Learning from i-mode

How can we make a commercial success of next generation cellular networks and the wired Internet? **Geoff Vincent** points to some valuable lessons from the Japanese i-mode experience

Amid all the hype and uncertainty surrounding the 'mobile Internet', there is one undeniable success story: NTT DoCoMo's i-mode service in Japan. Why has i-mode enjoyed explosive growth, reaching more than 26 million subscribers in two and a half years (Fig. 1), while WAP is widely regarded as a failure? One survey found that only two out of every ten WAP phones sold is still used for accessing data after the first week.

Understanding i-mode's relative success is critically important for all those who have placed multi-billion pound bets on the success of third generation cellular (3G), including the major telecommunications operators and, of course, their investors. To date, the growth of mobile communications has been fuelled by voice calls, but voice is becoming a saturated market, with increasing competition forcing a decline in average revenue per user. To maintain growth, and even to sustain current income and profits, operators need to introduce new services that will be attractive and beneficial to users.

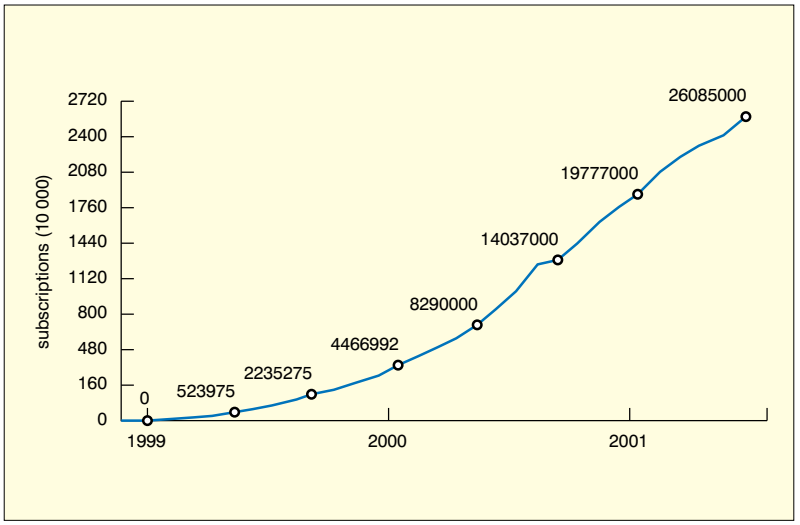
The lessons to be learnt are relevant not just to the mobile industry, but also for companies trying to make a success of the wired Internet. i-mode provides a business model in which profitability is being extended beyond the operator to incorporate a significant number of content and value-added service providers—not in some projected future, but here and now.

What is i-mode?

What exactly is i-mode? The i-mode concept brings together several different elements to create a successful formula.

- To the subscriber, i-mode is a new mobile service. Customers acquire an i-mode handset (of which there are many models from different manufacturers), and subscribe to the i-mode service. They can make voice calls in the normal way, but a new range of services is also available through the screen, keypad and navigation buttons. Japanese i-mode handsets are widely acknowledged to be significantly in advance, in both size and features, of their European and USA counterparts, with colour screens and animation widely supported (Fig. 2)
- To the operator, in this case NTT DoCoMo, i-mode provides a way to attract new users and increase telecommunications revenue. The latter comes from two sources: first, charges for data transmission on a per-packet basis; secondly, an entirely new source of income as a collector of payments on behalf of third-party information providers

1 i-mode has grown from zero to more than 26 million subscribers in two and a half years



2 Java-enabled 503i series i-mode phones

- To handset manufacturers, i-mode provides a market for new, innovative, feature-rich devices
- To content and service providers, i-mode is a new market opportunity: a new way to package and sell services, and a new source of income (Fig. 3). It provides a new means of reaching a very large number of customers with minimal effort.

A selection of i-mode services and pricing is shown in Table 1. Further examples of English-language i-mode services can be found at www.nttdocomo.com/i/imenu/menu.html. A much wider range of services is available in Japanese, and new services are being added regularly.

