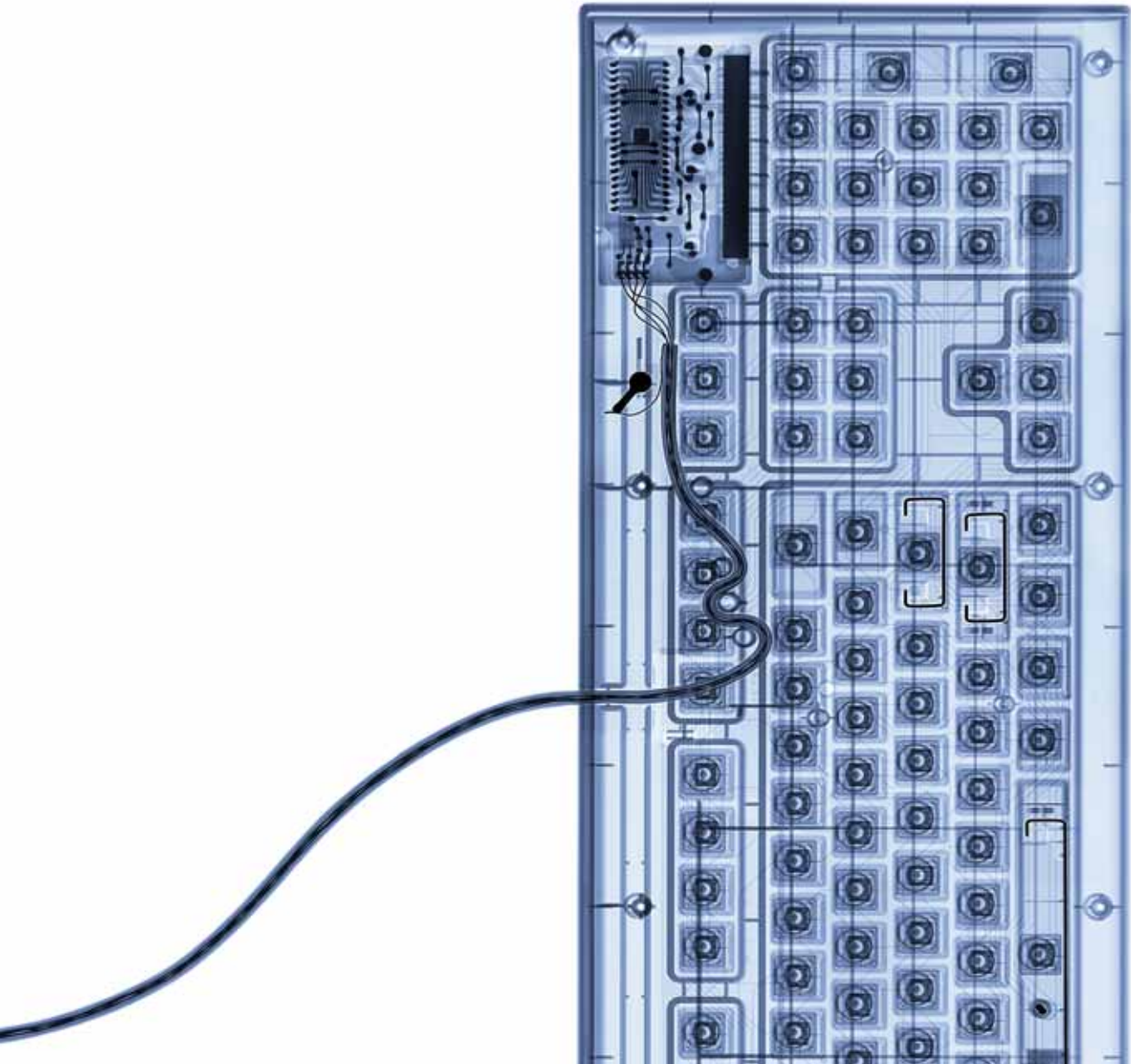


Technology Predictions
TMT Trends 2009





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About TMT

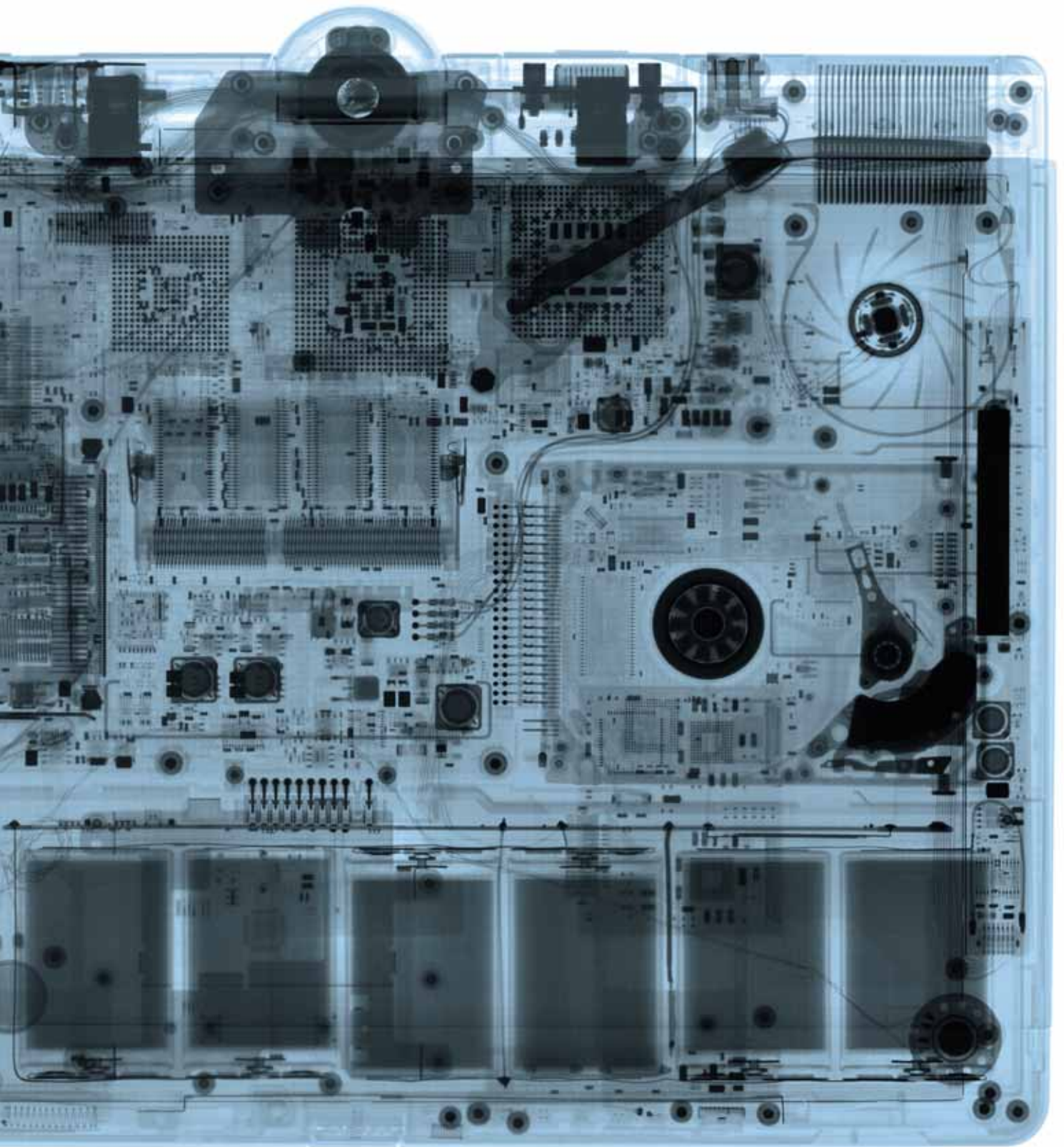
The Deloitte Touche Tohmatsu (DTT) Global Technology, Media & Telecommunications (TMT) Industry Group consists of the TMT practices organized in the various member firms of DTT. It includes more than 6,000 member firm partners, directors and senior managers supported by thousands of other professionals 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 technology 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.

