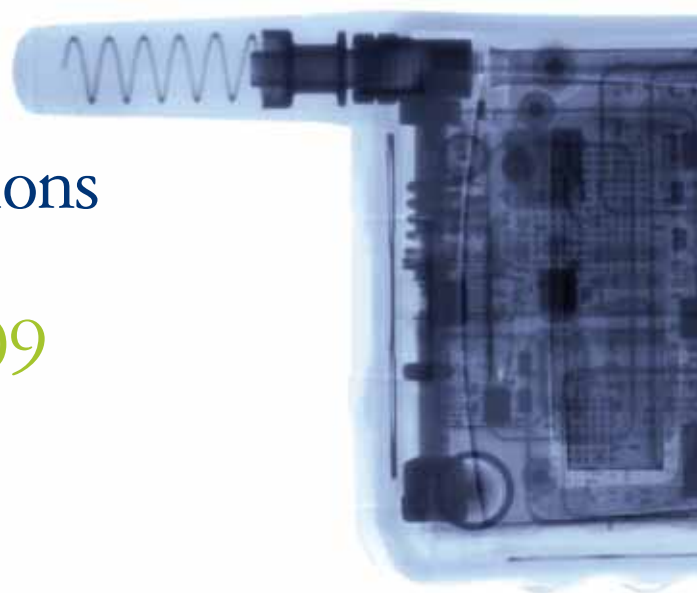




Telecommunications
Predictions
TMT Trends 2009





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About TMT

The Deloitte Touche Tohmatsu (DTT) Global Technology, Media & Telecommunications (TMT) Industry Group consists of the TMT practices organized in the various member firms of DTT. It includes more than 6,000 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 nearly 45 countries and centers of excellence in the Americas, EMEA and Asia Pacific. DTT's member firms serve nearly 90 percent of the TMT companies in the Fortune Global 500. Clients of Deloitte 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.

About the research

The 2009 series of predictions has drawn on internal and external inputs from conversations with member firm clients, contributions from DTT member firms' 6,000 partners and practitioners specializing in TMT, discussions with financial and industry analysts, and conversations with trade bodies.

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Foreword

Welcome to the 2009 edition of Predictions for the telecommunications sector.

This is the eighth year in which the Deloitte Touche Tohmatsu Global TMT Industry Group has published its predictions for the year ahead. The volatility of the global economy in 2008 and the anticipated challenges ahead in 2009 have made this set of predictions particularly challenging, but also particularly important, to compose.

Some have questioned whether predictions are feasible amid such turbulence. Colleagues have asked how accurate they can be, given the uncertain outlook and many of the unprecedented conditions being experienced today.

Anticipating the course of the next 12 months is likely to be hard. But, in my view, that makes having a considered perspective more crucial than ever.

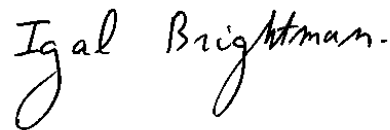
Predictions, by their nature, are not facts. But properly developed predictions should encompass a diverse array of views and inputs, which can kindle debate, inform possible directions and even identify necessary actions.

Every year, the methodology for Predictions is revisited, to assess how the approach could be made more robust. This year, our standard methodology has been bolstered through a program of in-depth interviews with 50 CXOs at some of the world's largest TMT companies. I am most grateful to all the respondents who offered up their insights and experience, at a time when their attention was particularly in demand.

2009 is likely to challenge all of us. The telecommunications sector is unlikely to remain unscathed by the global economy. But we should not forget that the reliance on the telecommunications sector to keep the businesses and the people of the world connected remains as critical as ever.

In short, while global growth may be cyclical, the need for telecommunications, is and will remain, fundamental.

I wish you all the best for 2009.



Igal Brightman
Global Managing Partner
Technology, Media & Telecommunications
Industry Group

Smart phones: how to stay clever in a downturn

Growth in demand for smart phones – devices boasting powerful processors, abundant memories, large screens and open operating systems¹ – has outpaced the rest of the mobile phone market for several years.

During 2008, smart phone sales increased by almost 35 percent, while the market as a whole grew 10 percent². By year-end, smart phones had taken 13 percent of the total handset market³.

But a continued economic downturn during 2009 may buffet the fortunes of smart phones. While sales growth for all mobile phones may decline to around 4 percent, smart phone growth could fall by more than 15 percentage points, to under 20 percent⁴. Smart phones' market share may increase by no more than 2 percentage points.

While double digit growth is likely to be the envy of many other sectors in 2009, smart phones had been regarded as a means of materially raising the usage and profitability of mobile telephony. The smart phone also represented, at last, a way for the mobile industry to make its users embrace data, as well as voice; it enabled average selling prices of devices to rise.

Mobile operators, the main channel to market for smart phones, are likely to contribute to the decline in smart phone growth. Responding to the economic downturn, operators are expected to make strenuous efforts – which in a few cases may be over-reactions – to reduce costs. Handset subsidies, which cost the industry tens of billions of dollars each year, are likely to come under intense scrutiny. Already credited with reducing operator profitability, smart phones, which may cost twice as much as regular feature phones, may be a prime target⁵.

Operators may try to reduce subsidies by replacing smart phones with feature phones on many consumer tariffs⁶. Some may even offer consumers a discount on their monthly bills in lieu of a new handset. Consumers keen to control their spending may find such offers increasingly appealing.

The contracts for some existing smart phone users may also slow demand in 2009. The high price of smart phones, relative to average selling prices (ASPs), mean that many contracts for higher end phones are based on 18-month periods or longer. Smart phone users who took out subscriptions in 2008 may not be able to replace their handsets until 2010.

Operators may take a similar approach in the enterprise market. Subsidized smart phones may be offered only to companies prepared to pay for additional services such as mobile email. Companies seeking to reduce their monthly mobile voice expenditure may be offered only feature phones.

In response to slackening demand, handset manufacturers may shift new product development from feature-rich devices to simpler phones. Such devices may also offer greater reliability, and thus suffer fewer expensive returns, as they would be based on more stable functionality⁷.

The subsidy model of the smart phone is unlikely to end in 2009. But it may be the year in which operators start to make smarter use of smart phone subsidies to preserve margins.

