

The trillion dollar challenge

Principles for profitable convergence



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Foreword: convergence is back

Digital convergence was buried in the rubble of the dot-com crash, or so a lot of people thought. But what really disappeared was convergence of the technology, media and telecommunications (TMT) sectors for its own sake and an obsession with the spectacular things technology might deliver tomorrow, at the expense of understanding or delivering what customers actually want today. A generally more considered, customer-driven and profitable approach to TMT convergence is taking its place.

And this makes convergence more of an imperative for all TMT executives than ever before. It is no longer a case of watching while competitors indulge in convergence follies: this time around, distinct convergence winners, losers and bystanders are emerging. The winners are likely to share in a trillion dollar revenue premium generated between now and 2010 from emerging convergence products and services. Bystanders risk disintermediation, reduced competitiveness and even declining market share.

This context makes it essential for every progressive TMT company to develop proactively a convergent strategy that is appropriate to its core competence, its target market and its alliances.

This report contains seven key principles for successful convergence. Each principle has been developed by Deloitte Touche Tohmatsu (DTT) and the TMT practices of its member firms around the world based upon extensive internal debate, discussions with senior industry executives and interviews with journalists.

On behalf of DTT and the TMT practices of its member firms, I wish you every success in our converging industries.



Igal Brightman
Global Managing Partner
Technology, Media & Telecommunications



Executive summary

TMT convergence has received a lot of hype in recent years. But increasingly substance is displacing the hype. Indeed it is becoming the basis of competitive advantage in the TMT sector. A wealth of convergence products and services is emerging, from online music to Internet Protocol (IP) appliances. Each of these offerings satisfies a real customer need – and most are already generating real revenue and earnings.

TMT businesses have the potential to benefit greatly from convergence. It is expected to create new product categories, new markets, and in some cases even change the structure of existing industries – shifting the balance of power and altering the basis of competition. Some companies will win; some will lose; and some will stand idle as the best opportunities pass them by. But between now and the end of the decade, over a trillion dollars could be generated by emerging convergence products and services, based on analysis by DTT and the TMT practices of its member firms.

Convergence is being driven by three underlying trends. The first is proliferation of digital data, which provides a common base for handling diverse types of information – numbers, words, music, pictures, video, and more – using the same devices, processing techniques, and media. The second is widespread connectivity, which helps bring diverse information together, and extends the value and capabilities of a device beyond its out-of-the-box functionality. The third is continuous advances in technology, from battery life to processor speed.

Real world convergence can be seen at three different levels:

- Products and services represent the highest level of convergence, providing goods and services that meet real customer needs – above and beyond what is currently available. However, that result can only be achieved when supported by convergence at the two other levels – platform and organization.
- Organizational convergence involves different companies' people and IT systems working together to deliver a convergent solution. Since most convergence offerings extend beyond the capabilities of a single organization – no matter how large or diversified – convergence at the organization level is generally a prerequisite to delivering a convergent product or service.
- Platform convergence involves consolidation around a small number of standards – network protocols, data formats, and standard media types – allowing companies to focus their efforts, and creating critical mass in the marketplace. For example, adoption of the Internet Protocol (IP) as a universal standard for digital communication is fostering a myriad of convergent communication devices and applications.

It's imperative for every TMT executive to understand the potential impact of convergence, and to develop a clear strategy for capitalizing on it. Convergence has the potential to create new market opportunities and new sources of revenue. But even more important, convergence is changing the basis of competition. It can transform industries, catalyze fundamentally new business models, restructure value chains and shift the balance of power.

The TMT practices of DTT member firms have thus outlined seven principles for successful convergence:

