (3G) global wireless Internet protocol? Ohboshi knew that unfavorable or- worse - weak press coverage in Japan's trend-driven mobile phone market could spell disaster.

Had he made the wrong decision to shift the company's strategic focus? Were his skeptical colleagues at DoCoMo right? What Ohboshi didn't know at the time was that in the weeks to come, i-mode would become an explosive success. Like the Walkman and Gameboy that preceded it, i-mode was to be more than simply a commercial success - it became a phenomenon. What explains this amazing success in Japan? How did DoCoMo turn a highly competitive industry with declining growth potential into an attractive business opportunity? NTT DoCoMo's Troubled Birth

NTT DoCoMo was formed in 1992 as part of a partial government break-up of the powerful Nippon Telephone and Telegraph (NTT) telecom monopoly. Formerly NTT's mobile phone unit, it was cast from the nest to take over wireless communications sales and operations as an independent enterprise. Kouji Ohboshi, an energetic 60-year-old, was the first CEO of a company whose name DoCoMo is both a play on the Japanese word for "anywhere" and an abbreviation of 'Do Communications over the Mobile network. 'Interview: Ms. Mari Matsunaga, formerly Manager, Gateway Business Dept. NTT DoCoMo (20 Aug. 2001). Copyright© 2003 INSEAD-EAC 08/2009-5079

Blue Ocean Strategy Institute From the start, Ohboshi realized that DoCoMo had a tough road ahead. The mobile phone market was over-regulated, transmission quality was poor, subscription fees were costly and mobiles were heavy. 2 Moreover, there was a palpable sense that the market had reached a plateau (Exhibit 1). 3 Japan's economic bubble had burst and businesses had cut back mobile phone purchases.

To add insult to injury, tough new government rules forbade the fledgling DoCoMo to ask NTT for financial assistance. By the end of its first year DoCoMo was saddled with a " 10 billion yen loss ... and bankruptcy was a serious threat. " 4 Paced with a looming crisis, Ohboshi went for broke, setting out to expand the market by bringing cellular phones to the masses. And he did so with a vengeance. During the next two years, Ohboshi invested 50 billion - a large sum for a company making a loss - to bring DoCoMo's mobile network services to everyday users. 5 His first move was to improve DoCoMo's network.

In 1993 the company launched its new revolutionary PDC (Personal Digital Cellular) standard, bringing crystal clear calls, fewer interruptions and less background noise. Moreover, PDC helped DoCoMo use its limited allocation of radio spectrum more efficiently. Within a few months DoCoMo's PDC standard was adopted by competitor carriers across Japan. By December 1998, it would account for 98. 7% of the Japanese market. (Exhibit 4)6 Next DoCoMo slashed prices. Its high deposit was abolished in October 1993 and subscription fees were cut in 1996.

By March 1999 monthly basic charges had dropped 73%, the average charge for a three-minute call on DoCoMo falling 57. 6% in the same period. Once

again, the rest of the industry quickly followed suit by cutting fees (Exhibit 3). The lust for market share in the mid-90s drove carriers to continue slashing prices to rock bottom levels, even as monthly average revenue per user (ARPU) continued to sink (while monthly average minutes use remained relatively stable). (Exhibit 5) Ohboshi also attracted new customers by reducing the size of the phones.

NTT had one of the largest R; D teams in the telecom industry and DoCoMo maintained close relationships with 2 Matsunaga (2000}, i-mode jiken (i-mode: The Birth of i-mode), Kadokawa Shoten. 3The first Japanese cellular phone service was launched in December 1979. It was a disaster. The high service fees made the telephones unaffordable to all but the wealthiest of businessmen (sa/arimen). After putting down 200, 000 deposit and a 72, 000 subscription fee, users would hand over another 26, 000 in monthly fees and a call charge of 280 for every three minutes.

Moreover, the service area was limited, the sound quality was inferior to pay phones, and you had to be physically fit: first generation cellular phones weighed 3kg and were carried over the shoulder. With the stimulation of government deregulation and subsequent technological innovations it took a full 10 years before cell phones became increasingly attractive to mass consumers. Carriers and telecom equipment manufacturers worked closely to improve both the usability of the phones and the quality of transmission. Rightly, they believed that reducing the size of handsets and extending their battery life were crucial improvements.

By the end of 1998, the weight and the battery life of a standard phone reached 68g and 330 hours respectively (Exhibits 2 and 3). 4 Interview: Mr.

Kouji Ohboshi, Chairman, NTT DoCoMo 5 Ohboshi (2000): DoCoMo kyuseicho no keiei (DoCoMo: Management of rapid growth), Diamond Sha 6 Tadashi Aoyagi (2000): Daisansedai keitai business: nichibeiou no nerai (The third generation cellular phone business: Aims of Japan, US and Europe}, Ric Telecom (exhibit 19) Copyright© 2003 INSEAD-EAC 2 08/2009-5079 elecom equipment manufacturers. 7 Ohboshi leaned heavily on DoCoMo's engineers and its suppliers to reduce the size of phones and extend their battery life. Although DoCoMo was feeling the effects of deregulation, it made the best of the gains offered by the new competitive environment. Within a year of Ohboshi's drastic measures, DoCoMo was still Japan's largest mobile telephone carrier, and its revenues and net income had soared. 8 By March 1999, DoCoMo's sales revenue ballooned to ; ¥ 3, 118 billion with a net income of ; ¥ 205 billion, and market capitalization topping out at ; ¥ 11. trillion- about 60% of the size of its parent company, NTT. (Exhibit 8) The Wud, Wireless East NTT DoCoMo's emergence, together with deregulation, technological innovation, price reduction and the launch of new services all contributed to the rapid expansion of the mobile phone market to mass users in Japan. In a 10-month period during 1998, the market grew by an estimated 8 million users, bringing the total number of subscribers to 39. 8 million in January 1999- fulfilling 87. 2% of Japan's total wireless market. (Exhibit 1) 9 Competition for market share in the late 1990s was cut-throat.

Deregulation continued apace and by 1998 a flood of large foreign carriers and equipment manufacturers had entered the fast-growing market as the government lifted the last remaining limitations on foreign investment (Exhibit 4). 10 Competition was equally fierce in the drive to offer new

services. J Phone shrewdly targeted younger users, launching the first SMS (short message service) and information services via the J-Sky Web package. Using a similar approach, DoCoMo introduced the wildly successful 'Pocket Board,' a well-designed yet inexpensive mobile with email and game functions. 1 By January 1999, the wireless market in Japan had experienced seven years of rapid expansion (Exhibit 1), with every third person owning a mobile phone. Although the size of the market was still small compared to that of fixed lines, its annual average growth rate of 7 DoCoMo inherited from NTT close relationships with four large Japanese suppliers (NEC, Fujitsu, Matsushita Communications Panasonic and Mitsubishi Electronics), who worked closely with NTT DoCoMo to break through technological barriers.