Bottom line

While 2009 is likely to be tougher than recent years for smart phones⁸, the mobile industry should keep its faith.

The most important challenge for mobile phone manufacturers is to show how their smart phone products can provide a superior return on investment compared with their competitors, even if they have a higher list price, and require a higher subsidy. Manufacturers may need to argue the case for their products not just with operators, but also their shareholders.

Manufacturers should therefore focus on developing smart phones with features that consumers want to use and are willing to pay for. Manufacturers should work closely with operators to create easy-to-use services based on specific functionality that users value.

Handset manufacturers should also consider increasing their marketing to consumers that may increasingly be losing confidence. Consumers in many markets are likely to cut spending but may want occasional treats. Advertisers need to convince them that smart phones are indispensable rather than indulgent.

Smart phone manufacturers could sell their devices as price-competitive replacements for laptops. For some workers a smart phone may address all their communications, connectivity and applications requirements.

Mobile component manufacturers should look at ways of reducing their costs; it is likely that handset manufacturers will want to pass on some of the downward pricing pressure.

Mobile operators should reduce smart phone subsidies with care: this is not a guaranteed route to improved margins. Operators in countries where subsidies are prohibited do not always enjoy higher margins.

In markets where subsidies exist and are reduced, consumers may expect monthly charges to fall. Operators should ensure that cost reductions from lower subsidies exceed any accompanying drop in service revenue.

They should bear in mind that smart phones generate over 25 percent of mobile data traffic⁹. Operators need data traffic growth to offset declining margins for voice and SMS services¹⁰. They should work with handset makers to ensure that feature phones do not compromise data usage.

Data ascends from the basement to the boardroom

Customer information has been part of telecommunications operators' asset bases for decades, with the largest operators accumulating terabytes of data¹¹. But so far, collection of customer, network and operational data has outweighed insight¹².

In 2009 however, several factors are expected to raise the profile of information, catalyzing its ascension to the boardroom.

First, the economic outlook is likely to put pressure on operators' margins, as clients become more willing to haggle for better deals, as a means to trim their outgoings. Better customer information may help operators retain their clients and attract those of their competitors, by gaining a better understanding of where clients feel the value lies.

The diversification of other sectors into telecommunications is likely to continue. Some of these new competitors may already have a comprehensive understanding of their customer bases, which could be used to compete against operators. For telecommunications operators to be able to face up to their competition, they may need an equivalent understanding of their customer bases: otherwise their role may be reduced to that of wholesaler, a change that would likely imply much lower revenues per subscriber.

A key result of the economic downturn has been the sharp contraction in credit available to consumers, particularly in markets where debt-to-income ratios have risen to over 100 percent¹³. A sharp fall in credit is likely to change the behavior, spending patterns and needs of some customers in a fundamental manner. In 2008, the decline in disposable income encouraged the adoption of SIM-only contracts in some markets¹⁴. Having a deep, current view of the customer is likely to be essential to operators providing services, products, bundles and pricing that are appropriate for their clients.

Accurate information may be essential to enable an operator to transform from being regarded as best for the latest technology, to best for value. Information is also likely to be vital in supporting diversification into other areas, such as IPTV and managed services.

Better customer information may also help operators respond more quickly to rapidly emerging phenomena such as social networking and online video sharing. It could also enable operators to capitalize on such developments, rather than be sidestepped by them.

New technologies may also help bring customer information to the fore. Software-as-a-service (SaaS) may facilitate low-cost, scalable analytical tools. Applications that monitor unconnected device usage, such as MP3 consumption on mobile phones, may provide richer detail.

Bottom line

Operators should recognize that information assets may become as important to value creation as physical assets. They should consider how to structure their activities to utilize their full spectrum of information. Customer information should be integrated, not appended, or worse, archived.

Information should be represented at the highest level. Having a Chief Information Officer (CIO)¹⁵ on the senior management team and implementing a Data Governance framework may become essential. Insights gained from customer information are likely to be relevant to the whole board, and customer information should inform the widest range of executive decisions.

Operators should appoint CIOs with care. The CIO should be able to collect and analyze customer data and make it relevant to strategy, innovation and operations. Leadership and communications skills may often be as important as IT experience¹⁶. Operators may need to hire interim expertise and solutions to analyze data, if they lack the required skills among the current workforce¹⁷. Operators should contract customer information systems specialists to accelerate execution.

Operations should be optimized to deliver value at the lowest possible cost. Understanding the data points in operational key performance indicators should enable operators to manage their processes, both customer facing and back-office, in the most efficient manner.

Gathering customer information should be assiduous but not undermine consumer privacy. The value of information should be balanced against the possible consequences, should it be lost, stolen or abused. Operators should manage this tension without increasing risk. Data security should be a priority, particularly if third parties are involved in systems development and data analysis.

Technology companies should consider the telecommunications industry's complexity when designing customer information solutions. Although network technology is often homogeneous, billing, customer relationship management (CRM) and information systems are frequently proprietary. Technology companies should also consider the evolving service portfolios of operators. Customer information solutions must be flexible enough to accommodate data relating not only to calls and connectivity, but also media consumption, downloads and financial transactions.

Regulators should monitor operators' activities closely. Open dialog with operators may be essential, along with clear guidelines about acceptable and unacceptable practices. Similarly operators should monitor the evolving regulatory environment regarding retention of customer information, from calling records to browsing logs¹⁸.

Operators should recognize that information assets may become as important to value creation as physical assets. Customer information should be integrated, not appended, or worse, archived.

Digital communication loses its message

In 2009, employees are likely to communicate digitally with each other in more ways, and in greater volumes, than ever before. But a greater quantity and variety of communications, digital or otherwise, may not mean a better kind of communication. Indeed, digital communications applications, most notably email, may obscure as much as they inform during 2009¹⁹.

When email was first launched, it offered a fast, immediate, and relatively low-cost alternative compared with mail, faxes and internal memoranda. The success of instant messaging was founded on its greater immediacy and lesser formality, relative to email. The growth of services like text messaging, has been driven by similar benefits.