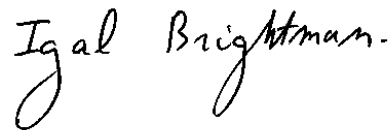
Predictions, by their nature, are not facts. But properly developed predictions should encompass a diverse array of views and inputs, which can kindle debate, inform possible directions and even identify necessary actions.

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 technology sector is expected to be buffeted by grueling macroeconomic conditions in the year to come. But we should not forget that the need for the technology sector to deliver cost efficiencies, drive productivity improvements and provide the foundation for new products and services remains as vital as ever.

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

I wish you all the best for 2009.



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

Making every electron count: the rise of the SmartGrid

In 2009, over 16 percent of all energy used is expected to be in the form of electricity, up from 9 percent in 1973¹. Currently, the average efficiency of the world's legacy electricity grids is around only 33 percent. This contrasts with 60 percent efficiency for grids based on the latest technology².

Just at the transmission and distribution levels, energy losses are around 7 percent³. Further, the cost of power outages and power quality disturbances is estimated at \$180 billion annually in the United States alone⁴.

But there may be a solution: SmartGrid technologies. These have the potential to reduce up to 30 percent of electricity consumption⁵ and dramatically reduce the need for the construction of new power plants or the operation of environmentally harmful sources of generation.

Broadly speaking, SmartGrid companies add computer intelligence and networking to what is otherwise a 'dumb' electrical network.

For example, some SmartGrid technologies assist with load leveling of the electrical grid. This allows a power-generating company to run cleaner power sources, such as nuclear or hydroelectric, at full output, 24-hours a day, while reducing the need to provide more carbon emitting gas, coal or oil plants in a surge (usually for only a couple of hours per day), to meet peak demand. Further, by reducing variability in demand, fewer new power plants need to be constructed.

Other examples of SmartGrid activities include: making the process of traditional electricity generation more efficient; connecting sustainable energy sources to the existing grid, and smart meters.

In 2009, SmartGrid companies may generate \$25 billion in revenues, and represent the biggest and fastest growing sector in the GreenTech – possibly even the entire – technology market⁶. In late 2008, SmartGrid solutions providers were enjoying 50 percent revenue growth and an 80 percent increase in bookings⁷.

The continued growth of smart energy in 2009 may catalyze the creation of a smart energy stock index over the year. The transition of SmartGrid solutions providers, from addressing early adopters to undertaking large-scale implementation, may encourage a spurt of mergers and acquisitions (M&A) activity in 2009⁸.

The SmartGrid is likely to reach the consumer. Smart metering technologies are expected to enable consumers to 'time shift' their power usage to take advantage of off-peak rates, saving 20 percent on their bills⁹. In fact, although historically most electrical equipment was purchased by utilities, in 2009 more than half of all electrical equipment, both SmartGrid and older technologies, is expected to be purchased by consumers and enterprises¹⁰.

Development of a SmartGrid not only allows for more efficient use of the existing infrastructure, it also makes it more resilient, flexible to changing population and usage patterns, and able to accept sustainable but fluctuating sources of alternative energy.