1. Convergence must be driven by customer needs, not technology. It's easy to get caught up in the amazing things the convergence of technologies can do, but those things only matter when they produce something customers actually want **and** are willing to pay for.
2. Commercial creativity will maximize convergence's impact. TMT companies must also invest in understanding how convergence can improve upon the legacy business model.
3. Convergence requires mutual benefit for the parties involved. If one organization tries to dominate the convergence relationship, no one else is likely to play. Over time, rising investment costs are likely to make partnerships increasingly obligatory economics – making a consistent view of mutual benefit ever more important.
4. Convergence and divergence can coexist. Convergence often creates products and services that do more than most people need or want. Stripping away the non-essential features to produce a simpler, cheaper offering is often the best way to achieve widespread adoption and success.
5. Laggards lose. Successful convergence challenges and reshapes traditional boundaries. Companies that are tentative, or stuck in the past, generally don't get very far. Bold, but considered, moves often produce the greatest impact – and the greatest returns.
6. Timing is everything. A convergent product or service needs to be launched at the right time. This means suppliers, customers and technology must all be ready for the new converged product or service.
7. Convergence winners and losers are ever changing. Convergence, by definition, is a dynamic process that involves significant and constant change. Even the best convergent elements – products, services, strategies, and relationships – can eventually become a liability. To maintain their edge, companies must constantly analyze the competitive environment, looking for the next source of advantage.

Convergence is back on the TMT agenda. And converging successfully will surely be one of the key objectives challenging TMT executives over the coming years.

Introduction: the trillion dollar challenge

In early 2005, the **Financial Times** commented that for the first time “hardware manufacturers, software makers and service providers are starting to look more closely at ways to simplify their products and make them work smoothly with other devices”.

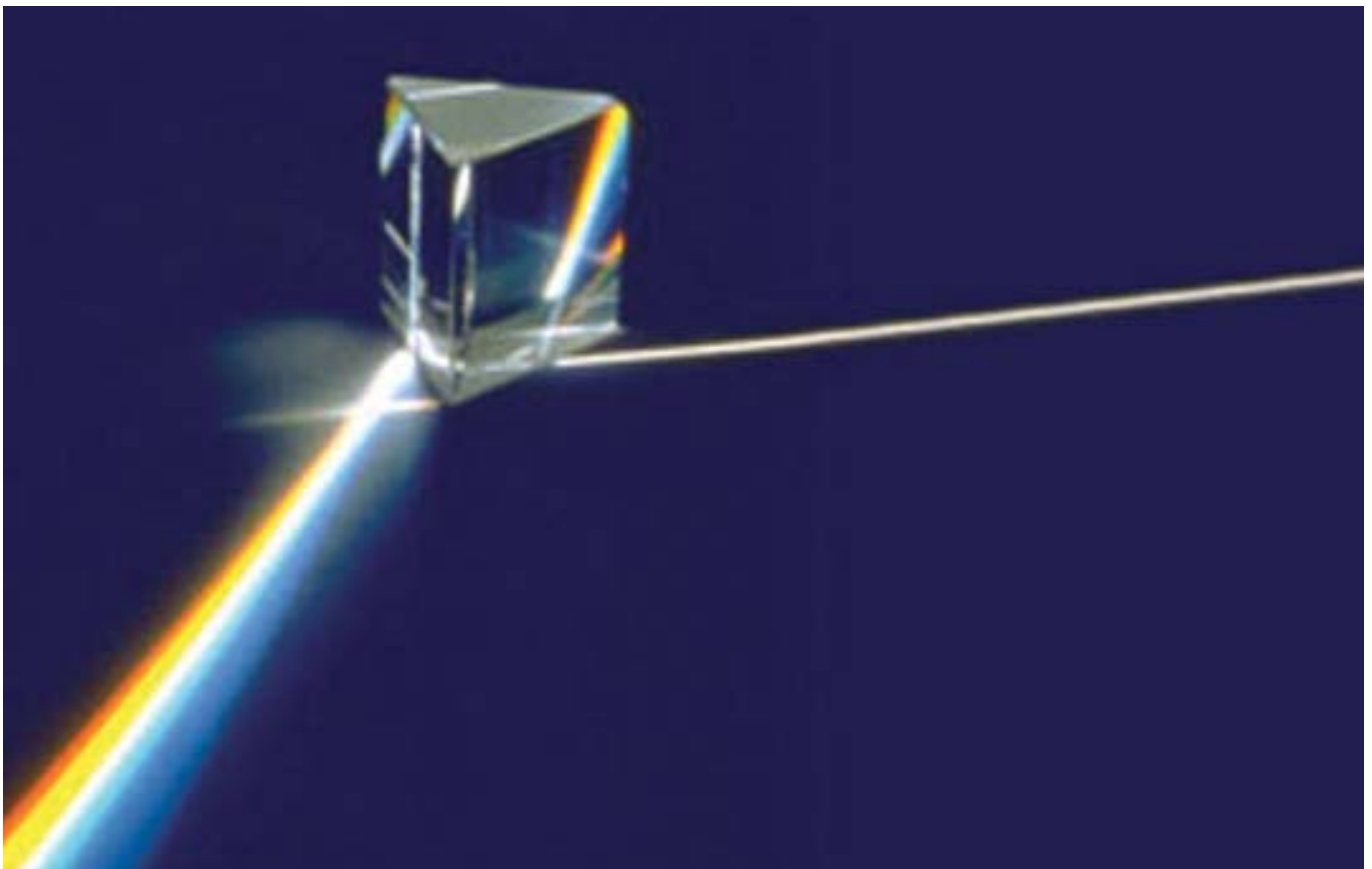
This was a comment on this year’s Consumer Electronics Show in Las Vegas, at which a large number of major vendors showed off convergent products that blended many key elements of the technology, media and telecommunications sectors.