However, the value of email has eroded as inbound volumes have continued to increase, boosted by spam²⁰, and as employees continue to send and copy too many messages, to too many people, too often²¹. During 2009, on average office workers are expected to check their inboxes more than 50 times²² and send more than 160 messages daily²³, in all dedicating up to two hours each day to email²⁴.

The value of digital communications in working hours may be further depleted by social networks, which offer myriad ways of sending and receiving messages between thousands of individuals at a time. The impact of social networks has been measured at billions of dollars in lost productivity^{25 26}.

For some, 2009 will be the year in which their volume of emails sent, received and saved, finally falls. In some respects this will be a response to internal mandate: it has been estimated that every employee creates 20 megabytes, every day²⁷. Heavier users may find their inboxes forcibly emptied by IT departments, to control costs.

In a few cases, users may resort to 'email bankruptcy', that is deleting everything in their inboxes and starting over.

Bottom line

For businesses, digital communication is a productivity tool. In many businesses, the efficiency of digital communications has been increasingly blunted by overuse. Companies need to make digital communication between workers, as well with customers and suppliers, useful again.

Excessive use of digital communication, especially email, is an entirely human problem. Organizations need to help users regain discipline in their use of communications tools. Users should be encouraged to focus on the quality, not quantity, of digital communications. Enterprises could even offer employees the option of switching off²⁸. Workers should not feel the need to be connected and responding at all times. Companies could consider discouraging email for one day a week²⁹.

Empowering employees to stem the flow of messages, albeit temporarily, could have a considerable impact on productivity by allowing each worker to focus on the task at hand. In some cases, rationing the quantity of messages sent per day could train workers to be more selective in their use of digital messaging.

Companies should also consider the direct financial benefit of less digital communication. Simply persuading employees not to make indiscriminate use of the 'reply-all' function could save time and money. In a typical 1,000 person organization, it could cut the daily email count by several thousand, saving 285 person-hours per day and potentially recapture \$1,800 per year per employee in wasted labor costs³⁰.

It is in the interests of telecommunications and technology companies to advise organizations on how to preserve the power of digital communications. A phone call to a single individual may be the most efficient and effective response to a group email. A short text message could replace a lengthy phone call.

Social networking companies should consider their potential impact on the workplace. A growing trend to ban access to their networks from office computers demonstrates the threat seen by employers³¹. However, many companies are keen to take advantage of some of the perceived benefits of online networking to promote co-operation and teamwork³². Social networks may find that the best approach is to offer 'white-label' solutions to corporations³³.

The joys of disintermediation: why operators should embrace the application store

Mobile operators have long been concerned by disintermediation: the intrusion by third parties into the originally closed relationship between operators and their customers.

Operators have frowned upon, and in some cases countered, what they perceive as interference from third parties. Companies that have directly targeted operators' customers have been sternly warned away³⁴. Content providers have been encouraged to offer content only via operators' portals³⁵.

They may therefore become vexed by one likely development in 2009: the proliferation of mobile applications sourced from third parties³⁶.

In 2009, mobile phone users are expected to download over 10 billion applications to their mobile phones. The majority of applications are likely to be sourced from sites managed by mobile device manufacturers, consumer electronics firms and software houses³⁷.

Although a few operators may launch their own application stores³⁸, the majority are likely to see no alternative to allowing their customers to access third parties' stores³⁹.

Operators are not likely to earn any direct revenue from application downloads. Any subscription or license income is likely to be shared between the application store and the application's authors.

Customers on flat-rate mobile data subscriptions are expected to generate additional revenues from application usage only if resultant traffic volumes are so high that usage caps are breached and additional charges are levied. But these cases are likely to be exceptional.

However, as consumer awareness of mobile applications increases, the number of voice subscribers that add data subscriptions may well rise, boosting revenues⁴⁰.

Not all customers will want to commit to a data subscription. But this may be even better news, if previously voice-only customers start to purchase data on an ad-hoc basis and download occasional applications. Ad-hoc usage is typically billed by the megabyte and may be more profitable for operators than 'all-you-can-eat' monthly tariffs.

Thus the growth of application stores in 2009 could have a positive impact on operators, even though they displace operators' direct billing relationships with users. If must-have applications emerge that encourage the majority of mobile customers to start using data, operators can only benefit. So far, aside from text messaging, only a minority of mobile users use their phones for data⁴¹.

The malign nature of disintermediation is likely to remain a common theme at most telecommunications industry conferences in 2009. But even as attendees deplore their seemingly inexorable destiny as 'dumb pipes', the margins and cash-generating potential of mobile operators are likely to remain the envy of many outside the sector.

Bottom line

Operators' concerns about third-party application stores may prove unfounded. Indeed their proliferation might well be a positive for operators.

Applications could also be used to drive operator loyalty and reduce retention costs. Operators could manage the transfer of applications from one handset to another. They could also offer device back up, which could become an additional revenue stream. Consumers could be offered applications as a reward for loyalty, sometimes in lieu of a handset upgrade. The upgrade cycle may lengthen, and costs fall, if consumers are regularly offered new functions on their phones.

Operators could generate revenues, in addition to data charges, from services offered to third-party stores. For example, charging application purchases to subscribers' phone bills could streamline the payment process. Credit card payment may be offputting to some potential customers, and processing charges for retailers can be high. Operators may also be able to earn revenues from developers and consumers by adding presence and location sensitivity to services.

Some operators may be in a good position to launch their own application stores. It may be more profitable to leave third parties to shoulder the costs. Evaluations of the merits of opening an application store should consider all the costs involved, ranging from application testing to hosting and from settlement to support. Operators should also estimate potential revenues in light of the fact that millions of the applications downloaded so far have been free.

Application store operators should carefully manage the portfolio of software on offer. Frivolous applications of little value are plentiful and these could degrade the overall perception of the store. Additionally, store operators should rigorously check applications for malware and viruses.

Developers should note the mobile phone market's heterogeneity. There are significant differences between the most basic phones in the market and the most advanced. Developers should determine whether they want to build complex applications that may run only on smart phones or focus on mass market applications.

Consumers should be aware of possible risks from third-party downloads, which could include viruses. Even clean files may diminish the mobile phone's performance. Applications that constantly run background processes can cause other applications to run slowly and drain the batteries.