Packaging the packets

A key factor in i-mode's success has been its construction on top of a packet-based mobile network. In the UK, packet-based mobile services, in the form of GPRS, were finally introduced in mid 2001. In contrast, Japan has enjoyed the benefits of a packet-based mobile service since 1997, when DoCoMo introduced DoPa, based on NTT's proprietary PDC-P packet technology. This four-year lead has allowed DoCoMo to learn a great deal about both the technology and the market for non-voice services.

DoPa was not an immediate success, however, and it was not until February 1999, when the service framework of i-mode was overlaid on top of the raw PDC-P packet technology, that customer usage began to take off. From DoCoMo's perspective, i-mode can be seen as a way of packaging and selling the raw capability of packet transmission, which is of little value to users in its basic form. In effect, i-mode creates a 'digital market', connecting buyers and sellers of information services, with DoCoMo acting as the middleman.

Not the mobile Internet

i-mode uses Internet technologies and techniques. In particular, the language used for defining i-mode screens is cHTML, a compact version of the Hyper Text Markup Language used to create standard Web pages. However, recognising that the user experience is very different from PC-based wired Internet access, NTT DoCoMo has been very careful to promote i-mode as a service in its own right, and not as the 'mobile Internet'.

Although i-mode has significant limitations, imposed, for example, by the restricted screen size and the relatively low data rates available on second generation mobile systems, it is a much more integrated experience than the PC-based Internet. There has been an enormous attention to detail, directed at making i-mode genuinely easy to access, especially for naïve users.

The birth of i-mode

The origins of a new development are not always clear, even for its initiators, but, by general consensus, i-mode began as just one of a number of NTT DoCoMo multimedia projects. What made i-mode special was the serendipitous mix of skills and perspectives among the development team members. The personality of i-mode's editor-in-chief, Mari Matsunaga, was especially significant.

Ms Matsunaga was not hired for her technical expertise; on the contrary, she joined the team with a reputation as someone who had never used the Internet and hated mobile phones, especially when used in public places. Her previous work experience was as an editor for classified advertising magazines—in the event, useful training for getting a message across

