Gartner's Top Predictions for IT Organizations and Users, 2011 and Beyond: IT's Growing Transparency

With costs still under pressure, growth opportunities limited and the tolerance to bear risk low, IT faces increased levels of scrutiny from stakeholders, both internal and external. As organizations build plans for the years ahead, our predictions for 2011 focus on the impact this scrutiny will have on outcomes, operations, users and reporting. All parties expect greater transparency, and meeting this demand will require that IT become more tightly coupled to governance and business control. Our 2011 predictions focus on how this shift in the role of IT will affect economies, governments, businesses and individuals.

Key Findings

- Clearer linkage of IT investments and business results is becoming an imperative for IT organizations. Demonstrable support for revenue growth is emerging as a primary IT objective.

- Greater visibility of transactions across all buying centers will drive a sharp increase in recognized IT spending per employee.

- Cloud computing will enable many organizations to exploit internal capabilities to establish new business service revenue streams.

- Most IT leaders now recognize that the consumerization of IT cannot be resisted indefinitely, presaging an era of "post-consumerization."

Recommendations

- Enterprise and IT leaders must improve their visibility and management of IT assets and costs to support faster and more accurate financial reporting.

- Enterprises should re-evaluate the performance metrics applied to the IT organization and use IT spending per employee as a primary success factor for the largest projects.

- CIOs should ensure all business executives recognize and are able to articulate the contribution of IT to business success.

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- CIOs should evaluate if and how the IT department can drive new sources of revenue for the business by becoming a service provider to other organizations.

- IT organizations must re-appraise where they can withdraw from managing user devices. Managing less and better is usually the best route to supporting business requirements, securing enterprise data assets and meeting user expectations.

STRATEGIC PLANNING ASSUMPTIONS

By 2015, a G20 nation's critical infrastructure will be disrupted and damaged by online sabotage.

By 2015, new revenue generated each year by IT will determine the annual compensation of most new Global 2000 CIOs.

By 2015, information-smart businesses will increase recognized IT spending per head by 60%.

By 2015, tools and automation will eliminate 25% of labor hours associated with IT services.

By 2015, most external assessments of enterprise value and viability will include explicit analysis of IT assets and capabilities.

By 2015, 80% of enterprises using external cloud services will demand independent certification that providers can restore operations and data.

By 2015, 20% of non-IT Global 500 companies will be cloud service providers.

By 2015, companies will generate 50% of Web sales via their social presence and mobile applications.

By 2014, 90% of organizations will support corporate applications on personal devices.

By 2013, 80% of businesses will support a workforce using tablets.

By 2015, 10% of your online "friends" will be nonhuman.

ANALYSIS

1.0 What You Need to Know

Gartner's top predictions for 2011 and beyond reflect the trends and disruptive events that will reshape the nature of business for the next year and beyond. Selected from across our research areas as the most compelling and significant analyst predictions, the developments and topics they address this year focus on changes in the roles that technologies and IT organizations play: in the lives of workers, the performance of businesses and the wider world.

Last year's theme of rebalancing supply, consumer demand and regulation is still present across most of these predictions, but the view has shifted further toward external effects. This year's top predictions highlight an increasingly visible linkage between technology decisions and outcomes, both economic and societal. The results, risks and opportunities that arise from IT investment decisions are becoming ever more demonstrable and transparent.

Many of the processes that underpin the daily function of businesses, governments, economies and our individual lives depend on IT. Some are mission-critical, some "experience-based" and others social. This dependence gives rise to the prospect of technology being used to attack, disrupt and damage the nation states in which we live and work. IT could be wielded as a weapon with potentially catastrophic results. Defense reviews by government agencies across the world continue to highlight the growing risks of "cyber war," and attacks against some nations have already occurred. Our first prediction highlights this worrying trend.

The economic crisis from which many developed economies are still recovering has given rise to much higher levels of financial scrutiny in all aspects of life. Last year we highlighted the more-active role assumed by chief financial officers (CFOs) in IT investment decisions and the trend toward greater accountability and transparency. This year, we focus on the extension of this scrutiny to other key stakeholders: shareholders, employees, customers and electors.