Similarly, at the largest mobile event of the year, the 3GSM World Congress held in Cannes this past February, the biggest buzz – whether rightly or wrongly – was around the convergence of the media and mobile telephony sectors: the fusion of television and mobile; the blending of radio and mobile; the combination of music and mobile.

Clearly convergence is firmly back on the agenda for the TMT sector.

Over the next five years, convergence is predicted to have a massive financial impact on TMT industries. Between 2005 and the end of the decade, based on industry analysts’ outlooks, the TMT practices of DTT member firms forecast the generation of at least a trillion dollars revenue from emerging convergence products and services. The most significant convergence service is expected to be Voice over Internet Protocol (VoIP). This is forecast to generate \$196 billion in 2007 and by 2008, 20 percent of US homes are expected to have VoIP telephones¹. Aggregate VoIP revenue between now and 2010 alone may generate over \$1 trillion in revenues through 2010. Convergence will also generate new

revenue from a wide variety of business and consumer Internet Protocol (IP) appliances. These will include next-generation digital music players, home entertainment systems, home video phones and enterprise collaboration systems. The value of this market is forecast to be worth almost \$90 billion by 2010², with a cumulative value over the next five years of \$360 billion. Other emerging products and services that should generate sizeable revenues through 2010 include: enterprise collaboration software (\$60 billion)³; Internet Protocol television (IPTV, \$55 billion)⁴ mobile phone content (\$50 billion)⁵; networked games (\$35 billion)⁶; online music (\$20 billion)⁷.



Convergence in context

What is convergence?

In the 21st century, digital convergence is forcing three distinct industries: technology, media and telecommunications, to flow more closely together. Convergence is combining two or more previously discrete lines of business to create something new – a new product or service, a new alliance, a new value chain structure, or a new economic model – that generates greater value for a business and its customers.

The three levels of convergence

In the TMT sector, convergence can take place at three levels – platforms, products and services, and organizations. Each one has different characteristics; each one has different drivers; and each one is critically important to understanding convergence as a whole.

Figure 1: Three types of convergence

Products and Services

The end result of convergence – market offerings that meet customer needs

Organization

Diverse organizations joining forces to deliver convergence to the marketplace

Platform

Standard systems and protocols that make convergence feasible

Platform convergence

Platform convergence is the foundation of all convergence. It is the basis that allows companies, to develop and deploy converged offerings. It is the systems and protocols that allow data of any format to move from one place to another, from the creator to the producer, from the supplier to the consumer. This content can then be consumed on different devices, via different networks. Platform convergence enables the potential unleashed by digitization to flourish.

Examples of platform convergence include:

- the digitization of content in all of its forms, in standard formats;
- the growing interoperability of telecommunications networks, from Wireless LAN to third generation networks (3G);

- a relatively stable set of content storage formats such as DVD (which provides multi-gigabyte storage for electronic games, movies, television and software) and memory cards (which can store any multimedia file); and
- the development of standard networked data formats, the most important of these being Internet Protocol (IP). This standard allows a wide range of consumer, business and government applications, from commerce to communication, to take place over IP networks.