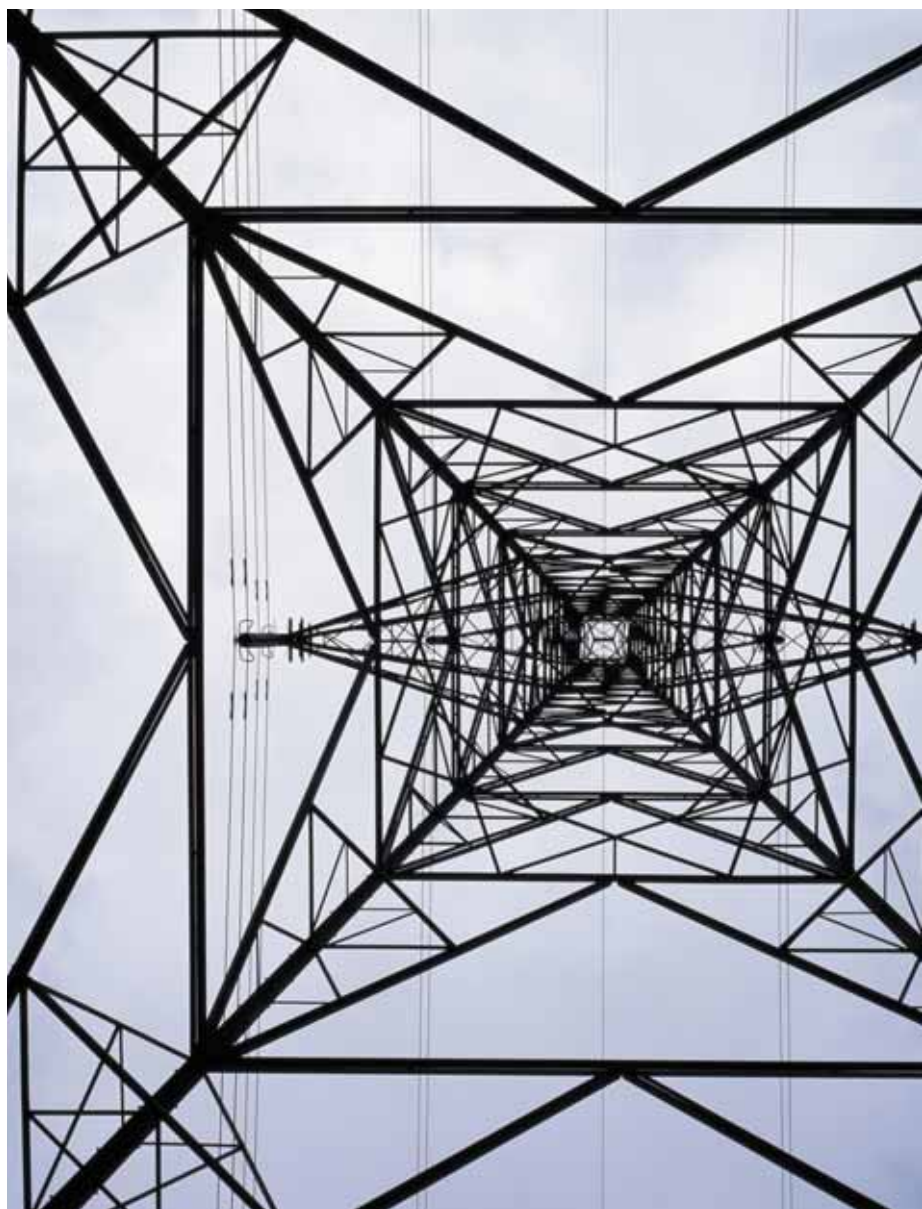
Bottom line

Major manufacturers and utilities should explore partnerships with, and consider acquisitions of, smart energy companies. Companies should not be distracted by falling oil prices. Supply remains volatile, and demand uncertain. And while the price of oil has dropped over 50 percent from its 2008 peak, energy costs remain well above their long-term trends¹¹.

Governments around the world should look at the cost effectiveness of trade offs between sustainable energy subsidies compared with commitments to upgrading the existing grid. The global downturn may make significant government support for SmartGrid spending unlikely, although some administrations are likely to adopt a policy of stimulative infrastructure spending on their electrical grids, some of which will be for SmartGrid equipment. But profit-oriented utilities and enterprises should continue to explore and deploy SmartGrid technologies that offer high returns on investment, even without government support, to conserve costs.

Governments unable to finance SmartGrid investment could instead promote the technology via information campaigns and stimulate adoption through tax incentives. And as governments increasingly focus on energy security, investing in the SmartGrid could be used to reduce dependence on non-domestic energy sources. It could also make the grid more resistant to military or terrorist attacks, by physical or digital means¹².

Venture capitalists (VC) should devote increasing resources to understanding smart energy technologies. VC investment in the sector remains strong, even during the current economic crisis, with SmartGrid companies receiving the second largest slice of the GreenTech pie, behind only solar energy¹³.



Gadgets for free!*

(*subject to contract)

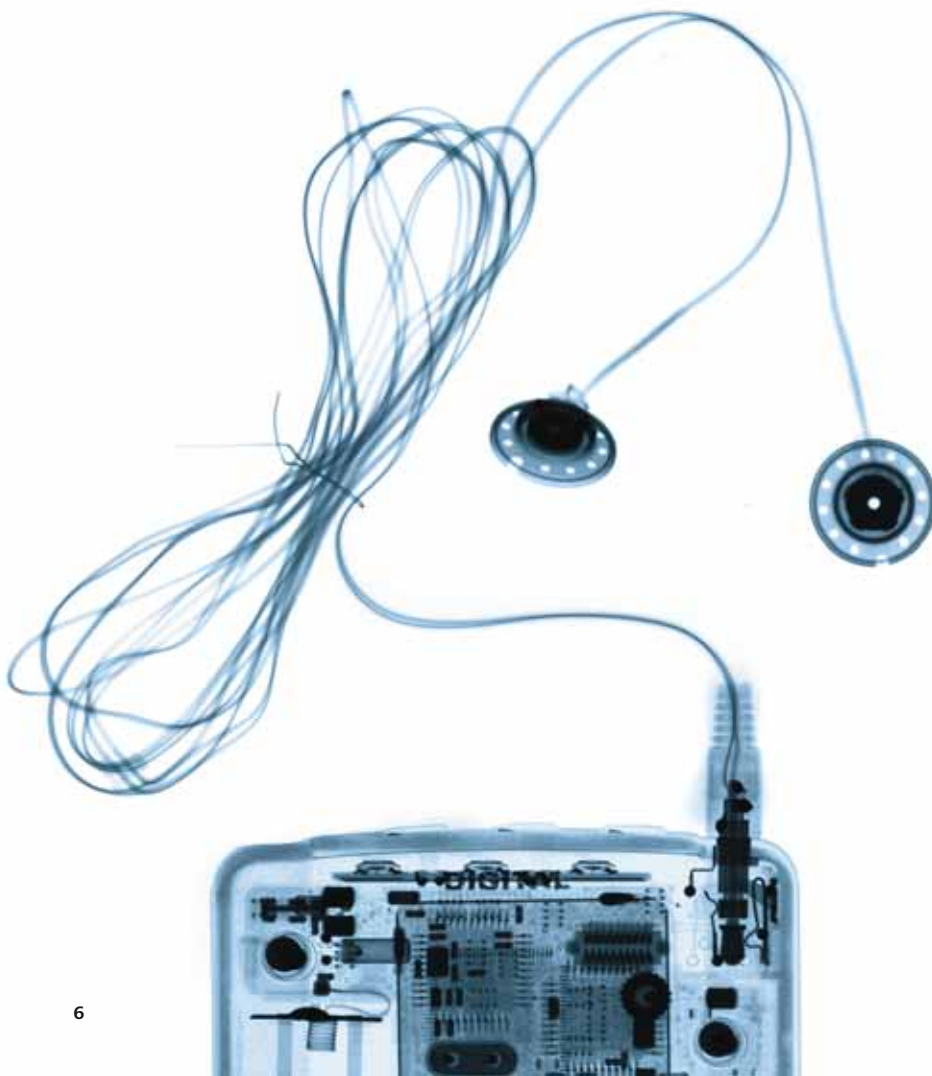
Plummeting consumer confidence in much of the developed world has made the public wary of purchasing high ticket-price goods, including devices such as televisions and PCs¹⁴. This situation is likely to endure through 2009 and possibly beyond¹⁵.