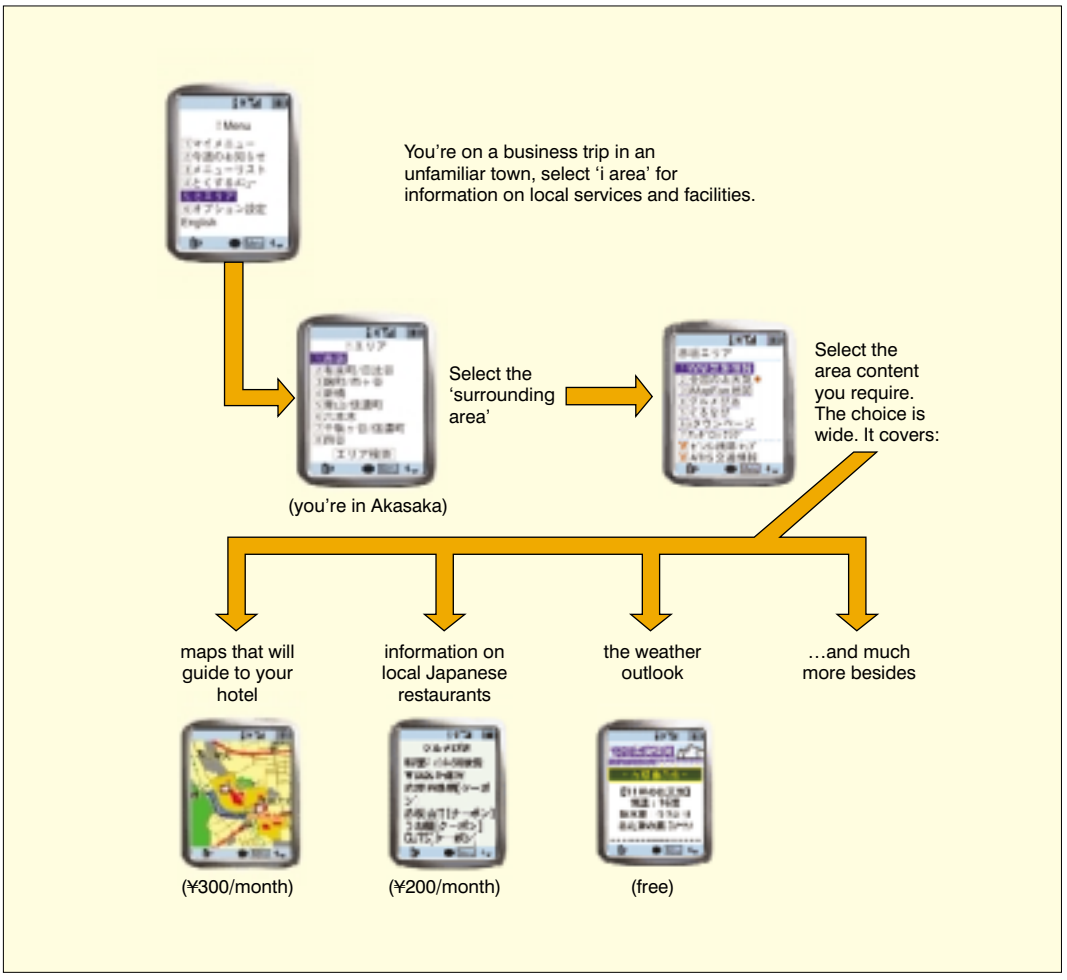
within the limited space of a mobile phone screen. Her great strengths were a clear vision of what ordinary, non-technical people would want, and the willingness to take on technical experts, reportedly clashing both with NTT's engineers and with the consultants assigned to the project. Her two most important contributions to i-mode were insisting on exceptional ease of use, and overruling the i-mode consultants to secure a business model which has proved crucial in attracting value-added content and service providers.

The three-fold way

Traditionally, telecommunications involves a two-way business relationship between the service provider and the subscriber. i-mode adds a third player in the form of the content (or application) provider. Not getting this new three-way business relationship right is the principal reason why, over the past two decades, most attempts to introduce multimedia services have ended in failure. It is also the rock on which a large number of wired Internet business ventures are now foundering.

DoCoMo plays a very specific role in this three-way business relationship. First, it carries the telecommunications traffic, charging subscribers on the basis of the volume of bits carried. Secondly, it collects payments for value-added services, acting on behalf of the content providers. These charges are simply added to the subscriber's monthly bill. In return, the content providers pay a commission to DoCoMo. Crucially, both the value-added subscriptions and DoCoMo's commission are set at a relatively low level. Subscriptions to value-added services are typically around ¥100–¥300 a month (60p–180p), and DoCoMo's commission is typically 10% or less. At these levels, neither subscribers nor content providers have to think too hard about the size of DoCoMo's charges. Finally, in return for a monthly subscription, DoCoMo provides the basic framework for the service, the navigation facilities and the overall editorial direction (notably dictating the service to be included on the basic menus for i-mode handsets). And, of course, DoCoMo promotes i-mode actively throughout Japan.

The basic i-mode subscription is ¥300 a month, with packet transmission charges of ¥0·3/packet (1 packet = 128 bytes). At these prices, downloading a menu costs about ¥3, an image ¥7–¥8, and a music clip ¥2–¥3.



3 Wherever you are, with the i area service you'll always be able to find your hotel or a restaurant serving your favourite food (screen images © DoCoMo)

What went wrong with WAP

Launched in a blaze of glory, WAP (wireless application protocol) was promoted as the fairytale marriage between the mobile phone and the PC-based Internet: the 'mobile Internet'. The reality, alas, has fallen well short of such rosy expectations. Users expecting something akin to the experience of the world wide web on their mobile phones have been severely disappointed. A text-based screen with a limit of four or five lines of characters cannot match the impact of a conventional web page. Worse still was the fact that WAP was launched on top of the existing second generation mobile network—a poor match for the packet-based content needed by most applications. Users found that WAP phones could take anything up to two minutes to set up a connection–by which time most had lost interest. Problems were also experienced in the standardisation of software from different sources. WAP browsers from different suppliers turned out to be incompatible, and users found WAP phones difficult and confusing to operate.

