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Telecommunications Predictions

TMT Trends 2007



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About TMT

The Deloitte Touche Tohmatsu (DTT) Technology, Media & Telecommunications (TMT) Industry Group consists of the TMT practices organized in the various member firms of DTT and includes more than 5,000 member firm partners, directors and senior managers supported by thousands of other professionals dedicated to helping their clients evaluate complex issues, develop fresh approaches to problems and implement practical solutions. There are dedicated TMT member firm practices in 45 countries and centers of excellence in the Americas, EMEA and Asia Pacific. DTT's member firms serve over 90 percent of the TMT companies in the Fortune Global 500. Clients of Deloitte's member firms' TMT practices include some of the world's top software companies, computer manufacturers, wireless operators, satellite broadcasters, advertising agencies and semiconductor foundries – as well as leaders in publishing, telecommunications and peripheral equipment manufacturing.

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Foreword

Welcome to the 2007 edition of DTT TMT Industry Group's Telecommunications Predictions.

The telecommunications industry in 2006 experienced a balance of growth, opportunity and decline. As forecast last year, the overall number of connections grew, albeit not uniformly. The strongest growth, in developed countries, was balanced by declines in fixed-line connections in more mature markets. While the volume of 3G subscriptions rose, growth in less advanced 2G services was higher. Design joined functionality as one of the key selling points for both fixed line and mobile phones. Machine-to-machine communications became more pervasive, integrated into a range of applications from navigation tools to supply chain management. The speed race continued in both wireline and wireless worlds, with ever faster networks being announced. However the need for such speeds remains open to question. Merger and acquisition activity has been intense, with transactions being driven by operators, companies in other sectors and financial institutions. Convergence has remained a hot topic in the sector, with telecommunications operators' frustration about their share of convergence revenues manifesting itself in discussions over net neutrality. VoIP has progressed, but as expected, managed services have fared better than ad hoc services.

The outlook for 2007 looks to offer a similar mix of growth, opportunity, and unfortunately, decline. This year's telecommunications Predictions cover: the possibility of demand exceeding supply on the Internet; the net neutrality debate; the need for broadband appliances; suggestions for making mobile video pay its way; cellular mobile's move indoors; strategies for IPTV; the benefits of small-sized telecommunications applications; potential pitfalls of triple play; the connectivity chasm and the rising cost of free telecommunications.

I am often asked how the DTT TMT Industry Group's Predictions differ from the many similarly titled reports produced by other organizations. I believe Predictions has a unique combination of objectives and methodology.

The Predictions series has been designed to provide a diverse selection of views and thoughts that challenge, inform and engage industry leaders and executives. It neither aims, nor claims to be a comprehensive forecast of every anticipated event.

The methodology used to generate the Predictions series is revisited every year. The 2007 series Predictions has included inputs from conversations with member firm clients, contributions from DTT member firms' 5,000 partners and managers, specializing in TMT, and discussions with industry analysts.

This series of Predictions has incorporated two additional sources.

The first is a series of 36 interviews with leading executives from around the world on the key industry theme of convergence. This global primary research exercise, spanning the TMT sectors, produced a wealth of insight, much of which is reflected in many of this year's Predictions. The interviews, collectively published by DTT as a book, *Convergence Conversations*, are available from www.deloitte.com/tmt.

The second source is a column, *Drowning by Numbers*, that the Financial Times invited Deloitte & Touche LLP in the United Kingdom to write on a fortnightly basis. Some of the ideas for Predictions have been tested in this column.

I hope that the result of our endeavors provides you with plenty of food for thought for the year ahead. On behalf of DTT's TMT Industry Group, may I take this opportunity to wish you all the best for an enjoyable 2007.



Igal Brightman
Global Managing Partner
Technology, Media & Telecommunications

Executive summary

Even though the telecommunications market is well over 100 years old, it retains its capacity for innovation, reinvention and growth. 2007 promises to be an interesting year for all those working in the global telecommunications sector.

One of the key possibilities for 2007 is that the Internet could be approaching its capacity. The twin trends causing this are an explosion in demand, largely fueled by the growth in video traffic and the lack of investment in new, functioning capacity. Bottlenecks are likely to become apparent in some of the Internet's backbones, the terabit-capable pipes exchanging traffic between continents. Investment, either in laying new cable or lighting existing fiber, may be stifled by continuing falls in wholesale capacity prices. Similar capacity constraints may well appear in the ISP and telecommunications networks that provide broadband connectivity to consumers. The impact may be most noticeable in the form of falling quality of service. Surfers are most likely to be annoyed by the slowdown in service. And it may only take an unexpected upsurge in video usage to turn the inconvenience caused by a drop in access speeds into full-scale consumer dissatisfaction.

The debates around the world over net neutrality look likely to continue through 2007. Indeed discussion over net neutrality may even become more polarized, particularly if the Internet's capacity is threatened. Advocates of net neutrality argue that any attempts to prioritize traffic would undermine the fundamental freedom of the Internet: the ability of any user, anywhere in the world, to use any service, content or platform. Opponents, however, argue that their business models are undermined by bandwidth-hungry applications, particularly those with significant video content. Future growth will likely require considerable investment in new infrastructure. But infrastructure owners may believe they are able to recover too little of the cost to justify the investment. Legislation seems unlikely to provide a resolution in 2007, so on a global basis, the two sides are likely to have to seek alternative routes to agreement. To do so, arguments for and against net neutrality may need to become less partisan and emotive.

To make the Web relevant to the entire population, rather than just the wealthier or more educated, telecommunications companies should catalyze demand for and the supply of a range of broadband appliances. One of the principal culprits for the slowdown in growth in Internet adoption may be the PC, typically the sole device used to access the Internet. Arguably the PC has become a bottleneck to Internet adoption and use. Most households tend only to have one or two PCs. As PCs remain relatively expensive, this means that often when one person is using a PC others have to wait their turn. A range of broadband appliances, each of which plugs and plays into the broadband network, could be a timely decongestant in 2007. Broadband appliances could open up the Internet to a greater proportion of any country's population.

Each appliance could undertake a range of specific, specialist tasks, from Internet radio to video-based security. Each would require the Internet, but not a PC. Each would have a specialized user interface, more suited to their purpose than a keyboard and a mouse. Each would likely be cheaper than a PC, hence enabling the greater democratization of the Internet as a whole.

The mobile sector, particularly in developed countries, is seeking a new killer application to supplement voice and SMS revenues. One of the greatest hopes for the industry is mobile television. However the industry's optimism about mobile television may be unfounded. Rather than trying to squeeze television onto a mobile phone, the industry should arguably be focusing instead on reversing the flow of data – in other words, getting video content off the phone and onto a television or any other device with a decent screen. As the resolution of mobile-phone cameras steadily improves, the volume of user-generated video content requiring transmission from the mobile phone to websites or televisions grows. If operators could carry just a small proportion of this traffic over their networks, data revenues could grow significantly.