Even as operators deplore their seemingly inexorable destiny as 'dumb pipes', the margins and cash-generating potential of mobile operators are likely to remain the envy of many outside the sector.

Integration unleashes mobile phone convergence, finally

The objective of convergence is to combine two or more previously discrete technologies, with the end result ideally being improved features, benefits and value for the customer.

In the mobile market, this objective has not always been attained. The quality of photos taken on many camera phones has often been a far cry from that offered by dedicated devices. Mobile phone MP3 players have often suffered from compromised user interfaces and poor quality sound compared with their standalone peers. Demand for mobile phones converged with games-playing capability has remained niche.

Further, the cost of converged devices has often been at a premium to that of two separate products with equivalent functionality.

As a result, consumers seeking top-of-the-range performance had little alternative but to carry multiple devices.

But 2009 is likely to see a new range of mobile phones, which overcome the convergence compromise⁴².

Falling component prices⁴³ and advances in miniaturization are likely to play a part. The economic downturn may also play a role in driving demand, as consumers seek a single device to deliver multiple applications. But the biggest driver is likely to be better integration with the extensive functionality available with today's mobile phones.

Camera phones boasting high-quality lenses and 12 mega-pixel sensors are expected to offer image quality that rivals the best point-and-shoot cameras⁴⁴. A few may include features common only to expensive dedicated cameras, including near-zero shutter lag, smile recognition and 360-degree panoramic capabilities⁴⁵.

But the most successful phones are likely to use the power of mobile connectivity to enhance the stills camera: using GPS to allow geo-tagging of images; high-speed broadband to post photos online, and email clients for sending photos to friends⁴⁶.

The same will likely be true of music phones. A growing range of devices may have multi-gigabyte memory, dedicated music buttons and high-quality pre-amplifiers that rival standalone players⁴⁷. And music and mobility will be more carefully fused. Music phones may incorporate mobile broadband to enable rapid downloading over-the-air; FM transmitters to play music in cars or on hi-fis, and WiFi connections to exchange music with PCs⁴⁸.



Over and above their increasingly attractive technical specifications, demand for these products is likely to be driven by a combination of reduced consumer spending and the availability of subsidies from mobile operators. Though standalone cameras and music players are likely to remain inexpensive, they may struggle to compete with converged mobile devices offered nominally at no cost.

Consequently, sales of mobile camera phones during 2009 may exceed those of dedicated digital cameras, for the first time ever⁴⁹. And by year-end, camera phones will likely outnumber all the conventional digital and analog cameras ever sold. Sales of music phones may be as much as three times higher than those of dedicated players⁵⁰, and whereas MP3 functionality was rarely used in older phones, in 2009 models, usage may exceed 60 percent⁵¹.

The mobile phone may soon come to be regarded as the most successful converged product of all time.

Bottom line

Mobile handset manufacturers are getting better at convergence, but still need to proceed with care. They should not assume that the mere addition of more features guarantees success.

Rather, they should focus on deeper integration with the objective of enhancing products' practical benefits so as to justify any price premium.

Manufacturers should work closely with mobile operators to ensure that converged functionality can be monetized. Operators are likely to be reluctant to subsidize features that offer no route to revenues.

Standalone device manufacturers should focus on enhancing the capabilities of their devices. Physical size, storage capacity and battery performance may be areas in which superiority over converged devices can be established.

Operators should study consumers' use of converged products in detail. Tools now exist that can monitor usage of all mobile phone functions, not just those that require a network connection. These could offer far greater detail on consumer behavior, and may help identify revenue opportunities relating to converged functionality.



Farewell mobile phone, welcome the wireless device

The first mobile phones were a triumph of technology. The ability to make and receive phone calls, seemingly out of thin air, was and still is a marvel of scientific progress.

But, by today's standards, they now appear remarkably simple. The first phones supported a single wireless technology, cellular mobile, which allowed phones to connect with base stations that could be up to 30 kilometers away⁵².

Since then, the mobile phone has steadily added communications technologies. Infrared, first incorporated in the mid-1990s, enabled short-range connections, typically with computers⁵³. Bluetooth, popularized at the end of the 1990s, enabled phones to connect with a range of devices within a 30-meter radius⁵⁴.

In this decade, the number of connectivity options has steadily grown.

In 2009, for the first time, single wafer chipsets will be available with five or more separate wireless technologies (see Figure 1), offering combinations of short-, mid- and long-range communications, and carrying both voice and data.

This is significant for two reasons. First, it means that the 'mobile' phone has evolved from being a device dedicated to cellular mobile networks, into a truly wireless device, capable of working with many distinct networks, each possibly owned by different entities.

Second, a single chipset enables lower prices. In 2009, the cost of chipsets providing multiple wireless technologies is likely to drop below \$2, and may even approach just \$1. By contrast, the first standalone Bluetooth chips sold for almost \$20⁵⁵. The cost of similar technology, but spread over multiple chipsets, would be considerably higher, in the region of \$10.

The economic downturn is likely to make the mobile-phone market turbulent for chip-makers⁵⁶. But the growing range of multi-radio chips may cause demand to grow in many other segments, from PCs to hi-fis, clothing⁵⁷ to memory sticks.

Figure 1: Candidate wireless technologies available in single chip solutions in 2009

Short range	Medium range	Long range
Ultra wide band	Bluetooth	GSM/CDMA
Infrared	Wireless LAN	GPRS
	FM transmit	UMTS
	FM receive	HSDPA
		HSUPA
		GPS

Source: Deloitte Touche Tohmatsu, 2008

Bottom line

All players in the mobile industry should understand how they are affected, for better or worse, by the emergence of the low-cost, multiple-standard chipset.

For mobile operators and device manufacturers, a key implication of the falling price of the chipset is that the business case for the integration of wireless technology into a range of devices, not just voice-centered mobile phones, may be far stronger. The industry should consider which devices could now benefit from having multiple wireless standards built in. Laptop computers are increasingly being sold with integrated wireless connectivity⁵⁸.