Organizational convergence

Virtually all convergence offerings – whether video-on-demand, music downloads, radio over the web, or mobile ring tones – require input from more than one organization. Typically different groups must work together, directly and indirectly, via acquisitions, alliances or simply supplier relationships, to develop and deliver a converged offering.

Organizational convergence can be very positive for the bottom line – for example the partnership between movies studios, sports franchises and video game developers has bolstered an electronic games market that, in the US is actually larger than the box office⁸.

Collaboration will likely be about more than just combining teams. It may also extend to merging elements of IT systems, for example to allow billing of a converged service. It may involve harmonization of product life cycles, to maximise cross marketing (for example of games, ring-tones, theme tunes and more based on the same movie) and to avoid revenue cannibalization.

Mergers, acquisitions, strategic alliances, and joint ventures have all successfully delivered convergence in the past – as well as producing some noteworthy failures. Regardless of the organizational approach, a common pitfall has been equating convergence exclusively with consolidation. But mergers and acquisitions are often focused on cost synergies, not revenue uplifts. TMT convergence, however, is far more about combining diverse elements to create something new and compelling: it's not about reduction.

Convergence may ultimately deliver lower costs and improved efficiency, but those might be some of the consequences, not the prime objective. Companies that enter into a convergence relationship with a focus on cost reduction, rather than value creation and revenue generation, are starting from a very weak position.

Successful organizational convergence creates value for customers by taking the best elements of each partner and creating something new.

Product and Service convergence

The ultimate objective for TMT convergence is to deliver products and services that address previously unmet or under-satisfied customer needs. This means creating something new that customers are likely to find valuable, or taking something they already find useful and making it better.

While platform convergence focuses on standardization and consolidation, product and service convergence is all about innovation and diversification – combining existing elements to create something new or different that satisfies the infinitely diverse and ever-changing needs of the marketplace.

Product and service convergence need not be complex. Indeed, one of the most powerful examples of convergence is the incorporation of a digital phone number store into mobile phones. When mobile phone users store numbers in their device, the benefit is faster, easier placing of calls relative to fixed-line equivalents. The impact has been the steadily rising growth in the use of the mobile phone within homes and offices – even when lower-cost, higher-fidelity fixed-line phones are within close reach.

The objective of product and service convergence should not be to try and cram as much functionality as possible into a single product or service; although some consumer electronics vendors still launch impractical devices with more functions and features than customers need or understand⁹. If complete convergence were the ultimate objective, the end result would be a single device, serviced by a single provider, which together satisfied every possible customer need. However in the same way that few households have cutlery sets comprised of dozens of Swiss Army knives, there is only niche demand for the single converged device. And most likely tomorrow will be little different.



The momentum behind TMT convergence

Three principal factors are driving the convergence of the TMT industry: the digitization of data, the growth in connectivity, and seemingly limitless technology advances.

Digitization

Digital data is at the root of convergence, providing a common means to represent all forms of information, from words and numbers to music, pictures, movies and more. The movement of all types of information to the digital realm is what enables convergence in TMT.

Information has in the past been represented by various physical forms: words on paper; images on canvas; music on vinyl and even computer programs on punch cards. No single device can handle all of these diverse types of information in their traditional, non-digital form. But convert all of that information to digital and suddenly a converged device that can manage all this data isn't just possible: it already exists, as a PC on your desk, or even a smart phone in your pocket.

Digitization enables convergence by representing all information in the same abstract form – specifically, as a string of zeros and ones – allowing it to be viewed and manipulated using the same devices, technologies, processing techniques, networks and media. Without that common base, convergence could never happen.

Ten years ago, very little was digital, yet today, the vast majority of information is represented as zeros and ones: photographs; email; music; games; radio and television; movies; news; phone calls, and even our daily schedules.

And the trend seems unstoppable. Every day, something else moves from the analog to digital domain. At the time of writing, Yahoo and Google are planning to make volumes of publications available over the Internet¹⁰. And the more that happens, the greater the opportunities for convergence – with a growing base of raw material in digital form improving our capacity to deliver that material to any connected, intelligent device, via any network. In addition, digitization can also help companies produce better and cheaper creative products and services in the first place whether it is by burning DVDs cheaply and quickly or reducing time in the cutting room through hard-disks storage systems.