Mobile operators' historic mission was to provide ubiquitous outdoor coverage. However while operators still regard the extent of their geographic coverage as important, the real battle is firmly for the indoor call. In 2007, a rising majority of mobile calls are likely to be made indoors, displacing fixed networks. Mobile operators' strategies need to become fully aligned to this fundamental shift in objective. Operators need to maximize in-building call and data quality, potentially by integrating supplementary network technologies such as Wireless LAN. Operators should also widen their range of tariffs designed to encourage indoor use of mobile telephony. They may also want to revisit their license terms, some of which may have been designed in the days when mobile phones were barely portable and services were only affordable to the few.

2007 should see many launches of IPTV services around the world. Fixed telecommunication operators are expected to be behind most of them. Operators have launched IPTV in a bid to diversify their revenue streams, given the expected decline in voice usage. Unfortunately, many IPTV services to date appear to have been little more than clones of traditional television offerings. They have not provide consumers with anything new, compelling and, critically, unique to a two-way network, as opposed to the one-way feed of broadcast satellite or terrestrial television. As a result, during 2007 network operators will need to ensure that IPTV is launched as a reinvention of television, rather than a pale imitation of current services. Operators could position the service as an affordable way for all content providers to deliver niche media to a growing mass market, without incurring the commissions of the broadcast-network middleman.

Telecommunications operators may well continue to focus on applications that generate large files and high data rates in 2007. Video downloading is likely to be a widespread example. Yet the industry may be better off taking the opposite route. While size is everything, bigger may not be better in the telecommunications sector.

Typically, operators' biggest revenue-earners and best margins derive from services based on the smallest files and narrowest bandwidth. Examples range from text messaging and mobile ringtones to voice communications. The latter has generated trillions of dollars in revenue ever since the first commercial call was placed. In 2007, successful network operators may be those that identify and popularize mass-market, simple, narrowband applications.

Operators considering triple play should evaluate their options carefully and ensure that bundled services satisfy customers as well as shareholders. The prevailing view in 2007, particularly in Europe, where demand for telecommunications products is perceived as stagnant, is that portfolio expansion may be one of the best options for growth and churn management. But becoming a triple or quadruple player may cause many operators to step outside their comfort zone, and some may stumble. The consequences could range from damaged brand equity to material financial loss. In 2007, operators will either have to heed such warnings, or work out how to prove them wrong.

In 2007, the connectivity chasm may become as well known as the digital divide. There are two types of connectivity chasm. The first refers to those with and those without basic connectivity, typically used for voice services. In 2007, this chasm should diminish, as millions of new subscribers get connected every month, principally in developing countries. However, at the same time, the second connectivity chasm, referring to those with and those without access to broadband connectivity at a quality sufficient to support a widening range of applications, may well deepen. Governments should develop policies that address both. Connectivity in any form is a key driver of economic progress and productivity. Quick fixes, such as providing free WiFi to cities or regions, should be avoided particularly in areas where PCs are too expensive for most households. However, simple but effective improvements may be available in the form of a simplified tax structure for phones and services, and the encouragement of fractional ownership of PCs. Longer term objectives could include greater liberalization of telecommunications markets.

Finally, as in the technology and media markets, 2007 may well see telecommunications services being given away. Mobile phones and broadband are just two items that are likely to be offered for free, albeit subject to a growing list of terms and conditions. However all these gifts come at a price to both the givers and the recipients. The cost to mobile operators of subsidizing millions of mobile phones in 2007 may be as much as a few billion pounds per country. The cost to a consumer of free broadband may be felt in a range of ways, from usage caps, to premium-rate technical support, and the obligatory purchase of additional services. To the industry, the cost of pricing services at zero may be the accelerated commoditization, at least in consumers' perception, of a growing number of fundamentally valuable products and services. In 2007 telecommunications operators may want to take a much more discriminating approach to 'free', using it selectively, carefully and with a full and realistic understanding of its potentially negative implications.

Reaching the limits of cyberspace

The Internet is often regarded as an infinite resource. Unfortunately, this is not the case; and in some parts of the world, its use may approach the total available capacity in 2007.

2006 has seen steady growth in demand for and use of the Internet. The volume of traffic flowing over the world's largest Internet hub, the Amsterdam Internet Exchange (AMS-IX), which carries approximately 20 percent of all Europe's Internet traffic, grew at a compound monthly average of 7.4 percent in 2006. Daily traffic exceeded one petabyte¹ in February 2006, and by October 2007 the exchange is forecast to be handling two petabytes per day, equivalent to one trillion pages of standard printed text^{2,3,4}. Over the entire year, the AMS-IX is expected to handle a total of one exabyte, equivalent to 500 times the data stored in all US research libraries, for the first time ever⁵.

The unrelenting growth in Internet traffic during 2007 may overwhelm some of the Internet's backbones: the terabit-capable pipes connecting continents. Through 2007, capacity wholesalers are likely to chase down spare capacity on key routes in anticipation of a surge in demand. But their enthusiasm for investing in entirely new capacity, or upgrading existing fiber to provide higher throughput, may be curbed by the precipitous fall in the price retail telecommunications companies and ISPs have been prepared to pay for wholesale capacity in recent times⁶.

Similarly, ISPs may struggle to keep pace with demand⁷. The rapid rise in consumer bandwidth consumption may threaten their ability to deliver a consistent quality of service to their customers. North American ISPs may experience such high levels of traffic that all services, from search to streaming video, could slow down noticeably⁸. This would not be the first time that high levels of usage have affected quality of service⁹, but this time the issue may be more difficult and expensive to address.

Two key trends are expected to underpin the threat to available capacity. Firstly, the total population of Internet users is expected to continue growing during 2007, having breached the one billion mark in 2006¹⁰. The second, more important factor is video. Over a third of all Internet traffic in 2007 is expected to be in the form of mostly illegal, peer-to-peer video¹¹. Additionally there is a growing number of legitimate video downloads, user-generated video content and IPTV. Video chat is forecast to continue growing in popularity in 2007¹². For some service providers, video-chat traffic already exceeds voice volumes, and given that a minute of video requires ten times the bandwidth as voice¹³, the threat to bandwidth becomes clear.

2007 is therefore likely to be a critical year for many wholesale capacity providers and ISPs. On the basis of current projections, ISPs and backbone providers are expected to endure a period of relative discomfort in order to cope with growth, but should be able to do so given the right incentive. But it would only take an unexpected upsurge in demand, driven, for example, by a flurry of new, video-based websites, to turn consumers from being uncomfortable to becoming dissatisfied.

Bottom line

The assumption that bandwidth cost must continue falling endlessly may have to change if the Internet is not to run out of capacity in 2007. Traffic volume is likely to continue growing rapidly throughout the year, and the rate of growth may even accelerate sharply, due to the growing transmission of video files¹⁴.

Backbone providers may have to upgrade existing fiber to cope with the growth in traffic. In some cases, for some routes, entirely new fiber may have to be laid. Both processes are time-consuming and expensive. There needs to be a business case for investing in new capacity.

However if the price paid for bandwidth continues falling, there may be no economic rationale for either upgrading or laying new fiber. Thus the cost of wholesale transmission may well have to rise¹⁵. In response, ISPs are likely to have to raise their tariffs and even change their business models in order to make retail broadband provision sustainable.

This may be a far larger issue than net neutrality; it is about the long-term commercial viability of broadband provision. Exponential growth in demand should be the best problem any industry can have, but mistakes can be made. The whole industry needs to find a satisfactory solution to the issue of monetizing rapidly increasing usage to fund future growth, without disenfranchising customers.