Given the illiquid environment that may remain through 2009, companies are expected to become more focused on generating steady flows of income.

The combination of these two trends sets the scene for a significant expansion of the device subsidy model in 2009. This approach has long been practiced for mobile phones, set-top boxes, and broadband routers.

It has also been tried out, to a more limited extent, with GPS navigation devices bundled with mapping data and low-end laptop computers with broadband subscriptions¹⁶.

In 2009, this approach is likely to be pervasive. It is likely to be extended to a widening array of devices, including televisions (bundled with subscriptions), music equipment (bundled with music) and high-end computers (bundled with everything from technical support to remote back-up services).



Bottom line

Bundling products and services together may prove essential in 2009 to stimulate an otherwise nervous, stalled market.

All companies in the value chain should develop a view on where they would want to be positioned in any bundle. For example, should they lead the offer, or just supply elements of it? They should offer a broad range of bundles, appealing to all market segments, from low end to high end, and from early adopters to more conservative users.

They should understand how their positioning, as leaders or suppliers, affects their customer support obligations¹⁷. If they do lead, self-service and premium-rate support services could lower costs and raise overall revenues. Companies should consider if there are any factors that could impede service delivery in the medium term: for example, could netbooks, bundled with mobile broadband, suffer service quality issues in the medium term¹⁸?

Companies should consider how consumers' perception of their products may change as a result of being part of a bundle. A device that is offered nominally at no cost may cause the value to be perceived as lower than its true worth. This could have a positive effect if low nominal price encourages demand and if the subsidy and risk is being taken by another party in the bundle. However, it could also erode brand equity.

Companies offering bundles should also manage risk related to defaults on payments. With mobile phones and set-top boxes, there are strong incentives for maintaining payments. Without service, the devices are useless. Televisions and home music-centers, however, are not subject to such constraints.

Companies should also consider what might cause bundles to be regarded adversely. Rising unemployment, for example, could make potential customers nervous of taking up the long-term contracts that are an integral element of some bundles. Some customers may deliberately avoid bundled deals in the view that they represent poorer value for money than disaggregated products. In some markets, a growing proportion of mobile phone users are increasingly opting for SIM-only contracts, which offer lower tariffs in lieu of a new phone¹⁹.

Finally, companies should note that bundles may not suit every customer's needs. Some customers may prefer a variant on the bundle whereby a single product or service is acquired via monthly installments. This approach is similar to the hire-purchase or hire-to-buy model that was popular in some markets in the 1970s. The need to pay a final balance to acquire the product outright could help maintain value. At the conclusion of the hire-purchase contract, a customer could be encouraged to use the residual value in the product to contribute to a higher specification replacement device.

Bundling products and services together may prove essential in 2009 to stimulate an otherwise nervous, stalled market.

Disrupting the PC: the rise of the netbook

The netbook, also known as the mini-notebook, is likely to be the fastest growing PC segment in 2009²⁰. It may represent in excess of 15 percent of all portable PC sales, or roughly 25 million units²¹.

As of the start of 2009, the established definition of a netbook was a notebook computer with a low-powered x86-compatible processor (compatible with PC standard software), small screen (no larger than 10 inches), small keyboard, equipped with wireless connectivity, lightweight (under three pounds) and no optical disk drive. Netbooks are typically low cost, relative to other notebooks.

The appeal of netbooks has been categorized as making "great second computers for normal people, third computers for techies and first computers for children"²². Netbooks have become a favorite of travelers, who like their small screens and keyboards, especially on planes²³.

In 2007, hardly any netbooks were sold. At the beginning of 2008, a few manufacturers offered netbooks; by year-end, most manufacturers offered them or planned to, and sales were forecast at 11 million, or 7 percent of the market²⁴. At the time of writing, 8 of the top 10, and 14 of the top 20 selling mobile PCs on Amazon's US site were netbooks²⁵.

Netbooks are expected to affect computer industry revenues materially and adversely, due to their low average selling price, which during 2009 could fall below \$250. In 2009, despite probable growth in unit volumes, global PC sales measured in US dollars may fall for the first time²⁶.

At first, netbooks do not seem to be fundamentally changing the way PCs are used. But over time the idea of inexpensive, portable PC-equivalents is likely to create new applications and uses for the PC.

The netbook's architecture will also be used in non-mobile PCs, known as nettops. This may further deflate the value of the global PC market in 2009. However by year-end 2008, there were some early indications that nettops may not emulate the success of netbooks²⁷.

Netbooks are likely to feature a wide variety of operating systems (OS) in 2009. The first netbooks were predominantly Linux machines, but as of year-end 2008, only about 30 percent still were²⁸. However, Linux's share of netbooks could fall further in 2009: its returns rate was markedly higher than competing OS in late 2008, a trend that may have prompted some manufacturers to consider ceasing sales of Linux netbooks²⁹.

The netbook's lower price point and portability are likely to cause wireless carriers to view it as equivalent to large smart phones that merit subsidization to lock in wireless data subscribers. Subsidies for netbooks are likely to become available in North America in 2009, and have already been popular in Europe in 2008³⁰. Half of Europe's netbook sales were made by telecommunications operators. A quarter of netbook sales in North America could be via carriers in 2009.

In 2009 the momentum behind netbooks should grow. First generation netbooks with suboptimal processors and insufficient storage are likely to be replaced by improved models with better processors and adequate hard drives.

PC manufacturers should pursue the netbook opportunity, but with care, since this approach could threaten already thin margins³¹. They should consider the market for premium netbooks, whose appeal may be esthetic rather than technical³².

Netbook manufacturers and distributors should make it clear to consumers what buying a Linux machine entails – and then be willing to offer support for those buyers. Initially high sales of Linux netbooks suggest that there is a market there, but the high returns indicate that more education of non-technical purchasers may be required.

OS manufacturers have already disclosed that the success of netbooks – which use non-premium versions of the OS – can have an adverse impact on margins. Their response should be to develop OS that are designed specifically for the netbook market³³.