Connectivity

Networks are becoming faster and more pervasive, in both wireline and wireless formats. In developed countries, 60 percent of all homes are connected to the Internet and the majority of those connections are now broadband¹¹. At the same time, mobile voice and data networks now cover virtually every square inch of most major cities – albeit with differing download speeds. Cellular mobile subscriptions now number two billion throughout the world¹².

This sort of ubiquitous connectivity is fundamentally changing the nature of products and services. In the old days, once a product shipped from the factory it was literally a finished product, with little practical way to increase its capabilities or value.

But now that networks are becoming increasingly pervasive, products are being designed with connectivity built in. This means that, thanks to connectivity, products transition from being static to being dynamic and convergent. Products can be updated with new content, interactivity and functionality that provide on-going value. This opens the door to a wide range of product and service possibilities, from networked (not standalone) games to online (not Main Street) music stores.

Connectivity also allows changes to business models. So a PC can now be a music store, a games console, a telephone, a photographic studio, a video-editing suite as well as a personal organizer. All that is required is a simple download and a few clicks of a mouse.

Connectivity can compress the product life cycle, enabling companies to offer and deliver new features sooner, and making the convergent offering more compelling.

Over the short term, a growing number of convergent consumer devices with built-in broadband or wireless connectivity should emerge, including game consoles, Internet radios¹³, educational toys¹⁴, and health monitors¹⁵ – each one delivering more value than a standalone device ever could.

Technology advance

Technology continues to advance. Observations such as Moore's Law, on the steady advance in processor speed continue to hold true, more than four decades since first postulated¹⁶. Other key technology areas, including hard disk storage and solid-state memory¹⁷, also tend to advance steadily.

Technology improvements make things faster, cheaper, smaller, and more energy efficient – allowing designers to pack more capability and features into a single device without making it unwieldy. An MP3 player, for example, essentially replaces a rack of hi-fi components – and a whole wall of record albums or CDs – with a tiny device that fits in your pocket and plays for hours on a single battery charge. An MP3 player would not be commercially feasible however, had mini hard disk drives and flash memory neither been invented nor fallen to an acceptable price.

Technology advances have driven the convergence trend, and will continue to do so, constantly redefining the limits of what is possible. Semiconductors for the mobile phones of 2008 and onwards are being designed to support high quality video and speaker independent speech recognition¹⁸. Various companies are improving device battery technology in various dimensions, from rapid charging to greater power to longer life¹⁹. One terabyte hard disk drives (equivalent to one million megabytes) may be commercially available by 2007²⁰.

Seven principles for profitable convergence

Convergence at any level – platform, organization, and product and service – can create new market opportunities and new sources of revenue. But even more important, convergence is changing the basis of competition. It can transform industries, catalyze fundamentally new business models, restructure value chains and shift the balance of power.

That's why it's so important for every TMT company to understand the potential impact of convergence, and to develop a clear strategy for capitalizing on it.

To assist with the latter imperative, the TMT practices of DTT member firms have outlined seven key principles for profitable convergence.

Convergence must be driven by customer needs, not technology

It's easy to become mesmerized by the myriad potential convergent products and services that could be devised, while losing sight of the real reason a business exists – namely, to satisfy customer needs. Customers never walk into a shop and ask for convergence. But millions would happily buy converged products and services – if they meet their needs.

Implicitly, for convergence to succeed, it must offer customers something above and beyond what is already available in separate, non-converged offerings: new or enhanced features that are truly useful, greater convenience and ease-of-use, a more appealing form factor, or more value for the money. If convergence can't offer customers at least one of those benefits, there's really no reason to buy it.

There have been, and there will likely be, a good few convergence catastrophes. But the real tragedy is that many of these could have been easily avoided if customer needs, rather than engineers' whims, were being catered for.

For example, mobile video telephony is considered by some analysts as an example of confusing technical possibility with commercial profitability. Mobile video telephony is a remarkable technical achievement. However so far, the service has been a commercial disappointment, with few customers tolerating the compromises in video quality, audio quality and, indeed, behavior, that the service implies.²¹

Convergence can too easily become the engineer's folly. And if it does, you're almost guaranteed to lose money. Convergence – like any other aspect of innovation, development and growth – must be underpinned by well-defined, well-understood and well-established customer needs.