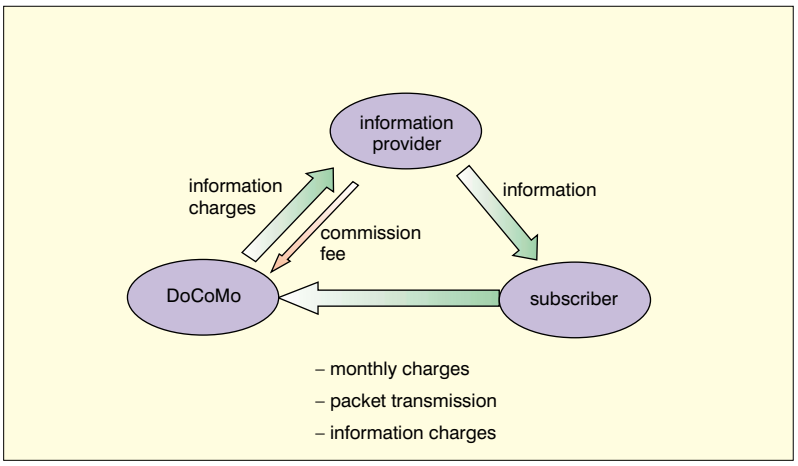
But the principal sufferers were the companies set up to create WAP content and applications. Developers found they had no secure source of income to justify their investment in new content and applications, and no stated policy by operators for sharing revenue with content providers. In a recent survey by the industry discussion forum WAPwednesday (http://www.wapwednesday.com/), 92% of respondents complained about the lack of open and published business models from operators. Some felt their business survival was threatened.

WAP still has enthusiastic advocates and is now finding specific applications. It is possible that like the short message service (SMS)—which languished virtually unused for several years before finding its niche—WAP could experience a future renaissance. But despite being a technical tour de force, and unlike i-mode in Japan, WAP has so far failed to connect with a mass market need.

Checking a bank balance costs around ¥20, while a funds transfer costs about ¥60. Subscribers can check their current packet transmission charges at a cost of ¥6–¥7. The rates are low, but multiplied by 26 million subscribers, the sums add up.

Equally important to the success of i-mode are the things DoCoMo does not do. In particular, DoCoMo does not aim to be a content provider, thereby avoiding the conflict of interest between carrier and provider that has occurred in other countries. Furthermore, DoCoMo has not used its dominant position to demand an exorbitant share of the revenues from value-added services. As a result, all parties have benefited from subscriber growth, and content providers have been willing to invest freely in providing attractive value-added services. DoCoMo expresses this relationship as a 'virtuous circle' in which all three parties—subscriber, DoCoMo and third-party information provider—stimulate each other to drive the market to higher growth (Fig. 4).

Clearly, this three-way relationship is not the telecommunications norm, where, traditionally, the operator acts as 'gatekeeper' and where—so it has always been assumed—there is strong pent-up demand for each new advance in capability. With i-mode, unless all three parties work together in harmony, the demand and the market for new applications does not develop, and no new revenues are created. For many in telecommunications, this is a cultural shift as great as any in the industry's history.



4 DoCoMo describes the i-mode business model as a 'virtuous circle'. Monthly payments provide immediate feedback on which services are catching subscribers' interest. The i-mode business model is engineered as precisely as the underlying technology

Free or charged?