Other technology companies should be poised to take advantage of the proliferation of a new generation of inexpensive low-power CPUs. These are becoming much cheaper with better performance, thanks to the popularity of netbooks. Over time these chips may 'leap the fence' and proliferate in the embedded, consumer electronics and smart phone markets – with unit sales measured in the hundreds of millions and revenues in the tens of billions of dollars.

Manufacturers of home-media systems, DVRs and games consoles should take advantage of the new CPUs to reduce their bill for materials. On the other hand they need to make sure they take steps to prevent their proprietary devices from being supplanted by a general purpose device.

IT departments could deploy netbooks instead of conventional PCs for office workers. Netbooks could replace field force workers' clipboards or PDAs.

Carriers should consider incorporating netbook subsidies into their current cash-flow estimates. They should also analyze the impact wireless data usage driven by netbooks could have on the network³⁴.



Confidential files, such as an individual's social security number, occupy the same paltry number of bytes as 10 years ago. It is therefore becoming ever easier for massive volumes of sensitive data to be lost or stolen.

Moore's Law and risk

Gordon Moore's observation on falling prices for processing power has held for over 40 years³⁵.

A corollary has been falling prices for digital storage and a rise in the types and speeds of communications networks³⁶. However, these trends may have caused a corresponding growth in the risk associated with information leakage and data theft.

A memory stick costing a few dollars can hold tens of millions of items of data³⁷. A terabyte drive costs under \$200³⁸. Media players with hundreds of gigabytes of storage are available for several hundred dollars, but more importantly, unlike terabyte drives, can be taken into the workplace without arousing suspicion³⁹. Software designed to facilitate the transfer of files onto MP3 players is easily available from the Internet⁴⁰.

Yet at the same time, confidential files, such as an individual's social security number, occupy the same paltry number of bytes as 10 years ago. It is therefore becoming ever easier for massive volumes of sensitive data to be lost or stolen.

The basic principle of Moore's Law has also applied to bandwidth: speeds, over fixed and wireless networks, have become ever faster. As speeds have risen, modems and routers used to connect to networks have required replacement. Obsolete communications equipment, that has been discarded or sold on, may still have passwords saved on it, which could allow the new owner to access confidential networks. If this hardware were to fall into the wrong hands, it could be used to access repeatedly an organization's data⁴¹.

In 2009, over a billion items of personal data may be lost or stolen, and thousands of companies' data losses may be made public⁴². And it is likely that in many other cases, companies may never realize that their data had gone missing, or that intruders were regularly accessing their networks.

Bottom line

Risk needs to be mitigated by responsibility.

Employees at all levels need to be trained, ideally via in-person training, in how to minimize data risk. In some cases, it may be appropriate for the IT environment to be made secure by default. In other words, all stored files should be encrypted.

The growth in practices such as working while traveling, or working at home, can improve productivity, as well as address work-life balance. But any such innovations in working practices should be accompanied by a thorough appraisal of how they change the risk profile. In some instances, if highly sensitive data is involved, workers may have to be prohibited temporarily from working while in transit or in any potentially insecure location. Employees should be encouraged not to keep back-ups of files on personal storage devices, no matter how good their intentions may be.

Companies should develop policies not just for the deletion of data, but also for the secure disposal of any equipment that has held sensitive data, whether customer records or passwords providing access to internal networks.

IT departments should also consider alternatives to standard passwords, which may simply not be sufficiently secure. Passwords were designed by engineers, for the use of engineers. They were not originally designed for mass market use. IT departments may need to create new, easy to use, more secure alternatives to passwords, such as biometric data⁴³.

There may also need to be firmer restrictions on the use of corporate IT by members of an employee's immediate family. For example, letting children use a laptop that also holds any sensitive data, in commercial or personal contexts, may be asking for trouble. For regular home workers dealing with confidential data, a secure, locked room may become a prerequisite to working outside of the office.

Companies should also remember that data loss is never likely to be confined solely to digital environments; compromising records on paper are still occasionally found in dumpsters. Loss of analog data, and the need to secure analog copies, should not be overlooked.

The common sense of green and lean IT

In January 2008, the price of oil hit \$100 a barrel for the first time. By May, the first forecast of oil at \$200 a barrel had been made⁴⁴. By year-end 2008 companies that had appeared to be exemplars of caution by hedging oil at over \$100 now seem short-sighted.

The sudden change in outlook, within just five months, underlines the volatility that remains in the price of energy⁴⁵. Furthermore, volatility in supply continues, particularly as alternative sources of energy, from biofuels to solar, remain uncertain and geopolitical directions appear unpredictable⁴⁶.

The imperative for companies to take control of their power consumption, for technology and more generally, therefore remains acute. In 2009, of the power management tools available, one of the most powerful may still be simple, plain, common sense. Some of the biggest saps on power this year are likely to remain ill-conceived planning and poor co-ordination and execution⁴⁷.

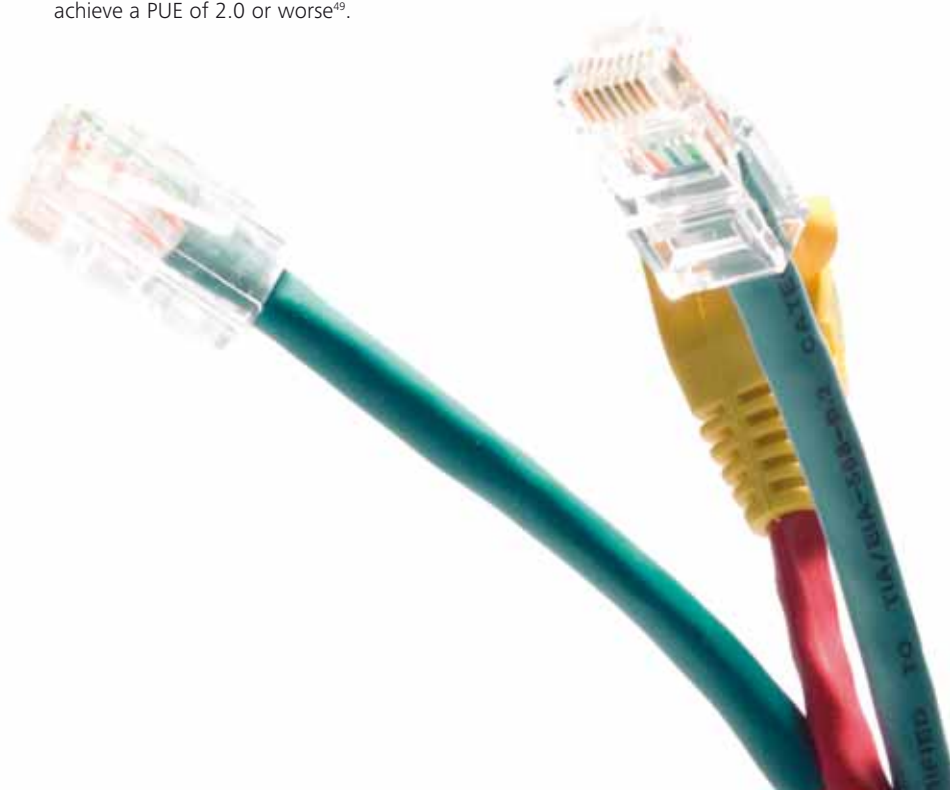
In 2009, the aggregate volume of the world's data centers is likely to continue to grow, albeit possibly at a slower pace than in previous years. The efficiency of data centers is, however, likely to vary considerably. The latest, purpose-built data-centers should attain a power-unit effectiveness (PUE) rating of 1.2 or better⁴⁸. A typical enterprise data-center is likely to achieve a PUE of 2.0 or worse⁴⁹.