Commercial creativity will maximize convergence's impact

Developing the technology behind convergence is a key part of the challenge: but TMT companies must also invest in understanding how convergence can improve upon the legacy business model.

Music and news are both candidates for the development of convergent products and services. Greater connectivity and a widening range of devices make the acquisition and consumption of music and news far easier than ever before.

However, although one media sector– the newspaper industry – has invested heavily in developing free access and subscription websites, few mainstream titles actually generate significant revenues (let alone profit) from their online content²².

In contrast, another convergent product, music, has successfully transitioned onto the mobile phone, with a forecast \$5 billion in ring tone revenues by 2008²³. This is ten times greater than 2004 revenues from online music sales.

Arguably the ring tone has succeeded because music has been adapted for the mobile phone. While music on a hi-fi is generally for listening pleasure, ring tones on a mobile phone deliver personalization. While purists may sneer at the millions of customers who pay several dollars for what to some is a mere unsophisticated jingle, this is the musical format that appears to be best matched to the mobile phone.

Further, if mainstream newspapers were to place equal priority on developing their web sites as is placed on their print editions, the former would be more commercially successful. As it stands, websites are perhaps too similar to the print version, and as such are not exploiting the full potential – and thus not delivering the full value – of their underlying platform.

Convergence requires mutual benefit for parties involved

Successful convergence involves combining a number of diverse elements in just the right way. If one entity dominates the process, convergence is unlikely to succeed. That's true for products and services, as well as organizations. If one element dominates the product design, you don't get convergence – you get a line extension. Similarly, if one party tries to dominate a convergence relationship, no one else is likely to want to play. The only way to succeed is by ensuring that each party involved receives sufficient and fair benefit.

As an example, much of the problem with Wireless Application Protocol (WAP) in Europe may well have derived from the fact that there was insufficient equilibrium in the relationships between the large mobile operators and the small developers and content providers who were supporting them. The ultimate goal was convergence – internet, content and enhanced messaging on the mobile phone. But the operators wanted too much, and were prepared to share too little. And as a result, the content providers and developers were largely marginalized. There was no consistent view of mutual benefit and therefore no successful convergence.

NTT DoCoMo, on the other hand, was very sensitive to the need for mutual benefit for its iMode offering – and took great pains to create an open, standards-based, fair and clear model that provided incentives for all participants: media companies, technology providers as well as the network. Approved content providers were offered 89 percent of the revenue, with DoCoMo even doing the billing and collection. These compelling terms attracted tens of thousands of content developers to iMode, creating a rich and growing base of content that has attracted more than 40 million subscribers in Japan alone²⁴.

In the future, working in partnership to create meaningful converged offerings should be even more important, as rising investment costs make partnerships increasingly obligatory economics.

Convergence and divergence can coexist

A convergence product or service alone can create significant value. But the combination of convergence and divergence can be more powerful still.

For example, online music stores represent a successful converged service offering, using broadband connectivity to deliver digital music to the consumer. Yet the bulk of the value generated by online music has so far been generated by a diverged product – the MP3 player.

Apple's iPod sold 6,451,000 units in its fourth quarter for fiscal year 2005, helping the company attain record profits of \$430 million²⁵. But the iPod on its own would never have had such a colossal impact had it not been inextricably linked to the converged iTunes service. The success of the latest iPod with support for video will likely be linked to the availability of video content on iTunes. Success for both has stemmed from their coexistence, interdependence and convergence.

The business rationale for TMT convergence and divergence will likely vary over time. For example, Sony created the PlayStation by extracting the video games elements of a PC and putting them in a specialized gaming device that was cheaper, smaller, and easier to use, eventually selling over 200 million units and reshaping the videogame industry.²⁶ But the PlayStation may not have been so successful in the first place if the PC – the ultimate convergent device – had not cultivated a sizeable base of video games enthusiasts in the first place.

Since the PlayStation's launch as a divergent product, it has become the basis for various convergence products and services. For example, the PlayStation, along with other games consoles, has provided cross-promotion for many blockbuster movies and television franchises.