The unrelenting growth in Internet traffic during 2007 may overwhelm some of the Internet's backbones: the terabit-capable pipes connecting continents.

The net neutrality debate needs resolution

The debate around net neutrality is likely to become increasingly aggressive and global during the course of 2007, having already been fierce throughout 2006¹⁶. At issue is whether additional government regulation is necessary to protect the vibrancy and potential of the Internet¹⁷.

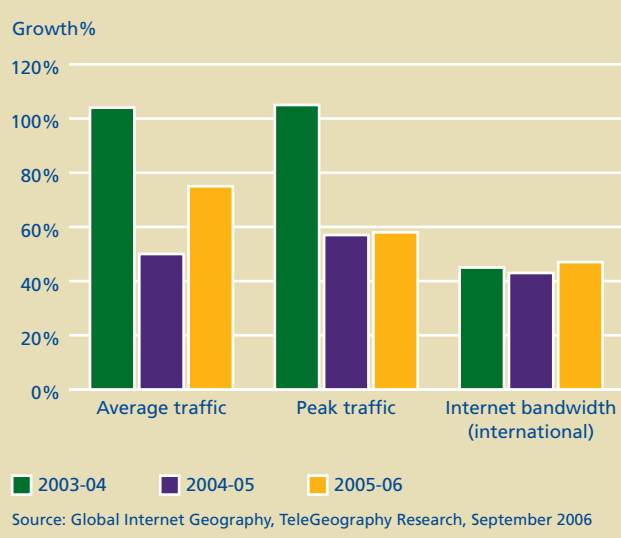
Some frame the issue as the need to preserve the ability of any Internet user to connect to any website or service, without discrimination or interference by the carrier via which they connect¹⁸. But some ISPs and telecommunications operators argue that they should be able to establish preferential carriage agreements, often revenue-generating, with their choice of content, service and other Internet companies¹⁹. For example, an ISP may prioritize video streaming carried by a partner over all other traffic, in exchange for a share of revenues raised. Other video-content providers would likely suffer a commercial disadvantage as a result.

The arguments for and against net neutrality are likely to become increasingly polarized. Those in favor argue that any move by ISPs or carriers to prioritize traffic will undermine the fundamental freedom of the Internet – the ability for any user, anywhere in the world, to make use of any service, content or platform²⁰. Their concern is that the gatekeepers to the Internet – those who provide connectivity and access – could alter the topology of the Web, turning a level playing-field into a tiered, toll-based Internet²¹, skewed by commercial imperatives²². As a result, many continue to lobby for government mandates to preserve the fundamental equality of all Internet sites.

Those who oppose creating such mandates argue that their business models are being undermined by Internet companies offering bandwidth-hungry services such as video and audio-streaming, heavily networked online games, video-based chat and peer-to-peer downloads²³. Many ISPs and telecommunications companies would like to start charging content companies, and others, a fee to provide access to their services²⁴. There are two primary reasons for this. The first is that ISPs and telecommunications carriers are seeing revenues stagnate²⁵. As penetration growth slows, competition drives down prices and rapidly rising Internet use among existing customers erodes margins. The second is that some of the largest Internet companies are enjoying bumper revenue growth and increasing profitability²⁶, and carriers would like to use their position in the value chain to participate in this growth.

Internet usage and traffic are both growing rapidly²⁷. There is an increasingly urgent need for new revenues that could fund expansion of the infrastructure on which the Internet runs. For example, on several key intercontinental routes, such as that between Asia and Europe, backbone capacity has grown slower than usage (see Figure 1), and may increasingly struggle to keep pace with demand²⁸. Similarly, ISPs and carriers may have to invest in higher capacity infrastructure to continue to be able to provide genuine broadband speeds²⁹ to consumers and business users³⁰.

Figure 1: International Internet and bandwidth growth 2003-2006



Balancing the two sides of this debate is likely to remain challenging. Both arguments have merit; both have their flaws. Clearly, something has to change in the economics of Internet access, such that network operators and ISPs can continue to invest in new infrastructure and maintain service quality, and consumers can continue to enjoy the Internet as they know it today.

Bottom line

All those involved in the net neutrality debate need to keep open minds in 2007. In the United States, legislation to enforce net neutrality is looking increasingly unlikely, at least in the near-term. Elsewhere in the world, net neutrality legislation has yet to be actively pursued. Therefore on a global basis, the two opposing sides are likely to have to seek an alternative route to agreement. For progress to be made, arguments for and against will probably need to become less partisan and emotive³¹.

Net neutrality advocates should recognize that the argument that the Internet is a free, open and public resource is an unsustainable anachronism. The Internet has now become a largely commercial entity, grown and structured on the basis of massive investment in systems and infrastructure. For the Internet to continue operating to everyone's benefit, all companies whose livelihood depends on the Web need both to contribute and gain. In particular, this means that the organizations that build, operate, maintain and expand the underlying infrastructure need a return on their investment. This in turn means that everyone involved may end up paying more, including consumers. The only questions that remain are: who pays whom, for what, and how much is passed through to the consumer?

Either way, prices are likely to have to rise, if not for the sake of preserving neutrality at the retail consumer end of the market, then for the sake of allowing telecommunications companies, ISPs, and backbone providers, greater headroom for investment in new capacity. Precipitous downward pressure on backbone interconnect prices, paid by Internet companies, ISPs and telecommunications firms, has left IP backbone providers with little incentive to light existing and new fiber³². Intensifying competition in the retail broadband market is cutting deeply into margins and limiting the ability of telecommunications companies and ISPs to invest in new networks. If this situation continues, then the net neutrality debate will likely be overshadowed by a more critical debate about the long-term viability of the Internet as a whole. All involved may have to revisit pricing policies, including those facing retail customers, in order to ensure that the Internet as we know it today continues to flourish.

ISPs and network operators should recognize the futility of taking actions that could be viewed as the exercise of significant market power. There can be little to gain from a strategy that may draw the scrutiny of the regulators or antitrust authorities, and may ultimately lead to legislation that could curtail business freedom.

That said, offering priority services to customers whose usage demands higher bandwidth is far from discriminatory, and has proven a successful revenue-generating strategy elsewhere in the world.

For example in Norway, where a small minority of users consume 80 percent of broadband capacity³³, one operator has pioneered the development of dynamic bandwidth allocation. Traditional, flat, monthly-tariff plans have been supplemented with scaling plans whereby a lower monthly fee is combined with metered fees based on the bandwidth allocated and used. Over 50 percent of heavy users have migrated to the new platform, generating additional revenues for the operator and maintaining quality of service for all users.

ISPs' and telecommunications companies' underperformance relative to their Internet peers may be an issue far wider than net neutrality. It has been argued that ISPs and operators may simply have failed to influence the evolution of business models and have ended up as bystanders, not winners^{34,35}. As a result, ISPs and operators should urgently consider instituting widespread reforms. A constructive stance, focused on addressing underlying strategic and operational challenges, may well yield more positive results. Setting aside the more obvious areas, such as increasing operational efficiency and broadening the service portfolio, ISPs and telecommunications companies could also do far more to extend their reach into the online world. Many of the companies that oppose net neutrality legislation have exceptionally strong brands, which are quite capable of going head-to-head with the giants of the online world, particularly at a local level.