There are still many data centers located in buildings that were originally designed to house people. Here, assumptions, such as the rate at which air needs to be refreshed, were made for people (typically three times an hour), not machines (typically once an hour). This is leading to a waste of energy in buildings that house only machines. In some data centers in winter 2009, heating may still be programmed to temperatures suitable for humans, only for dedicated air-conditioning units, deployed for the data center, to cool them down again.

Another trait common to some data centers may be to cool all equipment to a uniform temperature, although not all devices require the same degree of coolness.

In 2009, there are still likely to be offices with banks of desktop computers that are left on at all times, despite the significant cost savings that could be available, if they were to be turned off during non-office hours.

The good news is that there may well be plenty of straightforward options still available that can deliver quick reductions in power usage, rapid returns on investment and may not require significant new spending.





Bottom line

Companies should not get complacent about the price and availability of oil⁵⁰. The outlook for energy, in terms of supply and price, remains uncertain.

Organizations should consider as many options as possible for reducing energy.

Ready savings may still be available at data centers, which have become a significant IT facility at most enterprises. A first step would be to consider a data center as a collection of facilities, each of which has different working tolerances. A common sense approach would be to compartmentalize the data center, based on temperature requirements. A difference of just one degree could have a significant impact on the cost of cooling⁵¹. The installation of simple, flexible partitions, of the type used to separate cool stores in supermarkets, may provide sufficient insulation. A company could also replace existing equipment with more heat-tolerant substitutes.

Other simple tweaks and changes could lead to significant improvements. Analyzing any forms of power loss, for example assessing the efficacy of a building's universal power supply, could reveal significant but easily remediable problems. An underperforming power supply could leak over 10 percent of power before it even entered the building⁵².

Undertaking thermal scans of air-cooling units could reveal their ineffectiveness, simply due to vents being poorly positioned, through air being directed at the wrong end of equipment, or through cool air being extracted before it reached its target destination.

Companies should also evaluate whether outsourcing data centers makes better sense. Data centers are likely to improve their efficiency steadily. Given this it may make more sense to tap into the latest technology available in the most modern, most efficient outsourced data centers.

The optimal approach, however, may well be to change the underlying ethos of data centers, capping their size rather than assuming their inexorable expansion.

Energy consumption for IT should be linked to the overall approach to energy for a company. At present IT budgets are not linked to facilities management bills, and are therefore not currently affected by power consumption⁵³.

All departments can have a role to play in making technology more efficient. Human resources could provide a structure to provide incentives for staff to use technology more efficiently. At a basic level this would include requiring staff to turn off technology at the end of the day. Workers could also be encouraged to provide ideas on how technology energy consumption could be lowered, with the best ideas being rewarded by a share of the savings.

Downsizing the digital attic

No matter how big the attic, most people accumulate possessions at such a rate, they exhaust all the available space.

The same principle has held for digital storage. However, the usual response of people who have exhausted their disk space has been, in recent years, simply to add more. The steadily falling price of digital storage has, so far, enabled enterprises to keep digital capacity one step ahead of digital possessions.⁵⁴

The danger of this approach is that users start to assume that space is infinite. As a consequence, their approach to file management becomes reckless. If storage space costs next to nothing, then next to nothing need be discarded.

One outcome is global digital storage centers the dimensions of which appear to be ballooning inexorably.

While digital storage has become cheaper, the associated costs, from raw power to maintenance and from metadata to search engines, have not kept up with the proliferation of data. Although the power required to maintain a unit of data has fallen, the cost of facilities which house the digital storage has tended to rise⁵⁵. The cost of labor has also generally risen over time.

In 2009 there is therefore likely to be a changed approach to data. The imperative for companies to cut costs is likely to include attempts to control the escalation of storage costs. This could in turn cause a fundamental change in the way employees perceive the total cost of ownership of storage.

In 2009, companies may halve what they spend on physical storage. Spending on new servers may increase by just 4 percent⁵⁶ to \$58 billion⁵⁷. Even so, the cost of keeping servers powered-up and cooled is expected to increase by over 15 percent, to \$35 billion⁵⁸.

Enterprises are still expected to create several exabytes of additional data per month⁵⁹, highlighting the fact that current approaches to data storage appear neither lean nor green.

Bottom line

Companies should assess whether their total cost of storage is growing faster than revenues, and if so, whether this is beneficial to them.

Enterprises should review all aspects of digital data use and management. This includes behavior, such as training users on how to manage their 'data footprint'. Just as in real life it is prudent for collectors to discard old memorabilia from time-to-time, periodical equivalent assessment and pruning of digital files may also be useful.

Companies should assess technological approaches, such as de-duplication tools that could free space on existing servers by reducing the quantity of duplicate copies of the same file.

There should also be an assessment of individual applications to identify any particularly profligate tools: email is estimated to take up 25 percent of enterprise storage capacity⁶⁰.

One response to lack of space in physical and digital worlds is offsite storage. In the digital context, this could mean using third-party providers to store overspill data. Companies using this approach should monitor costs and regulatory implications. External storage could be anywhere in the world, with 20,000 different regulations worldwide controlling the data⁶¹.

Companies should also evaluate third-party storage specialists' vulnerability to attack by hackers. These organizations may be more likely to be targeted by hackers, as penetrating storage specialists' security may provide access to many companies' data, rather than just one. However, such companies may also be far more secure than a typical enterprise. If so, there may be a case for transferring a greater volume of files to storage specialists.