Laggards lose

Convergence is all about redefining boundaries. And the biggest winners are generally the ones out there pushing the limits, sometimes being first to market, sometimes being savvy fast followers. The boldest party, taking the largest, but measured risk, nearly always makes the most significant return.

British Sky Broadcasting (BSkyB), the UK's leading satellite television broadcaster, is a good example of a company that took the lead in convergence. BSkyB – which in many respects is more of a technology company than a media company – commissioned its own proprietary set-top box, satellite dish, electronic program guide, interactive TV system, and card-based authentication system. It then combined those technologies with premium content to create a converged service that has proven extremely compelling. The company bet big, and is winning big – currently generating \$7 billion in annual revenue²⁷.

Another bold player is Research In Motion (RIM), which has blazed a trail for mobile email. Its BlackBerry product has been a strong success, creating a new niche market, and establishing mobile email as a profitable service. Today, RIM is not only the leader in mobile email services; it has leveraged its position such that it was the world's top producer of PDAs in the first quarter of 2005 – leapfrogging the industry's established players²⁸.

Convergence can be a risky business – but inaction may be the greatest risk of all.

Timing is everything

A convergent product or service needs to be launched at the right time. This requires suppliers, customers and technology to be completely ready for the new product or service.

Thus while there would appear to be a sound business case for convergent services such as video-on-demand (VOD) and Internet Protocol television (IPTV), these will likely struggle to become mainstream application until the appropriate technology is in place. Until then, more conventional approaches to VOD may be more appropriate. Indeed, currently the most successful VOD equivalent service in the US is Netflix which, responding to orders from a self-service web interface, reliably delivers five gigabyte files (also known as DVDs) on demand to its three million customers. While in the long-term the company expects to deliver all content over an Internet Protocol (IP) network, the package-based network currently used is the US Postal Service²⁹.

A convergent service can also be late to market – this was certainly the case with online music stores. Even though the technology was ready (a common standard in the form of MP3, digital music players and broadband networks) and the consumer demand was there (manifested to an extent in the form of illegal downloading of MP3 format tracks from file-sharing sites), the suppliers were slow off the mark. The commercial viability of online music services has been shown by steadily increasing revenues, currently representing six percent of total global music sales³⁰.

Convergence winners and losers are ever changing

The cycle of convergence is complex and dynamic. Thus, in order to derive real value from convergence, companies must constantly monitor, revise and refine their strategies and alliances in order to develop products and services that are relevant.

In a sense, this is analogous to the shifting sands of physical media. Not so long ago, the VHS cassette was the principal medium for selling video content, with laser discs and video CD enjoying only muted take up. But in the space of a decade, the VHS cassette has all but disappeared. And it has not only been replaced by the DVD (whose standard was only agreed in 1996) – but its sales have been completely eclipsed.

The same shift in the basis of value is true for the formation – and termination – of alliances and partnerships aimed at convergence. The perfect convergence partner at one point in time can eventually become a liability. It may take years, or just a few months. There's no way to know in advance. That's why companies must constantly be looking for new partners, new alliances, and new convergent products and services that should generate more value than what they are currently reaping.

If we accept that convergence is a moving target, then we not only have to choose our partners wisely, but we also have to be constantly vigilant – watching changes in consumer behavior, competitor activity, technology development and so on – so that the next partners are identified long before they are needed. If you're a TMT company, who do you choose as your partner? A games developer? A broadband operator? A mobile network? A hardware vendor? A retailer? And will your answer be the same next year and the year after? Most likely not.

This is why an understanding of convergence – its principles – and the needs of the consumer – are more critical now than they have ever been.

Conclusion: winners, bystanders and losers

So convergence is back on the TMT agenda, and undertaking successful convergence will likely be one of the key objectives challenging TMT executives over the coming years. While every TMT company has the opportunity to gain from convergence – indeed there is a trillion dollar convergence bounty on offer through 2010 – there will inevitably be convergence bystanders and losers.

Companies that extract the most value from convergence will typically be those that have invested the time, creativity and resources in building a robust business case. This case will be based on a keen understanding of: customer needs, required alliances, timing, elements to diverge rather than converge and the maturity of the underlying technologies. Companies that continue extracting value from convergence will also constantly be re-evaluating their alliances and partnerships.