Offering services such as unified messaging (including email aggregation and filtering, voicemail and messaging), security and virus protection, presence, synchronization (for example, from PC to mobile), online storage and back up and many others, ISPs and telecommunications companies could bring new levels of integration and sophistication to a number of burgeoning online markets. Their close relationship with consumers (which includes billing), combined with their prominent position in the value chain, could allow these companies to take a much more substantial slice of online revenues.

The broadband appliance unlocks the Internet for everyone

In January 2002, the United States hit a key milestone in its technological history, as the 60 percent threshold for Internet penetration among adults was breached for the first time. However it was not until four years later that the 70 percent threshold was breached³⁶. In 2006, adoption of the Internet among US adults has barely shifted. At current rates of penetration growth, it may take many years for Internet penetration to reach 80 percent of the population.

The United Kingdom has experienced a similar trend. Between mid-2003 and mid-2005, Internet adoption in households rose by just three percent, to 61 percent³⁷ according to one source. And according to another survey, adoption of the Internet in the United Kingdom has barely increased since then³⁸.

In 2007, based on present trends, overall Internet penetration in developed economies, where the majority of people online already have broadband access, may hardly rise.

Of those not currently using the Internet, it seems that few have any inclination to do so. In a UK survey of Internet users, almost 10 percent of the sample consisted of lapsed users, and of all those currently without access, the clear majority had no plans to acquire Internet access during the coming year.

One of the principal culprits may be the focus on the PC as the sole means of accessing the Internet. Most of the current uses of the Internet center on the PC. Communicating via email, IM or even VoIP; researching information, for work or for leisure; playing games; social networking and many other online activities are based on the working assumption that the PC is the epicenter of the online world.

But the PC alone may not make the Internet relevant for everyone. It is arguably too expensive, too complex, too much of a bottleneck and too fragile to support all the applications that the Internet makes useful and relevant for all. Take video conferencing as an example. PC-based video conferencing can require four discrete and expensive components: a camera, a set of speakers, ideally placed far away from the microphone, software and the PC itself. Installation, configuration and the use of the video-conferencing service itself are complex, and for the most part that complexity derives from the PC and its accessories, not from the service. And of course, if one member of the household is using the PC for video conferencing, the rest of the house is unable to access their preferred broadband-based applications.

A standalone, plug-and-play, lower cost, video phone unit may therefore become the more relevant approach – and it would allow other family members to use the PC to send emails, play online games or study.

The most popular activities on the Internet today include email, search, surfing, shopping, booking travel, messaging, listening to and downloading music, and playing games³⁹. While some of these functions are arguably best handled by the PC, with its full keyboard and large screen, others could more appropriately be handled by other devices. Email and messaging may fit better on a small, portable device, perhaps one for each family member. Streaming music or Internet radio may be more appealing if based around a portable, Internet-connected device.

Making the Internet relevant and attractive to 100 percent of the population may only be possible if services become centered on a range of small, specialist, simple and relatively inexpensive devices – not just delivered via a PC. If broadband does remain PC-focused, then it may never attain the industry and governmental objective of making it as common as electricity, either in 2007 or beyond.

Bottom line

In many ways, the PC has become a bottleneck to Internet adoption and use.

In order to sidestep this problem, telecommunications companies should consider creating or commissioning a range of devices, each designed specifically for use with specific services or applications, from downloading digital music to exchanging emails and messages. Doing so may help widen the Internet's appeal, and make it more relevant to the large proportion of society for whom the PC is currently unwanted.

The broadband appliance's potential has been demonstrated by the massive demand for one PC spin-off – the games console. Sony's first PlayStation was based on the essential elements needed to provide a PC-type games experience, in a single box. It was far cheaper than a PC, portable, dedicated and sold over 100 million units.

Mobility is likely to be important. Some broadband appliances may only flourish when wireless, typically via an integrated WiFi connection. They could thus be used anywhere within the home. The myriad devices that could benefit from wireless connectivity include: portable Internet radio receivers, shopping terminals, handheld encyclopedias, digital messaging devices and video security.

A key benefit of the dedicated broadband appliance is a custom-designed user interface. For many broadband-based applications, the PC's keyboard and mouse are often unnecessary and may even be an encumbrance. For music, the click wheel appears far more appropriate than a full-sized, Qwerty keyboard would be; for electronic games, the joystick is easier to maneuver. It is likely that new user interfaces will not only drive uptake of a broad range of digital broadband appliances, but may also serve to increase overall network demand, to the benefit of the telecommunications sector.

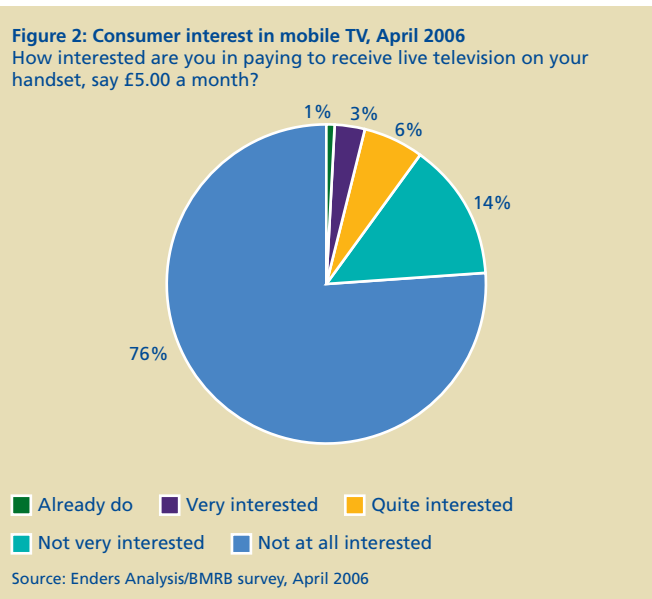


Long live mobile video (just forget the television)

As industries mature, the dash for diversification begins. The mobile industry now generates more than a trillion dollars⁴⁰, and has well over two billion customers⁴¹. It has for several years been seeking a new killer application. Mobile Internet, machine-to-machine communications and multimedia messaging are just some of the new services that the mobile sector has tried to popularize.

One of the latest, greatest hopes of the industry is mobile television⁴². Companies have invested significant sums in developing mobile television services so far, and there has been much debate over the best approach. Should they stream to individual devices or broadcast? Should they copy and paste existing television content or create brand new content? Should they charge a fee or rely on advertising⁴³?

Despite all the discussion and the obsession, mobile television has had muted commercial impact in most markets (see Figure 2). Its disappointing performance is likely to endure through 2007. A key reason for this will likely be weak consumer demand. Unlike audio, which miniaturizes well, video needs size, and the bigger the better.



In 2007, as in 2006, the relative difference in viewing area between a typical mobile phone and an average television is likely to become ever greater. Mobile phones are unlikely to get larger; the need for portability implies that devices must remain both lightweight and physically compact. The screen size of a high-end mobile phone is limited to about two inches if measured diagonally. Compare that with the typical size of a television now selling in the United States, which is a 32-inch screen⁴⁴ with a surface area of 448 inches. The bigger televisions become, the harder it will be to convince consumers to watch television on a phone.