Hardware makers should reorient their sales approach in a manner similar to energy companies. Rather than selling just hardware, they should also integrate software and additional services aimed at minimizing consumption.

Generic becomes the ‘it’ brand

In recent years, brand has been all-important for both enterprise and consumer technology⁶². Few companies have dared risk experimenting with lesser known, untested suppliers.

Consumers, spurred by billions of dollars of advertising, have sought out and paid premiums for the best brands, even if these may not have offered the best products.

In 2009, companies and consumers may actively seek out unbranded or relatively unknown technology brands on the basis that they are good enough and, more importantly, significantly cheaper⁶³. Similar to supermarkets’ shift in focus to own-label value products, retailers and manufacturers are likely to adjust their product lines to be aligned with new economic realities.

For enterprise software and technology, companies are likely to become more willing to try out cheaper alternatives to their current suppliers. This reaction is similar to that of many companies’ annual reversion to generic stationery at the end of a financial year. Linux, software-as-a-service (SaaS) and cloud-based storage may all get greater consideration than in previous years on the basis of their lower prices⁶⁴.

As for communications technology, employees may find themselves issued with standard voice phones given that the majority of business usage is for voice calls. Voice-centered phones can cost as little as tens of dollars. This compares with hundreds of dollars for smart phones. Small and medium-sized companies may consider consumer variants of VoIP more carefully in order to minimize their phone bills⁶⁵.

In good times, great gadgets, replete with functionality of questionable business benefit, may have been part of the package required to attract the best talent into a company. In not so good times, the best talent is likely to be quite willing to remain attractive to their employers, even if this means using basic devices. Some companies may ultimately regret changing suppliers, but for others the shift will be permanent. The immediate, quantifiable, cost savings from changing suppliers may be outweighed by the harder-to-measure costs of adjusting to the new technology.

Bottom line

Technology device manufacturers must consider how the impact of branding is going to change in the face of a downturn. A brand that once stood for quality, reliability and even desirability may come to represent extravagance.

As enterprises and consumers aim for frugality, a formerly attractive brand may become a liability. Device manufacturers may have to consider creating low-cost or generic brands, a strategy that has worked well in other sectors. But for premium brands, the optimal approach may simply be to suffer a near-term slump in sales. Dropping prices may increase sales in the short-term, but might cheapen a brand’s image in the long term.

Enterprises considering changing suppliers should take a long-term view and undertake a cost benefit analysis that factors in all possible costs. Some companies may find that while open source software may appear cheaper, in some cases it may be harder to attain redress in the case of problems. If a supplier’s reputation is based on price, not quality, it will have less incentive to resolve issues.

Using alternative suppliers is also likely to require users to become familiar with a new interface, causing a drag on productivity. Enterprises should look at approaches of minimizing this disruption, for example through the use of digital skins that mimic interfaces and appearances that users are more familiar with.

The digital ambulance chaser gets supercharged

Digital litigation may prove recession proof, or even counter-cyclical, in 2009.

Citizens are likely to be asked if personal information, from pictures of them on photo-sharing websites, to details of charitable donations they have made, has been used without permission⁶⁶. Citizens may also be asked if personal data is being stored in countries whose legislation allows governments to read it⁶⁷.

Consumers may be asked if a digital product or service delivered on the advertised promise. Was it as fast, as economical, as long-lasting as claimed⁶⁸?

Workers might be asked if their ill-health was caused or exacerbated by any technological device⁶⁹. The growing range of mobile data devices, keyboard and touch-screen based, may lead to new types of repetitive strain injury.

Software companies may be asked to review whether their intellectual property has popped up in anyone else's product. This kind of claim has already generated billions of dollars in settlements⁷⁰, and given the increasingly frenetic pace of product development, the chances of patents being infringed inadvertently may rise.

Lack of clarity over ownership of digital rights by country and by industry⁷¹, is likely to make the volume of digital ambulance-chasing cases greater than ever.

The economic outlook may make companies in general more aggressive in their search for sources of revenue. Identifying potential copyright breaches may be one income stream that some companies start to target⁷².

In 2009, there may be hundreds of class action suits – claims of billions of dollars for copyright abuse – for media, software and other forms of content.

Bottom line

All companies involved with digital products and services should be wary of unwittingly being caught out by legislation related to digital infractions, whether committed against a consumer, an employee, an acquisition, a partner or another business.

A company that wants to undertake a swift launch of a product or is considering the deployment of a new digital application to increase worker productivity should consider whether any element of the product or application could lead to litigation. While companies should be dynamic, they also need to be cautious, to avoid ending up on the wrong end of a lawsuit. Dealing with litigation can also be a major distraction for senior management, as well as being highly costly, in terms of legal fees and possible fines.

Any organizations considering M&A or joint ventures in 2009 should consider as part of their due diligence process whether their target company or proposed partner might become subject to digital litigation, for example through using intellectual property that had not been properly acquired⁷³. Among the things companies should look out for are a change in control clauses in licenses that could prompt renegotiations of royalties on a transaction.

Enterprises should also be aware of the implications of joint and several liability⁷⁴. This may affect companies with only minimal involvement in the design, manufacture or hosting of a contentious product or service.

Technology companies should constantly monitor how consumers actually use their digital products and services and whether this may create legal issues. Actual use may differ quite considerably from expected use. Text messaging was originally designed as a means for mobile phone engineers to communicate with each other. But now, for example, motorists illegally send and read messages while they are driving⁷⁵.

The economic outlook may make companies in general more aggressive in their search for sources of revenue. Identifying potential copyright breaches may be one income stream that some companies start to target.

Social networks in the enterprise: Facebook for the Fortune 500

It looks as though 2009 is likely to be the breakout year for social networks in the enterprise. Internal and external spending on social networking solutions from IT providers and carriers may approach \$500 million. Social networks are likely to be considered an inexpensive solution in what is likely to be a financially constrained IT spending environment⁷⁶.

Globally, social networks have enjoyed a 25 percent growth in unique visitors in the last year. Some sites have doubled their user base⁷⁷. And their demographic profiles now include users over 35. Social networking is no longer a tool just for high school and college students. On some networks, around 40 percent of users are over 35⁷⁸.

While questions grow about consumer social networks' varying ability to monetize their hundreds of millions of users⁷⁹, enterprises are looking at how they can harness the hierarchy-flattening, information-sharing, team-building power of social networks.

