

Wireless Japan: Behind the i-mode tide

By Christer Nilsson

The rest of the world talks about wireless Internet over cell phones. Japanese use it. And not just a few nerds, mind you.

In April 2000, Japan's largest cellular telcom operator, NTT DoCoMo, had over six million subscribers on its highly successful "i-mode" wireless Internet service. That was after only 14 months of operations.

I-mode was launched in February 1999. You don't use a portable PC, laptop or Personal Digital Assistant for i-mode. Instead, you use a purpose-built handset the look, size and feel of any ordinary cell phone. It has digital voice and a display as any cell phone. Plus the Internet capability, of course.

I-mode's Internet functions are written in compact HTML, which is easy to convert from existing web sites written in HTML.

I-mode's growth has been astounding. DoCoMo registers several hundred thousand new subscribers per month – and demand remains high.

And, yes, there is content in the marketplace as well. More than 7,000 web sites have been set up for i-mode and over 300 interactive services, ranging from e-mail to banking and image downloads, are available.

Japanese have always been gadget-happy (from Sony's Walkman onwards) and the fun-part of i-mode is one reason for its fast market acceptance. Image, cartoon and phone-ring-tone downloads belong to that category and attract teenagers and office girls, while e-mail and business services make sense to executives and "salarymen", Japan's white collar workers.

And with a fairly low fixed line Internet penetration of less than 20 million, but high cellular usage and a

keen interest for Internet, i-mode arrived at the right time. The i-mode tide is so large that this spring NTT DoCoMo temporarily halted promotions for outside applicants, in order to allow its old voice-only digital cellular subscribers to switch over to i-mode first.

The network has crashed 16 times since the launch. This is a lot for quality-obsessed Japanese. Nevertheless, NTT DoCoMo predicts a year-end 2000 target of 10 million i-mode users.

AND WHY NOT?

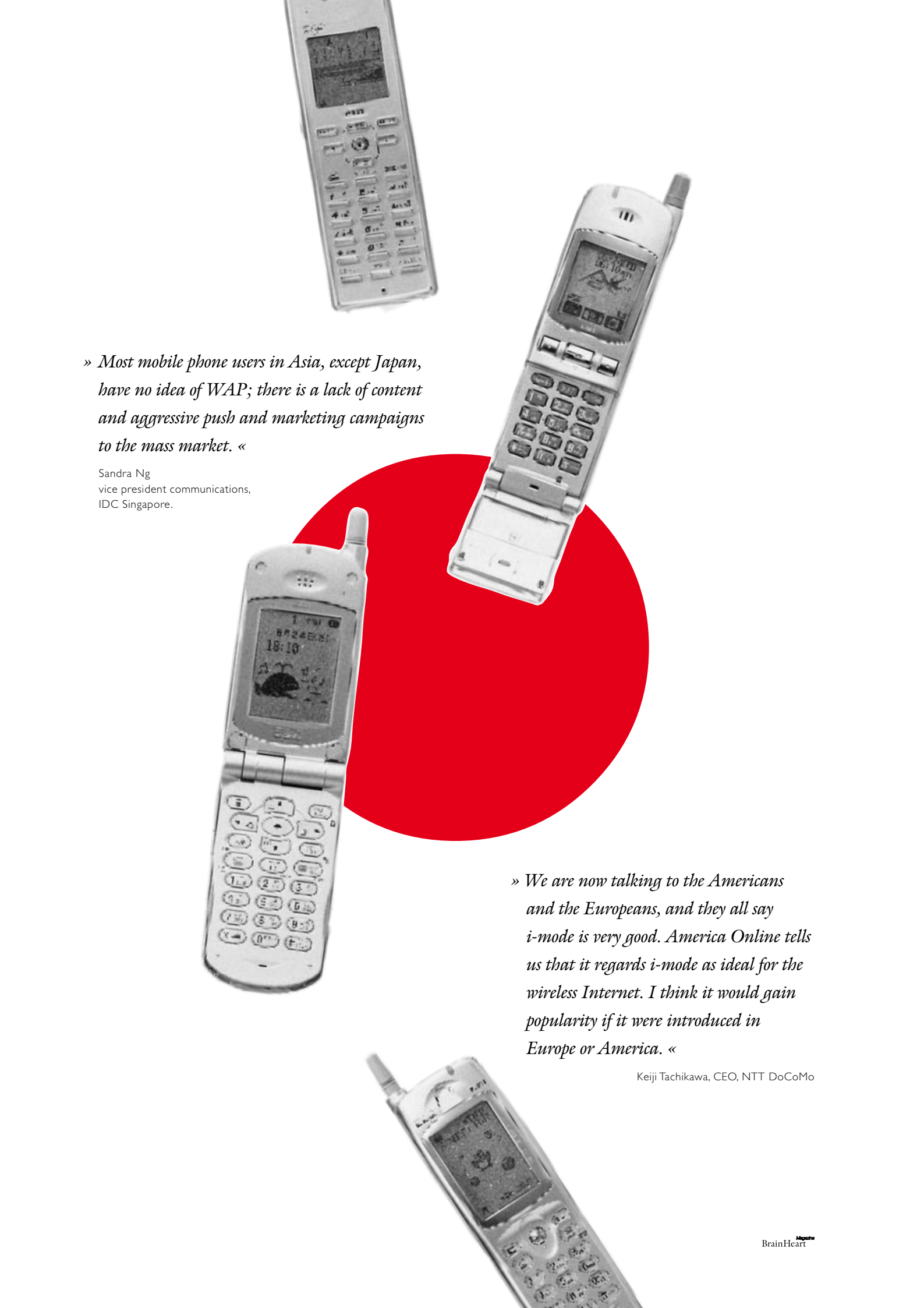
Wireless Japan is for real. In late March 2000 the number of cellular subscribers in Japan grew to 56.9 million, surpassing the island nation's 55.5 million fixed lines.