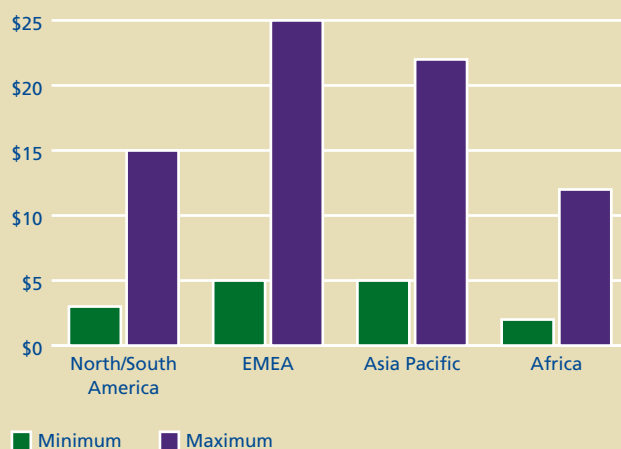
Content can of course be created specifically for mobile phones, but this is expensive, and the returns have generally not been spectacular so far⁴⁵. The cheaper approach is to throw content designed for viewing on a television onto a mobile phone and hope it works. But it is likely that neither consumers nor advertisers will find this approach credible or worth spending much money on⁴⁶.

As a novelty mobile television may sparkle; but as a viewing experience, particularly spread over hours, it is likely to be hard work and will probably struggle.

Offering mobile video-makers the chance for others to see their creations could also drive data downloads. This approach may stimulate mobile phone viewers to watch more video on their handsets. A growing body of amateur content, created on mobiles, is ideal for watching on mobiles. Short clips, watched on impulse, may just be the making of mobile video.



Figure 3: Maximum and minimum mobile data roaming charges by region (Per MB), Q4 2006



Source: Deloitte Touche Tohmatsu, 2006, based on information from operator websites

Bottom line

Is there hope for mobile television? If the intent is to get television programs onto the mobile phone, then the answer may well be no. Television is an inherently passive medium, best consumed when the viewer is sitting back and immersed. Mobile, by contrast, is an active medium, used in circumstances and for purposes that demand attention and interaction.

However, if operators can reverse the flow of data, getting video content off the phone and onto a television, or any device with a decent screen, then there may be an opportunity⁴⁷. Already a number of broadcasters use content captured on mobile phones as the basis for television programs and of course the huge popularity of user-generated, video content on the Internet could be further strengthened by mobile recordings.

As the ability of mobile phones to capture video content steadily improves, driven by better cameras and ever larger memory cards, the volume of user-generated, video content requiring transmission from the mobile phone is growing. And for the mobile operator, this translates into the potential to generate data revenues.

Operators should ensure that mobile-phone user interfaces make it as easy as possible for the user to upload video via the network. Every additional click required to send the video could be losing a potential customer.

Operators would also have to review their data tariffs. Prices would probably have to fall substantially. A video captured via a mobile phone could easily be a megabyte in size. On many networks, this could cost several dollars to send, a charge viewed by some consumers as excessive⁴⁸. Vacationers abroad may be charged up to \$25 per megabyte when roaming (see Figure 3)⁴⁹. The good news for operators is that research suggests there is strong price-demand elasticity in mobile data⁵⁰. Thus the risk of reducing tariffs may be offset by disproportionate rises in data traffic.

It's mobile, but not as we knew it

Just two decades ago, the first mobile networks entered commercial service, addressing the needs of executives and the wealthy to make calls from wherever they were. The first mobile phones were only just portable, the majority being briefcase-sized or vehicle mounted. At the time, mobile telephony was positioned as an occasional supplement to calls placed over PSTN (fixed) networks.

Since then hundreds of billions of dollars have been spent deploying networks with the aim of providing the maximum geographical coverage, with networks even stretching across mountainous or largely unpopulated regions. But 2007 may well see operators rapidly changing their network coverage strategies in response to shifting patterns of mobile usage.

Today, in developed countries, mobile networks typically cover 99 percent of the population, and more than 80 percent of the world's total population live within their coverage⁵¹. Partly because of its ubiquity, mobile is likely to consolidate its position as the primary network for voice calls during 2007⁵², with mobile voice traffic forecast to exceed PSTN traffic in many developed countries⁵³. As a result, many of the fixed voice services used in homes and offices are expected to undergo sharp decline⁵⁴.

Mobile voice's displacement of fixed is not particularly surprising. The process has been underway for several years and is the consequence of falling mobile prices and increasingly advanced mobile handsets. What is rather more surprising, however, is that the majority of calls made on mobile phones in 2007 are expected to be made within buildings, even when fixed line services are readily available. Just 30 percent of mobile calls are expected to be made outdoors during the course of the year⁵⁵.

As a result, many operators' strategies have had to change fundamentally, a process that is likely to continue through 2007 and beyond. The most significant shift for operators will probably be configuration of networks to focus on in-building, not external coverage, to deliver PSTN-quality calls. Cellular mobile networks were not originally designed to provide reliable in-building service, and overcoming this challenge is likely to become an increasingly important issue in 2007. The process of restructuring networks may also require operators to build greater urban and suburban capacity to cope with growing call volumes. By 2015, mobile operators may carry as many as eight trillion voice minutes per annum, representing more than 60 percent of the total voice market⁵⁶.

Mobile data use has also moved indoors, a trend expected to continue in 2007. In many respects mobile data is more practical within buildings, as ambient light and background noise pose less of a challenge to consuming multimedia content. Already about three-quarters of W-CDMA (3G) data traffic is generated from indoor usage⁵⁷.

While mobile networks were originally designed with ubiquitous coverage in mind, it seems that consumers' use is more geographically restricted and local. Dealing with this dynamic will likely be important in 2007, because if the mainstay of mobile is in-building calls, there are many competing technologies and hungry competitors that could undermine mobile operators' businesses.

Bottom line

Mobile, it appears, is no longer just about mobility. This means that mobile operators are likely to have to make series of major changes to their assumptions, strategies, services and tariffs.

Firstly, operators should develop new tariffs that reflect customers' growing tendency towards making and receiving mobile calls indoors. Research suggests that upwards of 30 percent of all consumer mobile-phone calls are made from home⁵⁸, and in Europe, up to one-third of all households are already mobile-only. Operators could, therefore, make far greater use of home-zone tariffs, providing consumers with reduced charges for calls placed within the home. Where launched, such tariffs have been popular, generating an uplift in revenues, as well as offering a potential increase on termination revenues⁵⁹. Tariffs designed specifically for families should also be considered as a means of cementing the position of mobile as the only voice tool that households need.

Secondly, operators should understand what business customers want from telephony, bearing in mind looming competition from fixed-line operators and purchasing managers' perennial focus on cost⁶⁰. Purchasing managers are increasingly keen on wireless solutions based on dual mode WiFi and cellular handsets⁶¹. Calls made and received within the office campus are carried over WiFi, potentially shifting a major share of business traffic away from mobile. Such services could bite deeply into mobile operators' revenues and profits⁶², particularly if such solutions are global, with traveling employees' dual-mode phones roaming onto guest WiFi office networks when traveling⁶³. This could have a major impact on roaming revenues, for both inbound and outbound calls.