This network soon became known as the 'DoCoMoFamily', since its products were sold under the NTT DoCoMo brand, and the only way to identify the manufacturer of a cellular phone was to look at the first letter of the product number (e. g. , 'N' for NEC). These relationships gave NTT DoCoMo considerable advantage especially once its PDC standard was accepted as the only one in Japan. 8 It remained the nation's leading carrier; however, at times DoCoMo's market share dropped below 50% due to fierce competition. The growth in subscribers was attributed to the increase in personal users. However, churn rates (subscriber termination rates) were also increasing, showing that customer loyalty was vulnerable in the new environment. 10 Airtouch acquired a 10-15% stake in the J-Phone Group of companies and offered its technical expertise; Motorola, a US electronic products manufacturer invested in the Tuka Group of companies. 11 For their part,

DDI Cellular and IDO improved the quality of transmission substantially by adopting the US-based cdmaOne digital protocol.

Although these services attracted new customers, these numbers were not significant enough to boost growth or change the structure of the market.

Copyright© 2003 INSEAD-EAC 3 08/2009-5079 -----y- Blue Ocean Strategy Institute 68% was astounding compared to the anemic growth (1. 5%) of the fixed line market. Yet despite general optimism in the market, Ohboshi was once again getting nervous. . After Victory, Tighten your Helmet Strap

His marketing background had taught him that, " fast growth means fast maturity, and faster speed for the market to move from maturity to saturation and then to decline". 12 The market was once again moving to saturation both in the number of potential new users and in capacity as available radio bandwidth increasingly limited market expansion. It was time for action. To survive, Ohboshi believed that DoCoMo needed " to create a new market, not by adapting to changes but by creating the changes through positively transforming their corporate strategy". 3 Ohboshi told his employees that DoCoMo had to shift from simply increasing the size of the voice-based wireless market, to creating new value for customers. Shortly afterwards, in July 1996, the company formally announced its new strategic focus: 'from volume to value. ' Volume to Value At the heart of Ohboshi's " Volume to Value" focus was non-voice-based wireless data transmission. With the explosion of Internet use during the late 1990s (Exhibit 6), DoCoMo realized that the use of e-mail and the web was quickly becoming a cornerstone of everyday life.

From new market and socialpsychologyresearch, Ohboshi was convinced that, " the daily needs and wants of the people in a mature society like Japan would shift from physical goods tocommunication, information, knowledge and entertainment". 14 Not only did the Internet offer new opportunities for ftlling customer demand, it also solved one of Ohboshi's greatest concerns: an increasingly congested radio spectrum. In contrast to traditional voice conversations that are sent via dedicated spectrum airwaves, Internet traffic is dispersed in small packets across the network to be eassembled at their destination (e. g. , a user's telephone). IfDoCoMo created an alternative mobile Internet network based on packet switching technologies, it would completely circumvent the burdened voice network. Within a year, DoCoMo was building one of Japan's ftrst nationwide packet-switching networks. 15 The mobile computing team was strengthened and soon new products and 12 Ohboshi (2000) 13 Ibid. 14 Interview: Mr. Kouji Ohboshi, Chairman, NTT DoCoMo 15 This system would not only ease the use of congested radio spectrum capacity, but also serve as the basis for 3G services.

Despite the optimistic market expectation and technological developments, the prospects for the 3G technologies were not necessarily bright. Although similar new data communication services attracted customers (e. g. , WAP services in Europe), they had not proved to be adequate enough to boost the market, and it was feared that the same might be true of 3G cellular services. The introduction of new 3G technologies would also create huge additional costs for carriers, which had already incurred more than 1 trillion yen capital expenditure over the past few years (Exhibit 7).

Furthermore, competition would increase as other international carriers competed in a single global market. Copyright© 2003 INSEAD-EAC 4 08/2009-5079 services were introduced- albeit not very successfully- culminating in 1997 with the '10 e mail service' (customers could send and receive 2 kilobytes of data for a mere 10).¹⁶ Although these early Internet initiatives were not big profit-makers for NTT DoCoMo, they created a new market by attracting customers who had never used cellular phones or e-mail before.

As one of the team members involved in developing mobile computing services pointed out, " Our intention was not to develop and introduce new products into the market, but to create and introduce new ways of using our traditional wireless services. "¹⁷ The New Wireless World In January 1997, Ohboshi asked Keiichi Enoki, a former electrical engineer and DoCoMo's new Director of Corporate Sales, to plan and launch a new mobile data communication service for the mass market embodying his "volume to value" strategy.⁸ He later reflected: About a year after we started launching new mobile data communication services, revenues from such new services increased to constitute 50/0-6% of our total revenues. With detailed marketing research and advice from external consultants, I felt a need to further boost these new services and asked Enoki, whom I trusted, to head a project specifically targeting the mass market. I assured him that he would have full discretion in choosing his staff and in using funds worth 5 billion yen, which is a lot of money.⁹ Enoki would have his work cut out for him. DoCoMo had a new strategic focus, but after two long years Ohboshi's team had yet to match vision with performance. Enoki had to create a winner. He

was tasked to develop a mobile phone service that would advance the Internet in the same way the Sony Walkman had advanced the stereo. But how? " I got the first hints from my family," recalls Enoki. " At that time, the pager was at the peak of its popularity. My daughter used the number pad as a form of data communication.

My son could play a new computer game without reading the instructions. Their ability to adapt to 16 In addition to these measures, Ohboshi and his successor Keiji Tachikawa, (then Vice-President}, set up a small project team within the Corporate Strategy Planning Department, and very soon the first proposal for NTT DoCoMo's 'Vision 2010' was drafted. The year 2010 was deliberately chosen as 'it will be the time when wireless telecom technologies will make innovations from 30 to 40 and also the period of 10 years is the longest possible for reasonable predictions to be made in a fast-changing environment' 'Vision 2010' forecast huge opportunities for mobile telecom services in enriching personal lives and in supporting global corporate activities. In particular, it saw a greater role for mobile data services in fulfilling the needs of women, senior citizens and medical systems, important to a society characterized by a lower birth rate and an aging population.