But if chipsets become available at \$2, other candidates now range from:

- traffic signals, which could be re-programmed over-the-air.
- remote controls, which could be used to record viewing habits, with the data being transmitted via a local wireless LAN connection or via cellular memory sticks, which could exchange data with devices via wireless connections, rather than requiring a USB port.
- clothing, which could capture health information and send this back to a remote monitoring facility.

Mobile operators should consider their positioning. They should determine whether to remain focused on the provision of long-range cellular mobile standards, or whether to become aggregators of multiple wireless standards. Operators should also understand how they can monetize the proliferation of wireless technology, particularly if they are subsidizing its inclusion in the phones offered to their customers. Operators should consider how to route customers' data traffic, particularly large files, so as to minimize carriage costs⁵⁹.

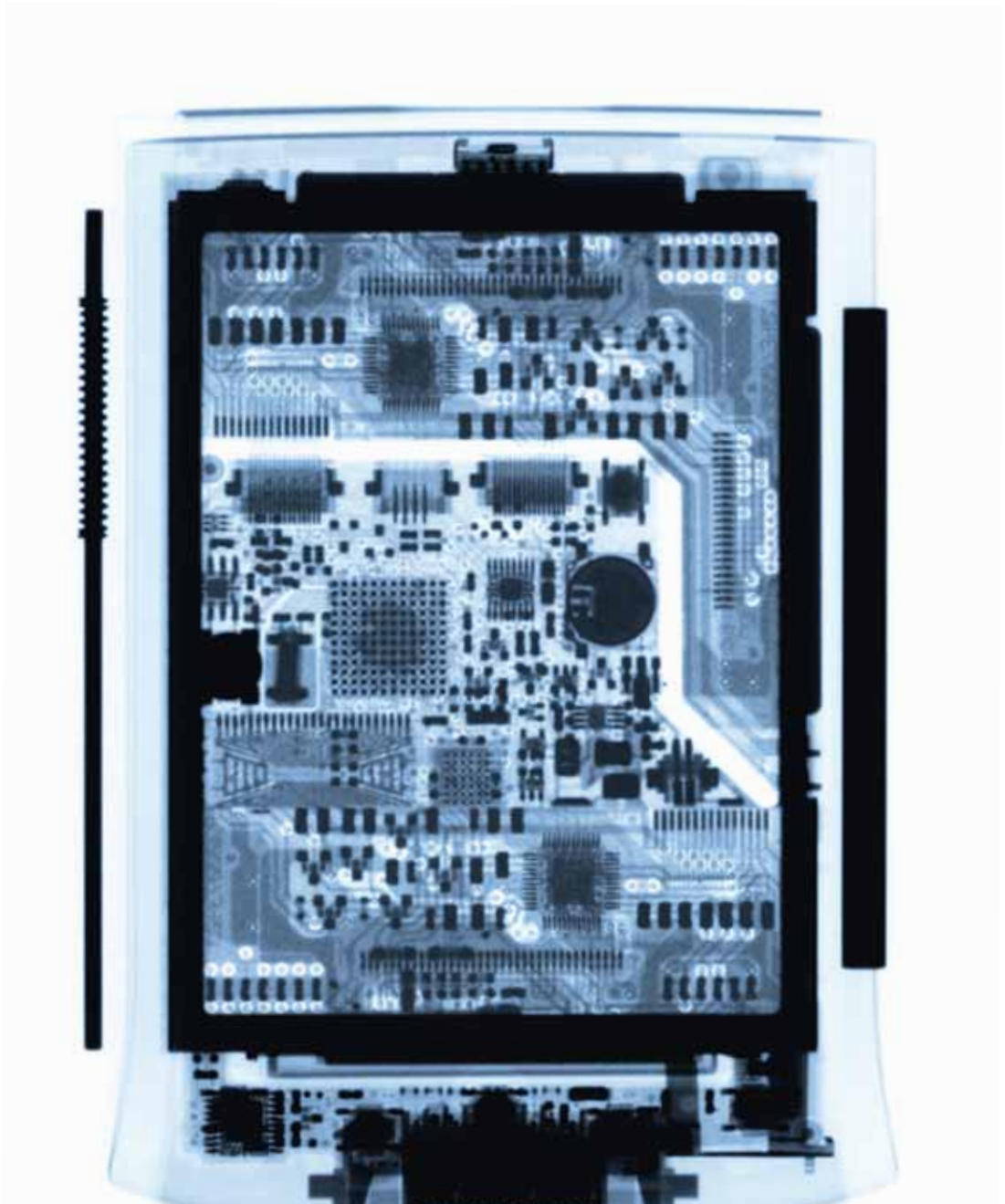
Companies in other sectors should consider what low-cost integrated chipsets could enable. Integration of wireless technologies could change, profoundly, the ways in which a device can be used. For example, a television remote control could be transformed: with long-range communication integrated into the remote, its uses could include anything from voting in televised talent shows, to sending data on the owner's viewing patterns back to viewing monitoring bureaux.

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The mobile broadband accident in slow motion

Broadband was one of the fastest growing services for mobile operators in 2008. Customers were eager to take up a service that promised download speeds competitive with many fixed broadband offerings. Operators were keen to promote a service that could increase subscriber numbers and generate much needed data revenues.

Global sales of mobile broadband 'dongles' exceeded four million per month during 2008⁶⁰, and are expected to more than double during 2009⁶¹. Additionally, most major PC vendors now sell models with integrated mobile broadband connectivity⁶². While their penetration levels are currently low, falling prices are expected to drive strong growth⁶³.



If demand for mobile broadband remains strong, the resultant stress on networks, particularly backhaul connections, could be severe⁶⁴. A typical mobile network backhaul connection is 2MBit/s for a leased line: mobile broadband services have advertised maximum speeds of up to 7.2MBit/s. To bridge this gap, and increase capacity to accommodate the growing number of users, operators may collectively have to spend tens of billions of dollars⁶⁵. Backhaul typically represents 30 percent of a mobile operator's operating costs and, worldwide, operators spend an estimated \$20 billion per annum on leased lines alone^{66 67}.