There will likely be a large number of companies who make nothing out of convergence. One collection of bystanders includes fixed network operators, which are currently competing hard to offer ever-faster broadband connectivity, with price as the principal differentiator. This connectivity is supporting a growing range of applications, from Voice over Internet Protocol (VoIP) to photograph-based yellow pages services; from video-conferencing to online music stores. All those involved, save the connectivity providers, are generating additional revenues from these services. This may not be

sustainable in the long-term given the impact that some of these services – particularly video-based services – might have on the quality of the network.

Unfortunately it is also the case that there will be a group of convergence losers. There are many possible reasons why a company's convergence initiative may fail. However, one reason which will likely be too common will be technological hypnosis – the black hole of focusing on achieving engineering excellence at the expense of commercial common sense. There are also question marks over the merits of mobile television services, either broadcast or streamed. These services are being heavily pushed by equipment manufacturers, network operators and content owners, despite the underlying trend of ever larger televisions, the historically weak adoption of handheld television sets, and the sheer cost of delivering such services. While television over a mobile phone is an engineering feat, for consumers it will likely be a novelty at best.

While the most probable scenario is a blend of convergence winners, bystanders and losers, overall the momentum should be positive. The unrelenting progress of technology, connectivity and digitization are expected to continue generating new convergence opportunities. Convergence looks set to remain both a headline and a key influencer of the TMT bottom line for many years to come.



Notes

1. Insight Research forecasts the global market for VoIP to be worth \$82 billion in 2005 and \$196.5 billion by 2007. Much of this growth is driven by businesses, but Gartner predicts that by 2008, almost 20 percent of US homes will have VoIP telephones.
2. The Diffusion Group (TDG), April 2005.
3. Gartner forecasts worldwide enterprise content management software market revenue to grow at a 9.8 percent compound annual growth rate from 2004 through 2009 from 5.04 billion in 2004.
4. Multimedia Research Group forecasts global IPTV service revenues to reach \$7.2 billion in 2008, implying a compound annual growth rate of 102 percent from 2004.
5. Strategy Analytics estimates that by 2008, over 150 million users worldwide will be wirelessly accessing video clips (including sports, movies and adult entertainment), generating revenues of just under \$4.7 billion. According to Mobile Music, Informa Telecoms and Media, June 2004, ring tone sales are forecast to reach \$5.2 billion by 2008. Cumulative revenues for mobile downloads through 2010 are expected to be in the region of \$50 billion.
6. DFC Intelligence forecasts the worldwide market for online games will reach \$9.8 billion in 2009.
7. The IFPI reports that digital music represented six percent of all music sales in the first half of 2005, with a total industry value of \$13.4 billion in that period.
8. U.S. Console and PC Software Sales Set New High in 2004, quoting data released by the Entertainment Software Association, gamedailybiz, 31 January 2005; Annual U.S. Video Game Sales, about.com, January 2005; Record US box office high in 2004, bbc.co.uk, 4 January 2005.
9. Don't just leave people to their own devices, Financial Times, 27 June 2005.
10. Google and books, Financial Times, 5 October 2005.
11. As of December 2004, there were over 150 million broadband connections, over a combination of DSL and cable connections. For the latest data on the broadband market, see www.point-topic.com
12. Two billionth mobile subscription this weekend, silicon.com, 16 September 2005.
13. For more information on Internet radios, see: <http://www.reciva.com/> and http://www.consumer.philips.com/consumer/catalog/product.jsp?language=en&country=GB&catalogType=CONSUMER&productId=MCW770_22_GB_CONSUMER
14. For example, vTech's Class Master Notebook, which features secure online connectivity to Britannica Kid's Edition website.
15. For example, iMetrikus – a US-based healthcare technology company – is working with BT to look at the benefits of broadband connections between those monitoring a chronic condition and the health professionals who care for them. iMetrikus' MediCompass system is used in monitoring diabetes, asthma, pulmonary disease, hypertension, cardiovascular disease and HIV/AIDS.
16. For more information, see: <http://www.intel.com/technology/mooreslaw/index.htm>
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About TMT

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