In addition to these market projections, it also emphasized the need for DoCoMo to cooperate with other companies to expand the wireless telecom market, and summarized DoCoMo's operations towards the year 2010 in five key concepts or 'MAGIC' for short (Exhibit 9). 17 Interview: Mr. Irukayama, Mobile Multimedia Business Department, NTT DoCoMo. 18 Ohboshi (2000). 19 Interview: Mr. Kouji Ohboshi, Chairman, NTT DoCoMo. Copyright© 2003

INSEAD-EAC 5 08/2009-5079 ew information technology and its ease of use convinced me that young people would accept a new data service that would give them the same kind of enjoyment. " 20 Now a believer, Enoki set out to tackle the new initiative by doing the unthinkable: recruiting new blood from the outside to lead the project. He first called Mari Matsunaga, a senior executive at Recruit Co. , a job placement firm. Matsunaga was known for her marketing prowess and dramatic turnaround of Recruit's job placement magazine for women into one of Japan's hottest titles. She would head the content development team for DoCoMo's new service.

Enoki then sought out a manager to devise a business model for the new mobile data communication service. He chose Takeshi Natsuno, a Wharton MBA and former head of Hypernet, one of Japan's first (and most hyped) net startups. 21 Developing the Electronic Concierge service Matsunaga set out to understand how the Internet works. What were the killer applications that provided web users with superior value? In studying the winners - such as AOL (America Online)- she found a positive correlation between the number of Internet users and the volume of content. As content increased, so did the number of users and vice versa. 2 Hence her conclusion: 'Content would have to be king on the new DoCoMo system. ' She also recognized that simply putting 'information' on the network would not differentiate the new service from the existing PC-based Internet, nor would it add value to users who were often lost in the sea of information on the web. Matsunaga thus envisioned a service that would function like a 'hotel concierge', where users would be 'serviced' by content providers. If DoCoMo could make it possible

for users to access pre-selected websites on the screen of their handset, then they would capture Mastunaga's concept of an Electronic Concierge.

The team set out to create such a user-friendly portal (Exhibit 10) to serve both as an accreditation of quality for those pre-selected "official" sites, as well as an easy way to navigate the whole wireless web - similar to the service AOL provides its customers (Exhibit 11). Users could access other "non-official" sites simply by typing in the URL address. Meanwhile, Natsuno devised a business model for the new mobile data communication service based on what he saw as the "Internet worldview" rather than the "telecom worldview".³ The telecom worldview, according to Natsuno, is a zero-sum approach: carriers determine the standards and the services that can ride on their network, and are not interested in adapting to others' technology or in sharing profits with other players in the value chain. Users must accept the infrastructure and services carriers offer them. Conversely, the "Internet worldview" is a positive-sum approach. As the Internet is an open network that can be accessed with various devices (e. g. , computers, PDAs) whose

⁰ 'A discussion with Keiichi Enoki, Senior Vice President, General Manager of Gateway Business Department, Mobile Multimedia Division' in NTT DoCoMo Annual Report 2000. ²¹ By the time he joined DoCoMo, Natsuno had already left Hypemet before the free ISP fell from glory in a multi-billion yen crash in 1997. ²² Interview: Mr. Kazuhiro Takagi, Director, Gateway Business Department, NTT DoCoMo. ²³ Takeshi Natsuno (2000), i-mode™ strategy (i-mode™ strategy), Nikkei BP. Copyright© 2003 INSEAD-EAC 6 08/2009-5079

pecifications are not necessarily determined by either content providers or carriers - all parties are obliged to accept one another's technologies and

services. In the Internet world, consumers choose the infrastructure they prefer. Specifications are thereby de facto standards determined not by their technological superiority but by the fact that they are so frequently used. In the Internet worldview, Natsuno believed, carriers have to work closely with other players, including information providers, to increase the number of users.

This 'win-win' relationship among players within the network became the foundation of Natsuno's business model. Accordingly, DoCoMo would not purchase content from providers or equipment from manufacturers but would rather accredit "official" websites and mobile phones to be used with the new service. Interested partners would share both the risks and the rewards. Although this model restricted DoCoMo's role to simply that of a "gateway" to the Internet, as the service attracted more users, the idea went, the network would attract more content.

More content would beget more users; more users would beget more content, and so on, thereby creating a virtuous circle where all parties benefit. Natsuno's 'win-win' business model would also be applied to the new service's billing system. A number of the "official" sites would be subscription-only sites requiring customers to pay fees ranging from ; y;? 00 to ; y; 300 per month. Under Natsuno's plan, DoCoMo would collect all these fees as part of its monthly phone bill, take a 9% commission, and then pass on the rest to the content providers.

This service would be attractive not only to content providers who could reduce their internal cost structure, but also to users who would appreciate not having to pay several separate bills. And by giving content providers a

means to charge users, i-mode would ensure that there was plenty of high quality content available. Lastly, Natsuno recommended that the new service adopt existing widely-used technologies. For example, although there were better text languages such as WML (Wireless Markup Language), DoCoMo adopted c-HTML for its new service.

With this compact version of HTML, the language widely used to create websites for the PC environment, content providers could quickly, easily and at low cost modify their PC-based websites into a new version to be displayed on the new DoCoMo service. New handsets were also developed that closely resembled existing cellular phones used exclusively for voice communication. Manufacturers were asked to reduce the size and weight of the new handsets while increasing screen size, data capacity and battery power. The Launch of i-mode

Almost a year had passed since Ohboshi had taken the decision to develop the new mobile data communication service, and pressure was mounting on him to perform. Although NTT DoCoMo had managed to maintain its position as the largest mobile telecom carrier in Japan, the cost of developing the new data service was taking its toll on Ohboshi's credibility and threatening the financial stability of the company. Colleagues peering in from outside Enoki's group were confounded by the project. " Why were we wasting our time and resources on unproven Internet phones, instead of concentrating on the still-growing, regular voice- 4 Similarly, content providers were inspired to continuously update their sites in order to keep their official status. And as content providers improved their websites, users were able to receive more 'useful' information from accessing the network and thus, all

three players on the network benefited. Copyright© 2003 INSEAD-EAC 7 08/2009-5079 based communication services? " they wondered.

By late 1998, opposition to 'Volume to Value' was growing and Ohboshi was once again under fire. Enoki and his team finally launched the new service as 'i-mode' on 22 February 1999- the 'i' representing 'interactive', 'Internet' and the pronoun 'I'.²⁵ Looking at the phones, a user would notice little difference from the latest models, except for a slightly larger liquid crystal display and the central feature: the i-mode button (Exhibit 12). This connected users to the Internet, where they could send and receive e-mail, access sport scores and weather, read the news, and download pages from the web.