In light of these costs, and the proliferation of all-you-can-eat data tariffs, operators may face a similar fate to fixed broadband providers: an inability to monetize rapidly growing data volume. Data now exceeds voice volume on some mobile networks⁶⁸, and with data traffic growing by several hundred percent on others⁶⁹, the cost of carrying data traffic could rapidly erode margins. A single mobile broadband user can consume as much capacity as 1,000 voice callers⁷⁰ – yet the implied revenue that data traffic generates is between a fraction of a cent and two cents a megabyte, whereas voice is charged at the equivalent of around 60 cents per megabyte^{71 72}.

In countries with the highest levels of mobile broadband penetration, operators may encounter a subsequent, expensive choke point in the radio-access network, possibly requiring the purchase of more spectrum⁷³.

Bottom line

As mobile broadband penetration rises, mobile operators are likely to have to balance customer satisfaction, diversification, profits and investment levels with the management of traffic loads.

Where possible, operators should try to divert heavy data traffic from cellular networks, and route it via other networks, such as WiFi-hotspots or home-broadband connections⁷⁴. Data tariffs should be structured to encourage customers to use these types of connectivity. Where no viable alternative networks exist, operators should build out capacity as fast as possible to avoid a deteriorating user experience.

Either way, operators should focus marketing attention on managing customer expectations. The gap between advertised maximum and achieved speeds may well grow in the short term. Operators should be wary of one of the emerging consequences of overpromising and underdelivering: litigation⁷⁵.

Operators should examine the business model for mobile broadband carefully. Given that network capital and operating expenditures are likely to have to rise, retail offerings based on subsidized PCs and all-you-can-eat tariffs may not be sustainable in the longer term. Evidence from the voice market suggests that consumers are reasonably happy to pay a premium in return for the convenience of mobility.

Operators should develop software to ensure that devices automatically select the best connection available per application. Cellular networks remain fine for voice, but should remain the bandwidth of last resort for heavy data applications. Operators should also revisit network sharing as a means of limiting upgrade costs, while maximizing coverage. Forming network-sharing agreements in the short term may also help to reduce the cost of acquiring additional spectrum in the medium term. Dongle manufacturers should monitor the market closely. PC manufacturers are increasingly integrating mobile broadband connectivity into their devices – removing the need for a USB dongle. Diversification may soon be necessary.

Consumers should subscribe to mobile broadband services with a clear understanding of their strengths and limitations. Mobile broadband is an excellent supplement to fixed broadband, but for the time being, for some customers, may be an inadequate replacement for it.

Enterprises deploying applications on the back of mobile broadband, from field-force enablement to connectivity for workers on client site, should monitor the performance carefully. Concentrations of workers, for example those working in a project room, may well end up competing for the same bandwidth. Download and upload speeds may vary considerably both between and within countries.

The third screen goes dark: mobile television loses its reception

Continued economic strife in 2009 may accelerate the temporary demise, in some regions, of the mobile industry's most talked about service this decade, mobile television.

A combination of factors may weigh against mobile television, which has been positioned by its advocates as the third screen.

Lower liquidity and a focus on cash may make it unlikely that investments in broadcast systems, such as DVB-H and mobile television systems based on existing 3G infrastructure, would be approved⁷⁶. Lower handset subsidies⁷⁷ may mean fewer high-end phones capable of supporting mobile television coming into the market. Lower media sector revenues suggest a greater reluctance from the creative sector to experiment with new media formats⁷⁸. Depressed consumer confidence is likely to make consumers less likely to spend money on add-ons to their mobile subscriptions⁷⁹. Advertisers, who tend to regard mobile as an experimental format, may decide to focus funds only on media formats that have previously been successful⁸⁰.

Furthermore, the performance of mobile television was disappointing in 2008. Major sporting events, which can be a catalyst for the adoption of new media formats, largely failed to launch mobile television. While two-thirds of the world's population watched the Beijing Olympics on television⁸¹, there was scant demand for the event via mobile television⁸².

The creation of mobile-specific content also failed to make an impression, aside from that on the bottom line. Customized content in some cases attracted audiences measured in the hundreds⁸³, in markets where conventional television could attract millions.

This bundle of challenges is likely to reduce new deployment of mobile television services around the world to a trickle. It may also accelerate the switch-off of many existing services.

Essentially, mobile television may simply no longer receive the benefit of the doubt. In 2009, therefore, five times more mobile television services may be closed than those launched⁸⁴. Subscriber numbers may fail to reach even the bottom range of analysts' forecasts: mobile television's total global audience may fall short of 30 million⁸⁵.

Fee-based services, such as those offered by many European operators, may fail to gain traction, and so be closed down. Advertising-funded services, such as those in South Korea and Japan, may continue to endure disappointing levels of adoption and usage, and might fail to break even.

It will not be a complete fiasco for the third screen in 2009. One of the few examples of popular demand for mobile television in 2008 was for analog mobile television handsets, complete with meter-long aerials. Users of these devices, which are essentially equivalent to portable LCD televisions, may outnumber digital mobile television subscribers by over two-to-one⁸⁶.