Thirdly, operators should revisit their license terms. Most mobile licenses, including 3G licenses, include stringent population and landmass coverage clauses. Operators may want to start questioning the rationale behind such requirements, and should consider lobbying regulators to soften coverage requirements, particularly for rural and sparsely populated areas.

Given the emerging patterns of mobile usage, operators should also consider what other functions mobile devices could usefully perform indoors. In the home, mobile could become the remote control for media hubs, domestic appliances, utilities and security systems, providing access, authentication and payment services, for example. In the office mobile could be used for additional network security, replacing tags and other network security peripherals, as well as ultimately becoming a replacement for keys and key-cards to gain access to buildings and facilities. Perhaps mobile's ultimate destiny is to become the focal point for access, authentication and control of the digital home and office, as well as the dominant medium for voice.

The case for innovation, not imitation, in IPTV

Fixed telecommunications operators often provide an essential ingredient – network infrastructure – that enables and delivers a growing range of convergent services. Yet when it comes to profiting from convergence, operators have too often found themselves on the outside, looking in⁶⁴.

Downloaded music, video calling and social networking are just a few on the growing list of applications that are network dependent, but which generate little, if any, marginal revenue for operators⁶⁵. This may be unsustainable in the long-run, particularly given ongoing and upcoming investments in next generation networks, costing tens of billions of dollars⁶⁶.

Thus, to capitalize, rather than just enable convergence, fixed-network operators need to position themselves in the value chain such that they can command a better share of revenues⁶⁷. That means developing new services and business models that put broadband networks at the center of value creation, and use their existing capabilities to own and control the customer relationship.

Broadband-based IPTV is one of the major opportunities for operators to put this strategy into action. For consumers, IPTV has the potential to offer a unique combination of the advantages of the Internet – global reach, a highly interactive user-interface, and a vast repository of content – with the relaxing ‘lean back’ viewing experience that has made television so popular.

Unfortunately, many IPTV services to date appear to have been little more than clones of traditional television offerings without providing consumers with anything new, compelling and, critically, unique to a two-way network, as opposed to the one-way feed of broadcast satellite or terrestrial television⁶⁸.

As a result, during 2007 network operators will need to ensure that IPTV is launched as a reinvention of television, rather than a pale imitation of current services⁶⁹. Otherwise it may be destined to remain a low-margin service⁷⁰, with, at best, a niche following of consumers⁷¹, particularly in Europe.

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Bottom line

For IPTV to be commercially viable, fixed-network operators should consider improving upon both the reach and the richness of IPTV services. Differentiation, based on high levels of interactivity, on-demand services, presence and other features that actively use the dynamics of broadband networks are likely to be essential.

IPTV's reach is constrained by the number of people with fast-enough broadband connections and the necessary hardware to receive IPTV programming, such as a set-top box or a PC linked to the television set. To address the latter point, operators may need to offer subsidies that make the initial equipment purchase more affordable, in exchange for longer term contractual commitments. Operators should ensure that costs remain under control. IPTV installations that require an engineer's visit to the home may cost at least \$360⁷². Consequently, user-installation may be key to the business case.

To improve IPTV's richness, fixed-network operators could position the service as an affordable way for both traditional and non-traditional content providers to deliver content to the masses, without the broadcast-network middleman. This proposition may appeal to major media companies that want to deliver content directly to consumers in a highly targeted and affordable way.

But it might be even more attractive to niche content providers that lack the scale to use traditional mass distribution channels. The growing popularity of websites such as YouTube, which offer a wide variety of short-video content contributed by individual users and other non-traditional providers, proves that consumers are interested in this type of unconventional material⁷³.

Reducing the barriers to entry for consumers and content providers could help create a critical mass of viewers and content for IPTV. It could also enable fixed-network operators to capitalize on their core capabilities in areas such as customer management, billing and fulfillment. These are capabilities that many content providers currently lack, and indeed, may not be able to justify. Within the context of VOD services, for example, this central position in the IPTV value chain would allow fixed-network operators to capture a share of every transaction, and could help prevent their critical network infrastructure from becoming unnecessarily commoditized.

The kilobyte is the killer application

Size is everything. Often bigger is better. However in the telecommunications sector, the biggest revenues and the best margins have often come from services based on the smallest files and narrowest bandwidth.

One of the most successful applications in the telecommunications sector to date is text messaging, a service that generates at least three times the gross revenues of the entire global recorded music industry⁷⁴. Text messages are even smaller than a kilobyte, requiring just 140 bytes⁷⁵. Charged at an average of around \$0.20 per message⁷⁶, text messages can be extremely profitable. A megabyte of data transmitted at 20 cents per message generates over \$1400 per megabyte⁷⁷.

Mobile ringtones have also been a major success, with a global market value of \$4.5 billion⁷⁸ or more. Mobile ringtones are typically shortened, simplified versions of songs, and are rarely larger than 100 kilobytes in size. Yet the market for full-track downloads, with a file size of about two megabytes, via mobile networks is less than one twentieth the size of the ringtone market by revenue⁷⁹ and generates more revenues than the entire online digital music market⁸⁰.

Voice has generated trillions of dollars in revenue ever since the first commercial call was placed. Voice over the PSTN requires just 64 Kbit/s⁸¹ and just 9.6Kbit/s on mobile networks⁸². During peak periods, as little as 4.8 Kbit/s may be allocated per call⁸³.

This contrasts with the revenues from, say, video downloads. Mobile voice delivers between \$0.60 and \$1.90 per megabyte depending on the tariff, while a three-minute, video download generates about \$0.13 per megabyte⁸⁴. A movie is typically at least a gigabyte in size, making timely delivery (in other words, where it takes less time to download than to watch the file) only possible when using a multi-megabit connection. A movie download typically costs a few dollars. When comparing revenue per megabyte, voice generates at least 20 times more than a downloaded movie.

The enormous revenue-generating capacity of these services is largely due to their simplicity and universality. Placing and receiving voice calls is something effectively every telecommunications customer can do. The very large majority can send and receive text messages. Hundreds of millions of people can download and use ringtones. But these are not so much 'killer' applications as they are appropriate applications. Each was designed specifically for its host medium, whether fixed or mobile, and each was expressly intended to make the most of the unique benefits of that medium.

Yet in 2007, much of the telecommunications industry focus is likely to remain towards high bandwidth applications based around large files, from IPTV to mobile music downloads, and as a result, many operators may overlook a larger opportunity sitting right under their noses. Great things do indeed come in small packages.

Bottom line

Some key questions that the telecommunications industry should ask when considering its product pipeline include: How can connectivity maximize value? What do customers value most from a network that can connect both individuals and groups? What is a network ill-equipped to deliver?

A common thread running through the possible responses to these questions may be that bigger is not always better, at least when it comes to file size or bandwidth requirements.

Connectivity is arguably best equipped to deliver just the right information, to just the right person, at just the right time.