The new i-mode handsets were priced from ¥35,900 to ¥42,800, about 25% more than regular phones (see Exhibit 15 for comparison with other goods/services). Users were charged ¥300 per month to access the i-mode network, and another ¥300 to access any of the subscription-only sites. Unlike regular mobile services, users were charged by the volume of data transmitted to their mobile phones rather than the length of time on the network. For instance, it would cost ¥0.3 per packet transmitted, and ¥0.2 to send (¥0.1 to receive) an e-mail of up to 250 characters. Exhibit 13) Data transmission over mobile phones would become increasingly important for DoCoMo's bottom line: as revenue from voice calls continued to fall - from an average of \$100/subscriber per month in 1997 to \$65 in 2001 - data revenue amounting to an average of \$17 per subscriber/month would increasingly fill the gap.²⁶ Initially 67 content providers participated in the new service, with sites ranging from banking to Karaoke.²⁷ In the

days that followed, dozens of " unofficial" sites sprang up, even though they were excluded from DoCoMo's official portal.

Aventure company developed a search engine for unofficial sites just 11 days after the launch of the new service as their number reached 190 (twice as many as i-mode official sites) within two months. (Exhibit 14)²⁸ i-mode was aggressively promoted through DoCoMo's nationwide network of shops. A how to book on i-mode was also published, followed by over 100 books and magazines within a year. ²⁹ The number of subscribers exploded reaching Natsuno's " critica! mass" of 1 million users by August 1999 (Exhibit 16). ⁰ By March 2001, i-mode subscribers reached 21. 7 million (Exhibit 17), and revenues from packet transmission services increased from , y; 295 million to ; v; 38. 5 billion within ayear after launch (Exhibit 18). ³¹ i-mode also contributed to an increase in revenue from regular voice services, even as price competition drove down 25 Natsuno (2000). ²⁶ 'Peering around the comer', The Economist, 11 October 2001. ²⁷ 'Mobile internet saizensen (Frontiers of mobile internet)' in Shukan Diamond, 18 March 2000. ²⁸ Natsuno (2000). ²⁹ Ibid. ³⁰ Ibid. ¹ According to one senior official at NTT DoCoMo, 'i-mode surprisingly attracted not only young customers who were generally fond of new technologies, but also old customers who used it as a tool to communicate more often with their grandchildren. In March 2001, 27% ofthe total i-mode users were above the age of 40, compared to 20. 3% for PC-based Internet (Exhibit 21). Copyright© 2003 INSEAD-EAC 8 08/2009-5079 average monthly revenue per subscriber to V! , 770 in March 2001. ³² In addition, the important customer churn rate began to drop from 1. 97 in FY1998 to 1. 39 in FY2001, while DoCoMo's market share in the cellular

market climbed to 59.1% in March 2001. (Exhibits 5 and 18) Playing Catch-up Two months after i-mode's extraordinary launch, two competitors, DDI Cellular and IDO, announced their own mobile data communication services, called 'EZ Web' and 'EZ Access' respectively. Similar to i-mode, customers could subscribe to their services to access the Internet via their mobile phones. ³ However, with an eye towards future markets abroad, DDI and IDO asked their content providers to code their pages in HDML (Handheld Device Markup Language) used for the Wireless Access Protocol (WAP)³⁴. Unsurprisingly, due to the costs and difficulties in transforming existing HTML-based Internet websites to EZ Web sites based on HDML, only a handful of content providers were willing to participate in the new service, driving DDI Cellular and IDO to purchase content until the number of subscribers was high enough for content providers to bear such costs voluntarily.

In 2000, the two carriers merged to create 'AU (access to you)'. Although the number of DDI and IDO subscribers was much smaller than DoCoMo's i-mode subscribers, they still remained competitive with 6.7 million subscribers in 2001. (Exhibit 17) DoCoMo's other main rival, J-Phone responded to i-mode's success by concentrating on improving transmission quality and adding content to its existing service (J-Sky Web), and upgrading its J-Sky service so that users could send and receive large e-mail messages (3,000 characters each) and view Internet content. ⁵ As with i-mode and EZ Web, all official J-Phone sites were accessible via the J-Phone portal and classified into nine categories. ³⁶ By ³² This increase in revenue was due to the fact that 'subscribers were using i-mode and voice-based communication services

together, as they made phone calls after they searched restaurants and hotels on i mode ('Interview: Keiji Tachikawa' in Shukan Diamond, 18 March 2000).³³ In addition to Internet access, the new EZ Web service offered subscribers e-mail services. They could now send e-mails of up to 250 characters and receive e-mails of up to 2,000 characters on their cellular phones.

Furthermore, DDI Cellular and IDO offered PIM (Personal Information Management) services that were not offered by their competitors. By paying a 100 premium for address, schedule and task list functions, EZ Web subscribers were able to use their cellular phones more like PDAs (Personal Digital Assistants). DDI Cellular and IDO initially offered these new EZ Web services by using circuit line switching technology that was also used for their voice-based telecom services. None of them had yet a packet switching network.

Thus, unlike i-mode, they charged EZ Web subscribers for the connecting time rather than for the volume of data transmitted to cellular phones (Exhibit 19).³⁴ DDI and IDO also asked a number of their content providers to connect directly to DDI Cellular and IDO's EZ Web servers, in order to secure confidentiality and stable transmissions.³⁵ The amount of viewable content was also increased by allowing access not only to its own 'official sites,' but also to HTML-based Internet sites and even to c-HTML-based i-mode sites by introducing MML (Mobile Markup Language) as the language for content.

MML was another simplified version of HTML developed for simple mobile computing devices by J-Phone and Keio University in Tokyo. Although it was

not accepted internationally like c-HTML or HDML, it was very similar to HTML and made it easy for content providers to adapt their existing Internet websites, or even their i-mode sites, into MML-based J-Sky websites.³⁶ In a strategy to attract younger customers, J-Phone's content focuses on entertainment. 'Keitai Denwa, PHS Kanzen Test (Cellular phones, PHS: Perfect test)', Nikkei Trendy, September 2000.

Copyright© 2003 INSEAD-EAC 9 08/2009-5079 INSEAD Blue Ocean Strategy Institute 2001, the new J-Sky service continued to attract many new - particularly adolescent - customers, totaling 6.2 million subscribers in March 2001. {Exhibit 17) Without a Net As its competitors played catch-up, DoCoMo continued to power ahead in its quest for i-mode dominance in Japan. In March 1999, a month after the launch of i-mode, it formed a strategic alliance with Sun Microsystems.