What other country can claim that over ten percent of its cellular population is on the Internet? Wireless on the Internet, that is. Japan can.

Also, well over half of the current voice cell phone subscribers in Japan belong to NTT DoCoMo. There is ample room to grow i-mode just by biting into the existing DoCoMo client base.

I-mode's success traces back to the birth of NTT DoCoMo, which in 1992 was spun off its parent company, NTT, then the world's largest telecom company. Two years later, 1994, Japan's cellular market was liberalized. NTT DoCoMo suddenly had a handful of competitors to fight and market orientation became a must.

One of its options was to offer wireless data communications as a value added service. NTT DoCoMo did so. But it was not assimilated into the ordinary digital voice system, like GSM, for example. >



» *Most mobile phone users in Asia, except Japan, have no idea of WAP; there is a lack of content and aggressive push and marketing campaigns to the mass market.* «

Sandra Ng
vice president communications,
IDC Singapore.

» *We are now talking to the Americans and the Europeans, and they all say i-mode is very good. America Online tells us that it regards i-mode as ideal for the wireless Internet. I think it would gain popularity if it were introduced in Europe or America.* «

Keiji Tachikawa, CEO, NTT DoCoMo

» *We expect to hit 4.8 million subscribers by the end of the fiscal year. The problem will lie in deciding what kind of service to offer. DoCoMo is doing a lot of R&D in this area, but we think it is good to conduct joint development with other operators ... What we are trying to do is to jointly develop services for 3G services. If we don't match our protocols, we could end up with different versions, depending on the country.* «

Keiji Tachikawa, CEO, NTT DoCoMo,
quoted in Business Week (Jan 2000)

Rather, the Japanese opted for a packet-switched network running in parallel with the digital voice system.

And the company wanted to run Internet services on that network, with subscribers using a purpose-built hand phone as the terminal. This technological avenue has several advantages. Subscribers' handsets can be switched on at all times. They do not need to dial-up to get access to the Internet. Packet switched networks also allow concurrent access and do not require one exclusive radio channel per user.

More importantly, the packet-switched road made it easy for NTT DoCoMo's i-mode creators to implement an attractive business model based on:

- a) *cheap fixed basic access for the subscriber*
- b) *no air time fee for the subscriber*
- c) *subscriber pays for volume of data sent and received*
- d) *one subscriber bill for all services; NTT DoCoMo charges a 9 percent commission from official service providers in return*
- e) *only official, approved, service providers can be accessed by the i-mode menu bar.*

So far over 7000 Japanese Internet sites have been designed for i-mode.

As is so often the case in Japan, i-mode is also a proprietary solution. The rest of the world has voted for WAP (Wireless Application Protocol) for wireless Internet. WAP uses standard digital cellular networks.

Operators in Asian countries, such as Hong Kong and Singapore, have already begun offering WAP services, and two of NTT DoCoMo's Japanese competitors, DDI and IDO, are actually offering WAP over their CDMA networks as well.

But having seen i-mode's success, and being Japanese, DDI and IDO are also launching an i-mode look-a-like-service over a packet switching network running at 14.4 kilo-



Keiji Tachikawa, CEO, NTT DoCoMo

bits per second compared with i-mode's 9.6 kilobits per second. Such an i-mode speed may sound more fit for Jurassic Park than a Japan of year 2000. But by using packet switching, and being dedicated for data transmission, the existing networks allow for fairly fast data transfer.