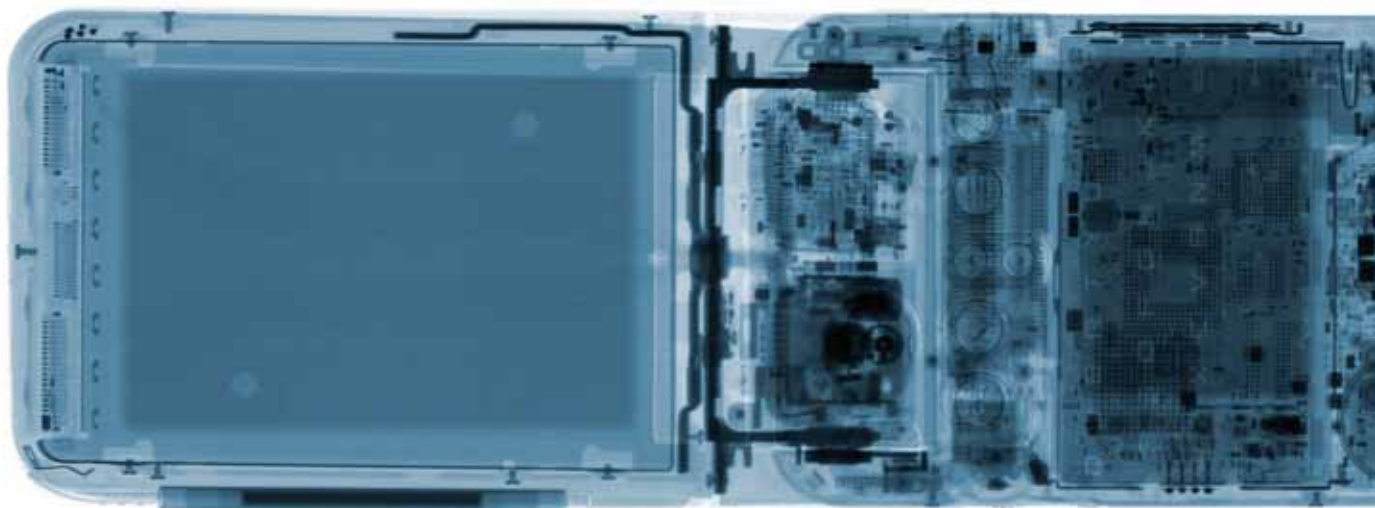
Bottom line

Everyone involved in the mobile television industry, whether an operator, a handset developer or a creative, should take a long, hard, look at the demand for mobile television so far. The downturn could be a perfect opportunity to call time on a format that has too many fundamental challenges to work.

But that does not mean that there is no space for mobile phones in the television market.

Mobile may be unsuitable for viewing television programs, but it is potentially an ideal medium for enhancing consumers' terrestrial television experience. Mobile telephony could provide an efficient payment mechanism for VOD – delivered to the set top box at home – particularly for smaller VOD players. Mobile phones can also be used to control the DVR. Television broadcasters can use mobile as part of their CRM strategies. Individuals could be sent reminders of the start of a new series of a favorite program, or be informed of the launch of a major new box-set. And the mobile phone has been well used as a means of voting on the outcome of some television programs.

The mobile phone could end up as the broadcasters' best friend.



One for all and all for one: fiber networks change the shape of competition

Liberalization of the world's telecommunications markets has mostly been based on the premise of full, infrastructure-based competition, offering customers a choice between competing networks.

In 2009, as pressure mounts on fixed operators to upgrade aging copper networks to fiber, the continuing viability of infrastructure-based competition is likely to be debated.

Fiber's many benefits include almost limitless bandwidth and low operating costs. But this comes at a steep price. Connecting an average household with fiber in a country with a combination of city and rural households can cost \$1,000. In some of the business cases undertaken, the return on investment expected may not justify the cost⁸⁷.

Infrastructure-based competition can benefit consumers, but it could also be claimed that this results in large-scale, possibly wasteful, duplication of assets. Currently, incumbent fixed operators' copper networks typically compete with multiple cable and fixed-broadband networks. There are on average four competing mobile networks in each of the world's 50 largest economies⁸⁸. In the past, the availability of inexpensive financing combined with rapid subscriber and revenue growth had made duplicate networks viable.

But 2009 is likely to be characterized by illiquidity, risk aversion and reduced consumer spending. Within this context, deploying multiple fiber networks, which could cost hundreds of billions of dollars worldwide⁸⁹, may appear increasingly unfeasible.

As a result, 2009 may see a fundamental change of ideology, perhaps similar to the shift in opinion on

national ownership of parts of the financial sector⁹⁰. Regulators may determine that the fiber connectivity market is not sovereign, and that the case for a single network, with shared ownership and open access, might be the best way forward.

Following a model already used in Asia Pacific⁹¹, governments may start issuing tender requests or licenses for single fiber network deployment. The majority of responses to these are likely to come from consortia, rather than individual companies. Though many consortia may include, or be led by, fixed-line incumbents, erstwhile competitors may now become consortium partners.

Governments may encourage greater private-sector involvement via a combination of guaranteed wholesale access, relaxed pricing regulations, tax breaks and subsidies⁹². Their objective is likely to be to accelerate the deployment of fiber, which some governments regard as an issue of national competitiveness.

Though this 'structural separation' approach is likely to catalyze fiber deployment, telecommunications operators may still struggle to make the business case add up. During 2008, average monthly line rental for fiber broadband fell by over 6.5 percent⁹³. Fiber's \$10 price premium over DSL⁹⁴ is likely to erode. In some markets, there is no premium⁹⁵. And operators may find that during 2009 and beyond, there may be few if any services that require the sort of capacity that fiber can offer.

Bottom line

Moving away from infrastructure-based competition would have a fundamental impact on the dynamics of the industry.

Telecommunications operators should be aware of the challenges, as well as the opportunities, that this could bring. Shared ownership may reduce fiber's cost and risk, but may also require a new, unfamiliar approach to competition. Companies should determine which skills they may need to hire to be able to compete on the basis of services, or service levels, alone.

They should also consider the partnerships they may need to create demand that could take advantage of fiber's capacity⁹⁶. Triple-play service alone may not provide the return on investment to justify fiber's deployment, even on a single network basis. Operators should work with a range of entities from content creators, to financial institutions, to cloud computing firms, to understand how fiber networks could enable better processes, access to new clients, or brand new business models.

Companies should also examine the wholesale markets: these may yield shorter-term revenues and higher margins. Fiber could help mobile operators deal with their backhaul bottleneck, for instance⁹⁷.

Telecommunications companies and consortia should work with governments to agree ways of limiting, or at least phasing, deployment costs. Fiber-to-the-node (FTTN) or street-side cabinets may provide more than enough capacity for consumer and small business broadband, at a quarter of the cost of fiber-to-the-home (FTTH)⁹⁸.

Media companies should devise strategies to utilize fiber. Fiber's symmetric nature may make peer-to-peer content distribution more effective⁹⁹. However, fiber's bandwidth may also catalyze illegal file-sharing.

Governments should complement their commitment to fiber deployment with campaigns to encourage adoption, for example by making the use of e-government for certain procedures, such as filing tax returns, mandatory. Governments should also look at how a fiber network could improve their own processes.

It may also be opportune to review the mix of a country's graduates to determine what skills would be required to enable deployment of a fiber network, and the development of applications that could exploit such a resource. Balancing educational grants towards science and business could encourage students to pursue courses that could plug any skills deficiencies identified.