Through the partnership, Sun and DoCoMo developed i-appli, a new i-mode application platform that allowed users to run a wider variety of programs, from video games to online financial services on their mobile phones.³⁷ A similar strategic partnership with Symbian, a UK-based wireless operating system company, led to the development of a new operating system adaptable to both PCs and mobile phones. On the content side, in the two years after launching i-mode, DoCoMo struck a number of partnerships with new content providers, ranging from Japan Net Bank (the first Internet bank in Japan) and Playstation. com, to AOL and Walt Disney. Furthermore, i-mode pioneered so-called machine-to-machine or M2M communications that allow i-mode users to purchase soft drinks and other sundries from Japan's huge network of vending machines. A joint venture with Dentsu, the largest

advertising agency in Japan, led to the introduction of advertisements on i-mode, thereby providing a new source of revenue and attracting new content providers to the network. Through these and other partnerships the i-mode network swelled to 42, 720 sites (1, 620 official and 41, 100 unofficial) by March 2001.

Looking into the near future, DoCoMo had great hopes for entering the European and American markets and establishing i-mode as a global standard. In recent years, the Japanese mobile giant had been building its equity stakes in various foreign carriers (Exhibit 20), as well as applying for 3G licenses in markets inside and outside of Japan. In January 2001, while NTT DoCoMo was announcing plans to introduce i-mode in Europe³⁸ a number of crucial questions needed answers. Were i-mode and its success easily transferable outside of Japan? Could DoCoMo make it work outside of Japan and should it use the same strategy?

Despite i-mode's runaway success, DoCoMo faced a number of key domestic challenges. Its capital expenditures continued to soar as it built its new 3G services. Network congestion and interoperability between newer mobiles and the i-mode system continued to plague the company. In March 2001, under intense political pressure, DoCoMo was forced to reduce interconnection fees to other mobile phone operators. And with Vodafone's acquisition of a controlling stake in J-Phone, DoCoMo's guaranteed preeminence in the Japanese market came under an increasingly dark cloud.

How sustainable was NTT DoCoMo's advantage and what should its future moves be? Keiji Tachikawa, Ohboshi's successor, believed that NTT DoCoMo's future was bright. In the three years since the launch of i-mode,

DoCoMo had become the only company to make money out of the mobile Internet. Its net income continued to rise to an all-time high of : Y: 365. 5 billion in March 2001, and its market capitalization far exceeded its parent company, 37i-appli is based on Sun's popular, highly compatible Java programming language. Java allows application sharing across operating systems (e. . , between Microsoft Windows and Macintosh). 38 These initiatives are in partnership with KPN Mobile and Telecom Italia Mobile (TIM). Copyright© 2003 INSEAD-EAC 10 08/2009-5079 NTT. In the fall of 2001, DoCoMo launched FOMA (" freedom of multimedia access"), the world's first 3G mobile network capable of video-telephony and the use of data and voice services simultaneously) while other promised 3G initiatives around the world languished.

As Tachikawa said, " Anything mobile in society is a business opportunity for NTT DoCoMo". 39 Maybe Mr. Ohboshi can finally get a good night's sleep. 39 'Interview: Keiji Tachikawa' in Shukan Diamond, 21 April2001. Copyright© 2003 INSEAD-EAC 11 08/2009-5079 Exhibit 1 Number of Regular Mobile Phone/PHS Subscribers in Japan (in million) Mar- Mar- Mar- Mar-Mar-Mar-Mar-Mar-Mar-Mar-Jan-99 90 91 92 93 94 95 96 97 98 Mobile phones0. 49 0. 87 1. 38 1. 172. 13 4. 33 10. 20 20. 88 31. 53 39. 9 PHS 1. 51 6. 03 6. 73 5. 86 Total 0. 49 0. 87 1. 38 1. 712. 134. 33 11. 71 26. 9138. 25 45. 64 (Reference) Pagers4. 25 5. 08 5. 916. 69 8. 06 9. 35 10. 6110. 07 7. 12 4. 27 Fixed-line- 54. 48 56. 2157. 60 58. 7859. 8861. 04 61. 46 60. 38 NIA Source: Ministry ofPublic Management, Home Affairs, Post and Telecommunications (MPHPT), Telecommunication Carriers Association (TCA), Statistics Bureau and Statistics Centre. Exhibit 2 Development of Regular Mobile Phones in Japan

Year Height Width Thickness Weight Battery Life 1979| 140| 50| 210| 2, 400|
 NIA| 1985| 190| 55| 220| 3, 000| 8| 987| 120| 42| 180| 900| 6| 1989| 175| 42|
 77| 640| 9| 1991| 140| 47| 26| 220| 13| 1994| 143| 49| 29| 185| 20| 1995|
 140| 42| 26| 155| 150| 1996| 130| 41| 23| 94| 170| 1997| 127| 40| 18| 79|
 220| 1979| 140| 50| 210| 2, 400| NIA| 1985| 190| 55| 220| 3, 000| 8| 1987|
 120| 42| 180| 900| 6| 1989| 175| 42| 77| 640| 9| 1991| 140| 47| 26| 220| 13|
 1994| 143| 49| 29| 185| 20| 1995| 140| 42| 26| 155| 150| 1996| 130| 41| 23|
 94| 170| 1997| 127| 40| 18| 79| 220| {mm} {mm} {mm} {g} (hours) 1998
 123 39 17 68 330 Source: NTT DoCoMo, Panasonic. Copyright© 2003
 INSEAD-EAC12 08/2009-5079 Mobile Phone Rates en 200, 000 180, 000 160,
 000 140, 000 120, 000 100, 000 80, 000 60, 000 40, 000 20,
 000 _ -Deposit --
 Subscription fee - - - - - Monthly basic charge (analogue) --Monthly basic
 charge (digital) r---" ;;;-g, " r---" ;;;-g, " o. _..... O oN "<1' . , , r-- 00 O o
 N , , r-- 00 O 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 Source:
 NTT DoCoMo

Copyright© 2003 INSEAD-EAC13 08/2009-5079 Exhibit4 Wireless
 Telecommunication Carriers in Japan | NTTDoCoMo| DDI Cellular| IDO| J-
 Phone group| TuK. a| Year offounding Subscribers (m) Market share (%)
 SystemFrequencyOperational regionPHS operationsMajor1shareholders1|
 197922. 8957. 53PDC800MHzNationwideNTT PersonalNTT| 19905. 0912.
 79TACS (Ana1og) PDC CdmaOne800MHzNationwide -- excluding Kanto* and
 Tokai*DDI PocketDDIKyocera| 19883. 248. 14NTT (Ana1og) TACS (Analog)
 PDCCdmaOne800MHzKanto* Tokai*NoToyotaElectric utilitycompanies|
 19945. 7514. 41PDC1. 5 GHzNationwideNoJa11an Telecom| 19942. 827.