Still, this is slow, and restrict service offerings like full motion video. And it is even slower compared with 3G, the next generation of wireless Internet, which will move data at several megabit per second speeds.

NTT DoCoMo is not perfectly clear about the future direction of i-mode. Officials only say the company will make i-mode fit to run along with and/or over broadband CDMA, W-CDMA, which is the most likely high-speed wireless technology to be used by the world's leading operators and their suppliers.

Meanwhile, wireless equipment makers like Ericsson, Nokia, Lucent and Motorola are also working together with NTT DoCoMo in Japan researching and trying W-CDMA. And NTT DoCoMo is intent on launching its own W-CDMA within one year from now.

The most likely scenario for Japan is therefore a W-CDMA which incorporates the best of i-mode into a faster-moving digital wireless service.

» *I-mode is a success here because of the Internet craze that's starting here. Japanese people don't have room for a desktop in their homes, and so they lack Internet access. The handset is the alternative to the computer.* «

Wireless expert Seiji Sanda,
CEO, Japan Communications Inc.

WHAT ABOUT THE REST OF THE WORLD?

Well, first comes WAP over ordinary digital cellular, and later W-CDMA. Japan's proprietary systems lost out last time, in the first digital cellular wave, which saw GSM win the world, except for a few CDMA islands. At that time Japan's telecommunications services market was regulated.

NTT was mighty and was extremely powerful. Now it has competition. And Japan Inc., the domestic technological giants – NEC, Fujitsu, Toshiba, Canon and the like – made up quite a closed society when it came to cooperation with foreign investors, organizations and standardization committees. Sure, they had global presence, but also had Japanese mindsets. Now they face foreign competition on the home market and the Japanese too talk and interact with the world.

Even operators go international. Look at DoCoMo's parent, NTT. They have more than 20 representative offices and subsidiaries all over the world. And their once dull spin off DoCoMo earned some USD 5 billion in pretax profit in 1999 and has cash to go shopping. A recent 19 percent stake taken in Hong Kong operator Hutchison shows DoCoMo is not happy being big only in Japan.

Finally, it is easy to get blinded by technology and gadgetry when explaining i-mode's success. If so, you miss an important point: i-mode is not only Japan's largest Internet Service Provider, it is also an ISP that has charged for content from the very beginning. It was designed for that from the outset.

That in itself is a substantial achievement, in a world where so many ISP's give away content free, hoping that one day ad revenues will pay back the expenses.

In i-mode the Japanese have a working business concept fit for the wireless Internet age. □

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Technology facts:

I-mode's data transmission runs on a 9.6 kilobit/second packet switched network and the subscriber is online as long as the handset is switched on. I-mode's network is an overlay of NTT DoCoMo's voice PDC network and covers 98 percent of Japan, and the same, of course, goes for the voice service.

Price facts:

I-mode costs a mere US \$3 per month in subscription charge. Data packets are charged JPY 0.3 per 128 bytes. Official service providers pay a 9 percent commission to DoCoMo of revenues and in return DoCoMo takes care of their billing and links them exclusively on the i-mode menu bar.

Internet facts:

Japan has some 20 million Internet users and only 13 percent of the households have a computer. Only 3–4 million of the country's Internet users are believed to access the Internet from home.

Cellular facts:

In late March 2000, Japan had over 56 million cellular subscribers. Nearly 60 percent are NTT DoCoMo subscribers. As of April 2000, 6.1 million of DoCoMo's cellular subscribers are i-mode users. Japanese analysts believe that by 2010, 120 million people, or almost every Japanese, will have a cellular handset.

Finance facts:

NTT DoCoMo's market capital in early 2000 was USD \$340 billion. This is larger than that of the parent NTT and larger than any other telecom company in the world. Japan's wireless market in the Spring of 2000 generated US \$50 billion in revenue on an annual basis. This is expected to double by 2003 with 60 percent of revenue coming from wireless Internet.

User facts:

In July 1999, 35 percent of i-mode's subscribers had made at least one financial transaction over the network. In April 2000, more than 70 percent did so. Over 150 banks are i-mode partners with services on the network.

Handset facts:

In December 1999, Fujitsu and Panasonic launched 256-color i-mode handsets. This was a world first with such a powerful palette.

Future facts:

DoCoMo is investing some US \$7.6 billion in its W-CDMA network. It is due to open in the Spring, 2001.

Sources: *Business Week*; *The Financial Times*; *The Economist*; *The Bangkok Post*; NTT statistics; IDG; and archives.



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