Thus an email with 10 words of plain text may be just as valuable as the same sentence wrapped within a megabyte's worth of formatting. Indeed the former may be even more useful if it reaches its destination more quickly due to its compact size. Some mobile email services cost the equivalent of \$15 per megabyte, but each megabyte can carry thousands of individual plain text messages, each of these potentially valuable to the recipient.

By contrast, connectivity may not be best positioned to compete with the role of broadcast networks, both terrestrial and satellite-based. Operators should therefore review which network-based, kilobyte-sized applications may be of value to their customers.

For mobile operators, such services could include email headers, instant messaging, calendaring and reminders, presence-based services (presence-enabled contacts and messaging), online chat, group messaging and other simple services that in combination make the mobile device the center of gravity for all forms of communication.

For fixed operators, kilobyte services might include:

- cross-platform messaging, integrated with mobile
- presence-based voice, email and messaging, integrated with mobile where possible
- integrated messaging, contact synchronization from mobile to fixed phone
- other services that defend the position of the fixed device whilst using the power of fixed Internet connectivity.

The double-edged sword of triple play

The case for bundled offerings ebbs and flows. Currently the tide of favor is moving steadily back to triple-play, and in some cases quadruple-play offerings combining fixed and mobile communications, the Internet and television.

The prevailing view, particularly in Europe, where demand for telecommunications products is perceived as stagnant, is that extending the service portfolio is one of the best options for growth⁸⁵. Furthermore, it is argued that bundles may also help to reduce churn, with a knock-on boost to customer lifetime value and profitability.

Thus in 2007, incumbent telecommunications operators that had previously split off their mobile operations may try to buy back these assets. In some cases the mobile offshoot may be in a better position to be the acquirer, having attained a higher valuation than its one-time parent. Media companies may purchase telecommunications companies, particularly fixed broadband providers, in order to grow revenue per subscriber in the short-term, and to create the option to offer VOD services in the longer term⁸⁶.

Private equity firms may also move to aggregate both telecommunications and media companies, in anticipation of growing demand for multiple play services⁸⁷. Equipment manufacturers are bolstering their capabilities to be able to supply triple-play service providers⁸⁸.

For some the stakes may rise higher still. Some telecommunications operators are planning to invest tens of billions of dollars to upgrade their fixed networks to be able to carry triple-play (and other) services⁸⁹. Other telecommunications and media companies are likely to make a dash to find partners that allow them the possibility to offer triple and quadruple-play bundles⁹⁰.

Some companies may use a combination of MVNO, broadband LLU, fixed voice reselling and IPTV as the basis for bundled offerings. This approach may be challenging. The MVNO model has been successful more as an exception rather than a rule; a number of MVNOs have notably failed^{91 92 93}. Offering broadband services through LLU can expose companies to razor-thin margins and huge technical complexity⁹⁴. And IPTV remains an immature and relatively uncompetitive technology by comparison to broadcast, satellite and cable television.

Becoming a triple, or quadruple player may cause many companies to step outside their comfort zone, and some may stumble in the process. Mobile operators, used to selling to individuals, may struggle with the different dynamics of selling IPTV services to households. PSTN operators, specialized in securely conveying private conversations, may find they lack core media skills such as commissioning, scheduling and advertising⁹⁵. Media companies, experienced in offering services based on mature, stable technologies, may be taken aback by the customer-support requirements for a relatively volatile platform like broadband.

Network-infrastructure owners, accustomed to being in total control of all network-related matters, may find reselling another's network a deeply frustrating experience. Brands built around products that have taken years to nurture into core assets, may be heavily damaged by failures elsewhere in the bundle.

2007 is likely to see a raft of new triple and quadruple-play offerings taken to market, each backed by a very large marketing budget. Many companies may well use price discounting as the main competitive lever, with many more offering one element of the triple or quadruple-play bundle for 'free'. Even before the impact of such discounting is taken into consideration, the business case for triple and quadruple-play offerings looks doubtful. Some estimates suggest that they could yield cumulative losses of \$4500 per subscriber by 2010⁹⁶. In 2007, it is likely that operators will either have to heed such warnings, or work out how to prove them wrong.

Bottom line

Companies deploying or considering triple play should satisfy themselves that this approach will appeal to consumers and to shareholders.

Typically customers want a blend of value, quality of service and ease-of-use. Ideally, value could be added by including greater interactivity, new services and improved functionality, for example⁹⁷. Possible ways of increasing value to the customer should not be limited to a discount or giveaways. If customers felt they were getting the best of all services offered, from just one provider the need for operators to offer substantial discounts may be removed^{98 99}.

Operators should ensure that they can deliver a consistent quality of service across all their bundled offerings. A failure in one service line could cause negative publicity for all offerings and for the overall brand¹⁰⁰. Provisioning, CRM and technical support should all be enhanced in such a way that they can cope with all manner of requests from addressing connectivity problems to offering new mobile phones.

Ease-of-use should not be limited to offering a single bill. Services are at their most compelling when they deliver impressive functionality that is intuitive to use¹⁰¹. Operators should also strive to avoid the unnecessary complexity of some early deployments of integrated fixed-mobile voice¹⁰² and IPTV. The latter has been considered difficult to use by comparison with broadcast, cable and satellite television, not least because of its complex home-networking requirements¹⁰³.

Operators should also be able to explain to shareholders how and why triple and quadruple-play offerings make sense to investors. The churn-reduction argument has not always been backed up by practice¹⁰⁴. Furthermore, the argument that multi-play prevents telecommunications operators from becoming akin to a utility is countered by the fact that many utilities businesses have themselves pursued a triple and quadruple-play strategy in recent years.

The connectivity chasms deepen

The digital divide, the gulf between those with access to technology, and those without, has been well documented¹⁰⁵. However the growing chasms between those who have varying degrees of connectivity and those who do not have, in general, had less attention, and may become of acute concern in 2007.

The first connectivity chasm is between those with a voice connection and those without. In developed countries, basic voice connectivity is widely available to the large majority of the population. In some developing countries the number of people with connectivity is growing steadily, mostly due to the growth in mobile networks. China and India alone have connected hundreds of millions of citizens in the last decade, and monthly net additions are still running at millions per month¹⁰⁶.

A growing percentage of the world's population is likely to fall within the range of a telephone network. At the start of 2007, 80 percent of the world's population lived within reach of a mobile network. By 2010 that proportion should rise to 90 percent¹⁰⁷. However, there are still up to 1.5 billion people without access to mobile voice services¹⁰⁸ and over 800,000 villages may still lack basic connectivity¹⁰⁹. This is not because of lack of network coverage, but due to the prohibitively high cost of service.

The second chasm is between those that have access to broadband connectivity at a speed and contention ratio sufficient to support a widening range of applications, and those without this privilege. In 2007, the gulf between these two groups is likely to deepen.

Access to broadband generally confers a positive change in living standards, and also raises personal competitiveness on a number of levels. In 2007, broadband-based applications are likely to offer a range of benefits such as: e-commerce's lower prices and greater information; VoIP's lower tariffs; e-government's details on planning applications and municipal developments; online encyclopedias' information archives for students; video-based security, and telemedicine's access to medical specialists.