8PDC1. 5 GHzK. anto* Kansai* Tokai*NoNissanDDI Hitachi MotorolaSony| | | |
 | Ja11an Railways Vodafone Airtouch British Telecom| | | | | | | NTTDoCoMo|
 DDI Cellular| IDO| J-Phone group| TuK. a| Year offounding Subscribers (m)
 Market share (%) SystemFrequencyOperational regionPHS
 operationsMajor1shareholders1| 197922. 8957.
 53PDC800MHzNationwideNTT PersonalNTT| 19905. 0912. 79TACS (Analog)
 PDC CdmaOne800MHzNationwide -- excluding Kanto* and Tokai*DDI
 PocketDDIKyocera| 19883. 248. 14NTT (Analog) TACS (Analog)
 PDCCdmaOne800MHzKanto* Tokai*NoToyotaElectric utilitycompanies|
 19945. 7514. 41PDC1. GHzNationwideNoJa11an Telecom| 19942. 827.
 08PDC1. 5 GHzK. anto* Kansai* Tokai*NoNissanDDI Hitachi MotorolaSony| | |
 | | Ja11an Railways Vodafone Airtouch British Telecom| | | | | | | (as of
 January 1999) Note: The underlined shareholders are fixed-line telecom
 carriers or telecom equipment suppliers. Source: Company annual reports,
 Telecommunication Carriers Association (TCA), Goldman Sachs. *: Kanto:
 Tokyo area; Tokai: Nagoya area; Kansai: Osaka area. Copyright© 2003
 INSEAD-EAC14 08/2009-5079 Average Monthly Revenue and Average
 Monthly Minute of Use per User | FY1995| FY1996| FY1997| FY1998|

Average monthly revenue per user (Yen)| 19, 720| ' 15, 930| 12, 570| 10,
 800| Average monthly minute use per user (minutes)| 172| 170| 158| 155|
 Chumrate| 1. 18%| 1. 20%| 1. 66%| 1. 97%| Source: NTT DoCoMo. Exhihit 6
 Internet Users and the Numero! Commercial (bZc) Websites inJapan | Dec-
 96| Dec-97| Dec-98| Dec-99| Dec-00| Internet users| N/A| 11. 55| 16. 94| 27.
 06| 47. 08| Penetration rate in Japan| 3. 3%| 6. 4%| 11. 0%| 19. 1%| 34. 0%|
 Penetration rate in US| N/A| N/A| 32. 4%| 42. 5%| 58. 9%| Commercial

websites| 2, 966| 8, 245| 13, 926| 21, 634| N/A| B2C eCommerce market
 illion len} N/A N/A N/A 336 770

Source: MPHPT, NUA, Nomura Research Institute, Accenture. Exhibit 7
 Capital Expenditure by Carrier in Japan {billion yen} FY96 FY97 FY98 Fixed
 Line NTT 1, 991. 2 1, 886. 9 1, 727. 9 DDI 59. 7 93. 4 66. 5 Japan Telecom
 54. 2 84. 6 65. 6 KDD 67. 9 95. 2 118. 2 Fixed Line subtotal 21173. 0 21160.
 1 11978. 2 MobileNTTDoCoMo 733. 6 728. 7 845. 9 DDI Cellular 197. 5 143. 5
 IDO 119. 5 115. 4 137. 6 J-Phone 181. 7 182. 7 166. 1 Tu-Ka 84. 1 57. 6 42. 8
 DDI Pocket (PHS) 76. 8 99. 6 61. 1 Mobile subtotal 11393. 2 11327. 5 11253.
 5 Total 32566. 1 32487. 6 32231. 7 Note: Financial Year (FY) denotes the
 year from April to March of next year.

Source: Morgan Stanley Dean Witter (MSDW). Copyright© 2003 INSEAD-
 EAC15 08/2009-5079 Exhibit 8 NTT DoCoMo's Financial Performance |
 (million yen)| | Mar-95| Mar-96| Mar-97| Mar-98| Mar-99| Sales revenues| 806,
 982| 1, 237, 176| 1, 962, 850| 2, 626, 120| 3, 118, 398| Net income| 16, 448|
 21, 379| 28, 690| 120, 628| 204, 815| Operating margin| 8. 4%| 9. 9%| 10.
 1%| 15. 7%| 16. 3%| Net income margin| 2. 0%| 1. 7%| 1. 5%| 4. 6%| 6.
 6%| Let ca. eitalization Number of subscribers (thousands) N/A 2, 206 N/A 4,
 936 "N/A. 11, 203, 920, 10, 960 17, 984 23, 897 Market share 50. 9%
 48. 4% 52. 5% 57. 0% 57. % Note: - NTT DoCoMo listed its shares on the
 Tokyo Stock Exchange in October 1998. - The number of subscribers is for
 cellular phone services. Source: NTT DoCoMo. Exhibit 9 NTT DoCoMo Vision
 2010 'MA. GIC' 1999 2010 . b i M ultimedia Anyt lma, Anywhere, Anyon•
 Gobel Mobil lity Support Intagrated Wlrelen Solullon Cuetom lzed Pareonal
 Servlce " There are three words that characterize the business of DoCoMo -

mobile, wireless and personal. Our aim is to make the most of mobile communications market. DoCoMo's Vision 2010 is based on five key concepts that can be represented by MAGIC.