Large IT companies are planning on spending significant research and development (R&D) dollars in 2009 on social network applications and building new research centers that focus exclusively on enterprise social networks⁸⁰.

Enterprise Social Networking (ESN) goes well beyond the consumer experience of social networking. It can include social discovery, social search, microblogging, visualization and new scalable architectures for social software, such as cloud computing. Enterprises are also experimenting with other ESN or Web2.0 applications, include wikis⁸¹, mash-ups⁸², online meetings, and syndicated feeds. And of course toolmakers are supporting ESN with their latest generation of content management tools⁸³.

Some major telecommunications companies are already deploying social networking solutions internally. They are also including that technology as a solution, as part of their global service offerings, with plans to increase their efforts greatly in 2009⁸⁴. As providers of bandwidth and solutions they are keen on any application that requires more bits to be transmitted over their networks, and are heavily promoting ESN to their customers⁸⁵. Wireless carriers and original equipment manufacturers (OEM) also see a strong future for ESN tools as mobile workers need to be part of the social network too⁸⁶.

In 2009, governments are likely to implement top-down directives for their administrations to deploy ESN tools, both internally and as a method of interacting with their constituents⁸⁷. Governments are obvious potential users of ESN: they tend to be large, distributed and focused on information sharing – the ideal environment for social networking solutions⁸⁸. There are even public health applications for ESN tools⁸⁹. Until now, government IT departments have been inherently conservative. However, as a new generation of politicians (who have used social networking tools to campaign successfully) move into office, adoption may become mandatory in certain departments.

While 2009 should see a growth in ESN, it will probably only be in a minority of leading-edge firms. During the year, the exact extent of adoption may still be unclear. Some commentators claim enterprises are generally not yet deploying social networks; various Fortune500 CEOs believe the opposite⁹⁰.

While the dollar value may still be small, 2009 should see an explosion in ESN tools, trials and in-house deployment at industry-leading firms, with government as an early but influential adopter. ESNs are already being used in government departments in several of the G20 nations.

Bottom line

Social networks look to be a powerful tool and a way of tapping into the 'wisdom of crowds.' But the enterprise versions of these solutions are still being refined. IT departments need to develop the tools in such a way that they engender productivity. Measuring returns on investment for ESN will be challenging, as will balancing an enterprise's need to control a social network with its employees' desire for privacy.

On the other hand, most early versions of ESN look to be inexpensive, easy to roll out and require little employee training. Cash-constrained companies should look at ESN as a way of capturing value that already exists within an enterprise at a relatively low cost.

Telecommunications operators and IT solutions providers need to invest in ESN so they have the expertise and credibility to deploy these solutions if or when they become more broadly adopted, and start becoming a more significant source of revenues.



Sinners become saints

The world's inconstancy and unpredictability has been demonstrated by the volatility that characterized the global economy in 2008.

That volatility also applies to commonly held public truths. What was considered good, may in future be considered evil and what was once regarded as harmful may be reappraised as benign.

Two technological innovations that had been regarded as evils may be recast, more than ever, in a positive light in 2009.

One is nuclear power, which many countries had aimed to ban in the 1980s⁹¹. But in 2009 it is likely to consolidate its position and perception as a required source of power in a growing number of developed countries⁹². The volatility in the price and supply of oil, gas and coal may be a key reason for the growing supply of nuclear power, whose global generating capacity is forecast to grow by 1.3 percent in 2009 and could double by 2030⁹³.

Another technology that had been regarded as evil is genetically modified (GM) food, which remains banned in many countries, including the entire European Union⁹⁴. However, the global scarcity of water afflicting a growing number of countries has made governments around the world look for ways of maintaining, or even boosting, agricultural yields while dramatically reining back water consumption⁹⁵.

GM is one way of delivering this⁹⁶. The need to feed people, coupled with the need to conserve water, is likely to prompt a re-evaluation of GM⁹⁷. In 2009 a growing number of countries may, on environmental grounds, rescind regulation prohibiting the use of GM⁹⁸. A growing number of countries are likely to undertake GM trials. Lobby groups that had been opposed to GM may decide the technology is positive for the environment, rather than malign.

Many cities, from Chicago to Auckland, have for years prided themselves on their status as nuclear-free zones⁹⁹. Throughout most of this decade, food suppliers have trumpeted the lack of GM in their food¹⁰⁰. In future, these positions may get turned on their head.



If sinners are likely to be regarded more positively in 2009, conversely some once 'saintly' approaches and products may develop tainted reputations. Free-range farming may be criticized for the amount of land it requires. Glass, once morally sound for the ease with which it can be recycled, may become criticized for its weight relative to plastic when used for containers¹⁰¹.

In 2009 it may even be considered virtuous to create dishes comprising GM ingredients, packaged in plastic, in kitchens powered by nuclear fuel.

The need to feed people, coupled with the need to conserve water, is likely to prompt a re-evaluation of GM.

Bottom line

Governments should take a lead on investigating, understanding and communicating the various solutions available for addressing the world's key sustainability challenges. Some of the potential conclusions reached may not appear politically expedient in the short term. But an autonomous government's legacy often requires making policies that are initially unpopular.

The balance between the short and long term can be challenging, and it may never be possible to prove what the right approach should be. Nuclear power may help cut carbon emissions in the short term, but may lead to waste-storage challenges that cost billions to address in the future¹⁰². GM crops may increase yields and cut water consumption only to have a downstream impact on the balance of whole ecosystems¹⁰³.

Any company involved in a technology perceived as unpopular needs to be able to take a long-term approach. Deployment of technologies like GM and nuclear have suffered setbacks and will likely continue to, which could derail progress by years. A single scare story could reverse this improved perception.

Companies involved with newly favored technologies should also evaluate the skills base. Countries where nuclear has fallen out of favor may find that indigenous talent has diminished due to lack of activity and skills may thus need to be sourced from other countries¹⁰⁴.

Finally, the industry should encourage the public to take a balanced, long-term view. The public should be urged to consider the case for and against, rather than being directed by the emotion of headlines.

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Glossary of technical terms

CPU	Central processing unit
DVR	Digital video recorder
ESN	Enterprise social networking
GM	Genetically modified
GPS	Global positioning system
OS	Operating system
PDA	Personal digital assistant
PUE	Power usage effectiveness
SaaS	Software-as-a-service
SIM	Subscriber identity module
VoIP	Voice-over-Internet protocol

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