At the start of 2007, there were an estimated 300 million consumer broadband connections in a world of 6.5 billion people¹¹⁰, less than five percent of the world's population. Of these connections, only 20 million offered speeds of two Mbit/s or more¹¹¹. Yet in 2007, 95 percent of the world's population are forecast to have no broadband access at home. And by 2010, only a quarter of all broadband households are expected to have two Mbit/s or faster connections¹¹². In short, this means that 2007 and the years that follow could see the emergence of a connectivity elite, while the majority of consumers fall rapidly behind.

Bottom line

Connectivity is a major driver of economic progress and individual productivity, and governments should develop policies that address the two connectivity chasms urgently. The growing connectivity chasms are clearly a challenge for telecommunications companies as well, and should be taken seriously in 2007.

But as with other large-scale, socio-economic problems, it is important to avoid the quick fix that may meet a target but otherwise provides no tangible benefit.

Schemes such as subsidized or free municipal wireless networks may sound promising in theory, but offer little benefit if citizens cannot afford computers in the first place. There is little benefit in public WiFi schemes that just make connectivity even cheaper for the better off. Research has already suggested that the cost of municipal WiFi schemes is likely to be so high that over 50 percent will fail to break even¹¹³, hence a change of approach may well be a blessing in disguise.

A more appropriate, affordable and sustainable approach may be something more akin to fractional ownership, whereby a computer and a broadband connection are owned collectively. The benefits of being connected can then be shared among a community. This approach is already yielding positive results in parts of Africa¹¹⁴, and has the potential to transform digital quality of life for poorer people in the developed and developing worlds alike. Government and telecommunications operator investment could also be put into Internet cafes, which offer both the opportunity for people to get online, and to have the support, advice and training of experienced users.

Governments should also move to liberalize communications markets. Competition may make telecommunications services more affordable for a larger proportion of the population. Free-market competition has already had a profound impact on a number of developing economies, bringing connectivity within reach of a substantially greater proportion of the population¹¹⁵. Further, governments should examine the taxes levied on connectivity. For example, in the developing world taxes are estimated to represent around 20 percent of the total cost of ownership of a mobile phone¹¹⁶. Reducing or removing sales taxes and other duties will likely make connectivity more affordable, increase uptake and have a net positive impact on the economy as a whole.

The rising cost of free telecommunications

The 21st Century appears to be an increasingly benevolent era, particularly for telecommunications products and services. Consumers and businesses are being offered an ever widening range of goods, for a ticket prize of zero. Or are they?

Mobile telephones are often offered for free. This is courtesy of a subsidy, sometimes as high as \$1000. Subsidies were a powerful tool during the high-growth phase of the industry, but may have become an expensive and uncomfortable legacy. In major markets, the annual cost of this subsidy runs into billions of dollars annually. The cost of the subsidy is factored into the consumer's bill via call charges and line-rental prices¹¹⁷. Thus a free handset is far from free but is paid for with every call made.

Broadband is increasingly being offered as a free service. But the cost of this free offer can often include the obligatory purchase of another service, or services; a charge for the privilege of being released from the free service; the cost of calling a premium rate, technical support hotline when the modem that was provided gratis proves a nightmare to install, or stops working.

Furthermore, the majority of free broadband offers may include usage caps, which limit the quantity that can be uploaded and downloaded by customers. Consumers exceeding their limit may find themselves charged a significant premium for each additional megabyte of use.

VoIP can also be perceived as free, particularly if calls are made from PC-to-PC. But there are, as ever costs involved. Fully free calls, that is calls with zero marginal costs, can only be made by those with access to a PC and a broadband connection, both of which cost money. In addition, there is the time taken to set up the call; to ensure both users are registered on the same VoIP system and have the same version of the software, and there is the impact of other users' calls flowing over your broadband connection thanks to the peer-to-peer software being used. In total, the financial and other costs associated with making a free call can be high, which may explain why PC-to-PC VoIP remains a marginal element of the world's voice traffic, and is likely to remain a small fragment of all traffic in 2007¹¹⁸.

In 2007, the use of free offers may increasingly counter strategic objectives to improve revenue and margin growth. Having set the 'free' precedent, telecommunications companies may have a hard job persuading consumers that their services are worth paying for.

Bottom line

Telecommunications operators should take a much more discriminating approach to 'free', using it selectively, carefully and with a full and realistic understanding of its potentially negative implications.

Offering products and services for free can be a powerful tool in high-growth markets, where it can translate into rapid market share growth. But in the maturing telecommunications world of 2007, the technique may be or become a liability.

This is particularly the case in the fixed broadband market. There are already numerous examples of free offers turning into public relations disasters¹¹⁹, and companies must carefully consider the implications of marketing 'free'¹²⁰. Most free broadband offers form part of triple-play packages. Given that the economics of triple play have been brought into serious doubt¹²¹, operators should lessen their dependence on free broadband as soon as possible. Additionally, not only are consumer groups likely to keep a close eye on the small print associated with free offers, but also competition authorities and regulators may well pay increasing attention, and could even intervene more regularly if the term free becomes either overused or misused.

Using free offers to minimize subscriber churn may hold potential in low-value segments, but only if there is a clear path to revenue growth in the future. This is likely to require far greater selectivity in relation to the tiers of service offered for free, in order to create the opportunity to up-sell to higher specification, paid-for services, and substantially greater certainty on the revenue growth prospects from other, paid-for services.

A focus on value and quality may be more sustainable than one based on giveaways. In 2007 a significant proportion of consumers are likely to remain willing to pay for quality, and by definition, these customers represent the best target for revenue growth for all telecommunications companies. This is particularly the case in the mobile segment, where in Europe, for example, 20 percent of customers typically generate 50 percent of revenues¹²².

The subsidy model for mobile operators may have to stay, as a free mobile phone has now become central to consumer expectations. However operators can still lessen the impact of subsidies. For example operators should encourage the migration of customers from prepaid to contract tariffs¹²³ as customers within a contract typically yield higher revenues. There is a direct correlation between the speed of migration from prepaid to contract and growth in service revenues¹²⁴, and operators should seek to exploit this fact.

VoIP operators should also distance themselves from free offers, not only because consumers and commentators are becoming increasingly aware that VoIP is not free, but also because a business model based on free services is likely to be untenable in the long-term¹²⁵. The technical capabilities of VoIP lend themselves very well to premium offerings, with high-fidelity sound and robust encryption, and operators would do well to shift their focus in this direction.

Notes

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- 10 See: <http://www.internetworldstats.com/stats.htm> (Data published on 18 September 2006)
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Glossary of technical terms

3G	Third generation mobile network
CRM	Customer Relationship Management
GSM	General System for Mobile
IM	Instant Messaging
IP	Internet Protocol
IPTV	Internet Protocol Television
ISP	Internet Service Provider
LAN	Local Area Network
LLU	Local Loop Unbundling
MVNO	Mobile Virtual Network Operator
PSTN	Public Switched Telephone Network
SMS	Short Message Service
TMT	Technology, Media and Telecommunications
VOD	Video-on-Demand
VoIP	Voice-over-Internet Protocol
W-CDMA	Wideband Code Division Multiple Access
WiFi	Wireless Fidelity
WiMax	Worldwide Interoperability for Microwave Access

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