However, MAGIC cannot be achieved by DoCoMo alone. We would like to create businesses and market opportunities through collaboration with other companies and organizations. " Exhibit 10 Main Menu of the New Service (i-mode) 1 3 Source: NTT DoCoMo. Copyright© 2003 INSEAD-EAC 16 08/2009-5079 Exhibit 11 Contents Portfolio of the New Service (i-mode) i-mode services Transaction (e- Information commerce} News (newspapers, Banking business, entertainment, Securities transactions overseas media) Credit card information Weather forecast Ticket booking Town information

On-line shopping (books, Horse racing information CDs, games) etc... etc... Internet web (PDC)E-mail (PDC)E-mail VoiceDatabase Entertainmentsites Telephone directory searchNetwork games Restaurant guideFortune-telling Cooking recipesCharacter download Dictionary search, etc... Ringing tone download FM radio/ TV informationMusicinformation Events, etc... A Information bill collection system for Information Providers Portal service based on user profile database Cellular-phone network Source: NTT DoCoMo. Copyright© 2003 INSEAD-EAC17 08/2009-5079 --. ,----

Blue Ocean Strategy Institute Exhibit 12 i-mode and Regular Handsets (1) Regular voice-based mobile phones Digital MOVA N2075 HYPER (February 1999) Price: 32, 700 yen Weight: 96g Size: 85cc Battery life: 300 hours (2) i-mode mobile phones Digital MOVA D206 HYPER (January 1998) Price: 30, 100 yen Weight: 93g Size: 99cc Battery life: 320 hours Digital MOVA NS01iHYPER (March 1999) Price: 42, 800 yen Weight: 115g Size: 99cc Battery

life: 270 hours :> Mo. Copyright© 2003INSEAD-EAC Digital MOVA N503i
 HYPER (i-appli) (March 2001) Price: Open Weight: 98g Size: N/A Battery life:
 460 hours -mode Packet Transmission Charges 18 Digital MOVA D503iS
 HYPER (i-appli) (September 2001) Price: Open Weight: 105g Size: N/A Battery
 life: 450 hours 08/2009-5079 Mymenu MenuList Mobile banking (balance
 information) Mobile banking (funds transfer) News Airline seat availability
 Restaurant guide TOWNPAGE (NTT telephone directory) Share prices
 (searching by issue code) Image download (downloading one still image the
 size ofthe display) i-melody (downloading one 3-chord melody approx. 15
 seconds in length) Char es 2-3 3-4 20-21 59-60 17-18 24-25 37-38 35-36 26-
 27 7-8 2-3 -anime (downloading one moving image the size ofthe display)
 10-11 i-mode mail transrmission charges| Sending| Receiving| 20 Full-size
 characters| 0. 9| 0. 9| 50 Full-size characters| 1. 5| 0. 9| 100 Full-size
 characters| 2. 1| 1. 2| 150 Full-size characters| 3. 0| 1. 5| 250 Full-size
 characters 4. 2 2. 1 Source: NTT DoCoMo. Exhihit 14 The Number of i-mode
 Compatible Sites 30000 c::: JNumber ofi-mode Wloofficial sites 60% 25 000
 20000 15 000 10000 5 000 ---+-% oftotal access 50% 40% 30% 20% 10%
 mars-99sept-99mars-00 Note: Number of sites in March 1999 is the number
 on 5 April 1999.

Source: Natsuno (2000), p. 187. 0% sept-00 Copyright© 2003 INSEAD-EAC19
 08/2009-5079 -----.. --Blue Ocean Strategy Institute Exhihit 15 Retail Price per
 Unit and Market Size for Various Goods/Services (in FY 1999) ItemsAverage
 retail price (Yen) Weekly magazine300 Monthly magazine550-540
 Newspapers (monthly)3, 925-4, 384 TV set97, 130 Radio tape recorder19,
 680 Mobile computer games (Gameboy)8, 900 Computer game software

(Gameboy)3, 000-4, 900 Home PC207, 000-227, 000 Telephone (fixed-line)21, 270 i-mode handsets35, 900-42, 800 Mobile phones (voice only)28, 200-42, 800 PHS handsets16, 700-30, 100

Market size (thousands) 138, 480 214, 630 72, 218 434, 171 24, 233 23, 970
 NIA 14, 311 58, 470 _R gj 9_Q-_l ,? 9_Q _? ? _6_ . TV Jicene fees (monthly)1, 345
 Internet connection charges (monthly: fixed)8, 050 2. 7 Yen per 1 min.
 Telephone bill (fixed line: monthly) Telephone bill (mobile: monthly)
 Telephone bill (PHS: monthly) 8, 198 10 Yen per 3 min. 9, 270 45-120 yen
 per 3 min. 5, 550 30-130 Yen per 3 min. Pager bill (monthly) 2, 697 Note: -
 Telephone bilis are estimated from ARPU or Operating revenues. - Market
 size ofTV, Radio tape recorder and Home PC are estimated from their
 penetration rates. Market size of Gameboy is estimated from its outstanding
 units sold. Source: MPHPT, NTT DoCoMo, NTT, TCA, Dentsu Institute for
 Human Studies. Copyright© 2003 INSEAD-EAC20 08/2009-5079 i-mode
 Monthly Subscriber Trend 25, 000 70% Number of i-mode 20, 000 15, 000
 10, 000 5, 000 subscribers (thousands) % of total subscribers 60% 50% 40%
 30% 20% 10% oilDlilhUWWlil WWWUUhlllilUL0% 0'1 0'1 0'1 0'1 0'1 0'1 o o
 o o o o 1 1 1 1 1 § 1 1 1 1 1 1 1 § 1 1 0'1 0'1 0'1 0'1 0'1 0'1 o o o o o o o o
 o o o o o o o 13 ()..!. () 13

Source: NTT DoCoMo, TCA. ()Q) ()Q) Exhihit 17 Number of Subscribers
 for Mobile Data Services on Cellular Phones thousands 35, 000 30, 000 25,
 000 20, 000 --i-mode - -- EZWeb --J-Sky 15, 000 10, 000 5, 000 0+---+---4--+-
 +---4--4--+- 910, 910, 910, 910, 910, r;;;, r::::. r;;;, r::::. r;;;, r::::. r;;;, r::::. r;;;,
 r::::. r;;;, r::::. r;;;, '. r;;;, '. r;;;, '. r;;;, '. r;;;, '. #;#;#; Source: TCA. Copyright©
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Average monthly churn rate| 1. 75%| 1. 61%| 1. 39%| 1. 32%| Average monthly revenue per user (ARPU: yen)| 9, 270| 8, 740| 8, 650| 8, 580| ARPU from cellular phone service (yen)| N/A| 8, 620| 7, 770| 7, 160| ARPU from i-mode (yen)| N/A| 120| 880| 1, 420| Average monthly minutes of use per subscriber| 164| 177| 189| 195| Number of subscribers (thousands)| 23, 897| 29, 356| 36, 026| 40, 300| Number of i-mode subscribers (thousands)| 140| 5, 603| 21, 695| 29, 800| Market share| 57. 5%| 57. 4%| 59. 1%| N/A| Source: NTT DoCoMo. Copyright© 2003 INSEAD-EAC2208/2009-5079