Like the Internet, i-mode provides access to free information pages, created by companies for promotional purposes or by individuals. However, unlike the Internet, i-mode boasts a simple payment mechanism that is very easy to use, low cost, and links seamlessly with the monthly mobile phone bill. It's the capability to collect small amounts of money from a large number of users that ensures the viability of a wide range of i-mode services (services that could not be supported on the Internet, which lacks an equivalent simple payment mechanism). From a content provider's

Table 1 A selection of i-mode services

Service name	Information provider	Summary description	Monthly subscription
Weathernews	Weathernews, Inc,	Daily and weekly forecasts; forecasts around the world	free
CNN	CNN	24-hour news and information	¥300
Asahi Shimbun	The Asahi Shimbun	News and opinion	¥100
The Chosun Ilbo	The Chosun Ilbo	South Korean news	free
People's Daily	People's Daily	Chinese news	free
Nikkei News	Nihon Keizai Shimbun, Inc.	Nikkei English news	free
Bloomberg	Bloomberg LP	Latest news stories, market data, stock quotes, personal watch list	¥300
Dow Jones	Dow Jones	News about global financial markets	¥300
TMTDW	Tokyo-Mitsubishi TD Waterhouse Securities	Latest financial market news; US equity trading service	free
Disney-i	Disney	Download your favourite Disney character; Disney ring tones; games; Disney information	¥100
Pokemolo JOY	XING	Download ring tones	¥300
MiracleGP	HUDSON	Racing car game	¥300
imahima!	ImaHima, Inc.	Check the status of your friends; contact and plan things; create personal pages	¥100
Cooking Japan	Osaka Gas	Recipes and cooking hints	free
TokyoFoodPage	Nokia Japan	Guide to eating and dining	free
i-Townpage	NTT	English version of Japanese Yellow Pages	free
Fedex	Federal Express	Track the status of your package anywhere, anytime	free

prospective, the payment mechanism has the double attractions of requiring a relatively modest initial capital outlay, combined with regular monthly feedback—through the size of payments—giving a direct indication of the number of customers using a specific service.

The role of the operator

What does the i-mode example say about the future role of the telecommunications operator at a time when voice revenues appear set for an inevitable and continuing decline? In i-mode, NTT DoCoMo has redefined the traditional 'carriage' role of the telecoms operator, so that it is no longer dominated by the carriage of voice, or even data, but is expanded to include the carriage of services from third-party information providers to subscribers.

i-mode also provides practical answers to two questions which have been asked ever since online services and the idea of 'convergence' became current. First, should telecommunications companies become content providers? The answer seems to be no, rather they should concentrate on providing a framework for the delivery of content provided by others, or the three-way partnership essential to the development of new revenues is likely to fail. Secondly, should telecommunications providers aspire to be banks? The answer is yes,

at least to the extent of providing monthly billing services at levels of charge which can reasonably be added to monthly phone bills.

2·5G and beyond

The ultimate aim of operators is, of course, 3G. If the 3G gamble does not pay off, operators and everyone else in the telecommunications industry face a bleak future. The status quo is not an answer; faced with declining voice revenues, operators have little choice but to seek new applications. Fortunately intermediate systems, or 2·5G (specifically GPRS[1]), provide a unique opportunity to test new options in a situation which is less of an 'all or nothing' risk than 3G itself. Upgrading an existing network to GPRS, while not a trivial cost, takes a fraction of the investment required to build a 3G network from scratch.

To pave the way for 3G, operators need to use 2·5G as a proving ground for applications that can be scaled up with the arrival of 3G systems. GPRS provides the technical framework to support new applications, and enables a user experience that is significantly richer than anything in the 2G world. A crucial enabler for this approach is a business model—supported by payment systems—that will support the creation and sustain the growth of applications and services. i-mode provides a model of how this can be achieved. A new industry is emerging, with the potential to play a critical enabling role in the 21st century service economy; not only transporting bits and carrying messages (voice, text and multimedia), but also carrying new flows of money which will create new businesses, and change the nature of existing ones. It can be done, if we learn the right lessons from i-mode.

Reference

1 DETTMER, R.: 'Mobilising packet data', IEE Review, July, 2001, pp. 9 - 14.

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