Shared ownership of fiber networks may reduce cost and risk, but may also require a new and unfamiliar approach to competition. Companies should determine which skills they may need to hire to be able to compete on the basis of services, or service levels, alone.

Mobile termination rates in Europe: a cut too far or a cut too fast?

Ten cents per minute is the average charge for connecting a call to a mobile phone in Europe. One cent is the typical fee for connecting a call to a fixed line¹⁰⁰. That differential of \$0.09 is likely to become the subject of heated debate in 2009 and winners and losers may be defined by the rate at which it declines.

Mobile termination rates (MTR) have historically been higher than equivalent fixed charges. Mobile operators have pointed to the cost of building and maintaining mobile networks as justification¹⁰¹. During 2008 in Europe, the spread of MTRs was between \$0.03 and \$0.24 per minute¹⁰². Operators argued that this variance was due to local costs such as licenses, labor and financing. The European Commission (EC) has had a different view.

In June 2008 the Commission recommended that the cost asymmetry between individual operators be removed. It also recommended that the asymmetry between mobile and fixed be reduced. It recommended that MTRs should fall by 70 percent over three years¹⁰³, towards \$0.01-\$0.03 per minute; much closer to the rate charged by fixed operators.

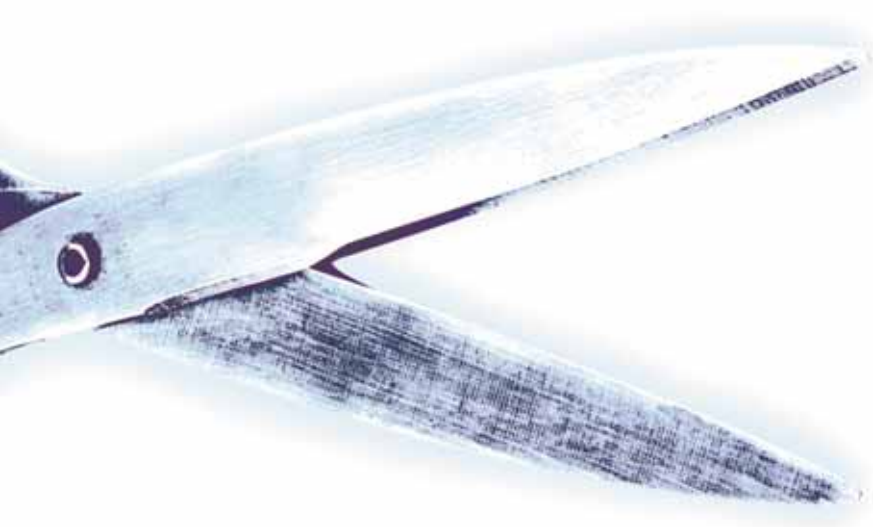
Compliance with the EC's recommendations could oblige some operators to make substantial changes to business models and tariffs, or even revise financial performance targets downwards¹⁰⁴.

Prepaid customers in Europe may be among the losers¹⁰⁵. They typically make few outbound calls, but are worthy clients in that they generate termination revenues from inbound calls. Lower MTRs could mean some prepaid customers make losses, unless prepaid tariffs rise and handset subsidies fall¹⁰⁶. But increased cost of ownership may make mobile too expensive for some prepaid customers¹⁰⁷.

If operators lose prepaid customers or are unable to compensate with growth elsewhere, the financial performance gap versus peers in emerging markets could increase. European operators' EBITDA margins average 35 percent. Margins of over 40 percent are common among operators in emerging markets¹⁰⁸.

Regulatory intervention has already been blamed for a drop of 2 percentage points in European operators' investment¹⁰⁹. Intervention on MTRs could exacerbate that trend¹¹⁰.

Mobile operators have already acknowledged that MTRs must decline. But 2009 is likely to see them push for a less drastic descent than the EC proposes.



Bottom line

Mobile operators likely to be adversely affected by MTR cuts should suggest alternative approaches to the EC's proposals. They could, for example, recommend a glide-path approach, in which MTRs decline predictably. Even by this method, MTR declines are likely to accelerate, and operators must carefully model the impact on revenues and profitability. They should determine how data services could offset the falling voice revenues resulting from lower MTRs.

Operators should avoid overstating the impact of MTR cuts. Exaggerated claims may not help negotiations with the European Union, and may heighten the concerns of investors. They should focus on demonstrating that a 'one-size-fits-all' approach to European MTR regulation may be inappropriate and potentially damaging.

Mobile operators who stand to gain from MTR cuts, that is, those who pay more to competitors than they receive, should consider the broader impact on the mobile industry. Consumers are likely to expect lower bills from all operators.

Consumer groups should monitor progress carefully. Operators' knee-jerk reactions to sudden cuts could disadvantage millions of consumers, particularly those on low incomes. It may be better to call for a more moderate approach, from both operators and regulators.

Local regulators should develop MTR glide paths that respect operators' costs and market conditions. Any break from cost-oriented MTR pricing requires detailed economic justification. Regulators should pursue rapid agreement with operators on MTR reductions, and make such agreements public. The EC may be less inclined to pursue the matter if progress is swift.

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The telecommunications sector is unlikely to remain unscathed by the global economy. But while global growth may be cyclical, the need for telecommunications is and will remain fundamental.

Glossary of technical terms

3G	Third generation mobile network
CDMA	Code division multiple access
DSL	Digital subscriber line
DVB-H	Digital video broadcasting – handheld
DVR	Digital video recorder
EBITDA	Earnings before interest, taxes, depreciation and amortization
FM	Frequency modulation
FTTH	Fiber-to-the-home
FTTN	Fiber-to-the-node
GPRS	General packet radio service
GPS	Global positioning system
GSM	Global system for mobile
HSDPA	High-speed downlink packet access
HSUPA	High-speed uplink packet access
IPTV	Internet protocol television
LAN	Local area network
LCD	Liquid crystal display
MTR	Mobile termination rates
SaaS	Software-as-a-service
SIM	Subscriber identity module
SMS	Short message service
UMTS	Universal mobile telecommunications system
USB	Universal serial bus
VOD	Video on demand
WiFi	Wireless fidelity

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