Mobile Data Communication Services on Mobile Phones (as of Sept. 2000) |
NTT DoCoMo| DDI Cellular(au)| IDO (au)| Tu-Ka| J-Phone| Service| i-mode|
EZWeb| EZAccess| EZWeb| J-Sky| Functions| - Internet access- Internet mail
transmission| - Internet access- Internet mail transmission- PIM services| -
Internet access- Internet mail transmission- PIM services| - Internet access-
Internet mail transmission- PIM services| - Internet access(J-Sky Web)-
Internet mail transmission (J- Sky Walker)| NetworkPlatforms| PDC (800MHz)|

cdmaOne(800 MHz)| cdmaOne(800MHz)| PDC (1. GHz)| PDC (1. 5 GHz)|
 CommunicationMethod(Speed)| Packet switching technology (9600 bps)|
 Circuit switching technology (14. 4 kbps)| Circuit switching technology (14. 4
 kbps)| Circuit switching technology (9600 bps)| Circuit switching technology
 (9600 bps)| | | Packet switching technology (14. 4 kbps)| Packet switching
 technology (14. kbps)| | | Content| c-HTML| HDML (WAPbased)| HDML
 (WAPbased)| HDML (WAP based)| MML| Content Providers| Official: 1,
 000Unofficial: 24, 032| Official: 368Unofficial: 1, 600| Official: 258Unofficial:
 2, 700| E-mail size| Send|receive: 250 full characters| Send: 250 full
 charactersReceive: 2, 000 full characters| Send|receive: 3, 000 characters|
 Fee CollectionServices| February 1999| March2000| July 2000| June 2000|
 April2000| Monthly Basic Charge (yen)| 300| Standard: 300Premium: 400|
 Standard: 200Premium: 400| Standard: 200Premium: 300| J-Sky Web: No
 chargeJ-Sky Walker: 250| Access

Fees| 0. 3 yenper 1 packet (= 128 bytes)| First 15 seconds free and 10 yen
 per 30 seconds thereafter| 10 yen per minute| First minute 3 yen and 10 yen
 per minute thereafter| J-Sky Web: 2 yen per single request1 replyJ-Sky
 Walker: 8 yen per message transmission| | | Packet comm. : 0. 27 yen per 1
 packet (= 128 bytes)| Packet comm. : 0. 7 yen per 1 packet (= 128 bytes)| | |
 Handset (Nominal 1 Real retail prices: yen)| NECN502i(39, 0001 18,
 800)Mitsubishi D209i(34, 600 1 16, 800)| Panasonic C308P (44, 300 1 1,
 800)Sony C305S (45, 8001 1, 800)| Sharp J-SH03 (42, 000 1 9, 800)Toshiba J-
 T04 (42, 000 1 7, 800)| Panasonic TPOI(Open 1 4, 800)Toshiba TI02 (Open 1
 4, 800)| Subscribers {_% ofmarket)| 12. 6 million(64. 2%)| 3. 9 million(16.
 5%)| 0. 7 million(3. 3%)| 3. 1 million(16. 0%)| Service start| February 1999|

Aprill999| November 1999| December 1999| Source: NTT DoCoMo, KDDI, MSDW, CSFB, TC. A, 'Nikkei Trendy'

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 Exhibit 20 NTI' DoCoMo's Major Overseas Operations since 1999 2 March 1999 Joint test of 3G mobile communications system with Telephone Organization of Thailand and NEC 17 March 1999 Establishment of local corporation in Brazil 30 September 1999 Establishment of US subsidiaries 8 October 1999 Establishment of Joint Initiative toward Mobile Multimedia (JIMM) with 8 foreign carriers 2 December 1999 Capital investment in Hutchison Whampoa (Hong Kong) 27 January 2000 W-CDMA field trials in South Korea with SK Telecom May 2000 Equity participation in KPN Mobile (the Netherlands) 27 June 2000 Establishment of representative office in Beijing, China 12 July 2000 Announcement of 3G mobile multimedia strategic cooperation with Hutchison Whampoa and KPN Mobile 2 August 2000 Launch of Japan-South Korea roaming service with SK Telecom 29 September 2000 Establishment of UK subsidiary and research lab in Germany 30 November 2000 Capital investment in KGI Telecom (Taiwan) 30 November 2000 Capital investment in AT&T Wireless (US) 7 December 2000 Establishment of advisory board in US 8 January 2001 Announcement of Pan-European mobile Internet alliance with KPN Mobile and TIM (Italy) 22 January 2001 Launch of international roaming service in Europe, Asia Africa and Oceania 7 November 2001 Agreement with KPN Mobile to transfer and license technologies for i-mode-like services in Europe 18 February 2002 Agreement with E-Plus (Germany) to transfer and license technologies for i-mode-like

services in Europe (service launched on 16 March 2002) 1 March 2002 Listing of stocks on London and New York Stock Exchanges

Note: The dates shown above are the dates of Press Releases from NTT DoCoMo (as of March 2002). Source: NTT DoCoMo. (Other major partnerships to promote mobile multimedia services) 15 March 1999| Increased level of relationships, S! mbian (UK)| 16 March 1999| Technological partnership, Sun Microsystems (US)| 17 March 1999| Fusion of technologies, increased level of cooperation, Microsoft (US)| 14 June 2000| Increased level of relationships, 3Com {US)| 27 September 2000| Joint development of new Internet services, American Online (US)|

Note: The dates shown above are the dates of Press Releases from NTT DoCoMo (as of Sept. 2000). Source: NTT DoCoMo. Copyright© 2003 INSEAD-EAC2408/2009-5079 Exhibit 21 Comparison between i-mode and the Internet

	i-mode	Internet
Sex of users (Male: Female)	57: 43	58: 42
Age of users		
Under 19	7%	24%
20-24	24%	20%
25-29	20%	12%
30-34	12%	8%
35-39	8%	27%
Above 40	27%	2%
Unknown	2%	
Under 19	2. 6%	38. 1%
20-29	38. 1%	15. 6%
30-39	15. 6%	4. 7%
40-49	4. 7%	0. 9%
Above 50	0. 9%	
Unknown		
Price		
Monthly basic charge	300 yen + 0. yen per 1 packet	1, 480 yen + 8 yen per 3 minutes
Number of users (March 2001)	21. 70 million	17. 25 million

Note: - Prices exclude monthly basic charges for cellular phone and fixed line telecom services. Price for the Internet is based on KDDI's IP service rates. - Number of users for the Internet is the number of contracts with Internet providers excluding mobile telecom carriers. Source: MPT, NTT DoCoMo, KDDI. Copyright© 2003 INSEAD-EAC2508/2009-5079