Governments and organizations of all sizes have been obliged to re-evaluate the relationship between IT spending, operating budgets and revenue in much finer detail. While initially motivated by the need to cut costs, this process also promoted a more-explicit investigation and understanding of how IT investments affect revenue and future prospects. Four of this year's top predictions deal with the more-direct coupling of technology and business performance from three different views: revenue growth, investment and financial reporting. The first of these predictions focuses on how the connection between IT capabilities and results will be exploited by leading companies to motivate and facilitate business growth. The next two predictions examine the changing patterns of investment in IT and their association with overall costs. The fourth prediction in this group looks at how the growing need to support this financial scrutiny will impact IT.

The pressure for business to be more accountable will also assume a higher profile in the way organizations embrace and exploit the technology options available to them. Scrutiny of IT from the outside must be supported internally, so that compliance with regulations and financial goals can be accurately verified. This will impact internal operations and the structure of contracts with suppliers and providers. Our next prediction looks at how this will affect suppliers of cloud services, a topic that continues to grip the imagination and aspirations of many CIOs.

Although greater transparency is interpreted by some in IT as a burden, other organizations will find advantage in the new possibilities it reveals. The cost of transparency is self-funding from the benefits it delivers. Better management of internal IT capabilities and capacity will enable some companies to derive additional revenue from underutilized assets. External capabilities in communications and social software will provide easily accessible and lower-cost routes to market. Our next two predictions examine the most-critical opportunities for market expansion.

Through much of the last five years, users often seemed to have objectives that conflict with those of the IT organizations that support them. As consumerization in devices and applications gains traction, many traditional "best practices" in IT management have been challenged or rendered obsolete. In 2010, the focus on use of personally owned equipment for work was further accentuated by the high-profile success of the Apple iPad. The apparent conflict between autonomy and control for users is now reaching a crescendo, and consumerization is no longer regarded as something that can be contained or resisted. Our next two predictions look at the impact on user productivity as we enter the next phase of the consumerization trend, in which the attention of users and IT organizations shifts from devices, infrastructure and applications to information and interaction with peers. This change in view will herald the start of the post-consumerization era.

Technology continues to transform the personal lives of individuals, and the past decade has brought radical changes in how many people interact with communities, friends, family and colleagues. The final prediction looks at one of the societal effects of the growing use of social software and media.

2.0 Selecting Predictions

This year's selection process included evaluating several criteria that define a top prediction. The issues examined included relevance, impact and audience appeal. More than 100 of the strongest predictions across all research areas were submitted for consideration this year.

Our top predictions are intended to compel readers to action and position them to take advantage of coming changes, not to be damaged by them. Clarity and conciseness are also essential characteristics of our top predictions: the average reader of the Wall Street Journal should be able to follow each prediction and discern its potential impact on their areas of interest.

These top predictions are for general technology areas, rather than being specific to industries.

In reading this report, it will become apparent that our top predictions are pulled directly from research that is topical and ongoing. They include implications and recommendations for organizations seeking change opportunities. IT professionals must examine these predictions for opportunities to increase their support for cost control, revenue generation, transparency and business transformation initiatives.

3.0 IT's Global Role

Strategic Planning Assumption: By 2015, a G20 nation's critical infrastructure will be disrupted and damaged by online sabotage.

Analysis By: Ray Valdes

Key Findings:

- A G20 nation will suffer significant disruptive change as a result of an attack by an enemy and initiated primarily in the digital world.

- Online actions to disrupt, damage or destabilize a nation may begin with a narrow scope but can have lasting repercussions over time, including change of government, significant financial loss or serious loss in competitive position with regard to other nations.

- Online attacks can be multimodal, in the sense of targeting multiple systems for maximum impact, such as the financial system (the stock exchange), physical plant (the control systems of a chemical, nuclear or electric plant), or mobile communications (mobile phone message routers).

- Such a multimode attack can have lasting effects beyond a temporary disruption, in the same manner that the Sept. 11 attacks on the U.S. had repercussions that have lasted for nearly a decade. If a national stock market was rendered unavailable for several weeks, there would be lasting effects even if there was no change in government, although it is also possible such disruptive actions could eventually result in a change in leadership.

- Such online attacks could originate from various sources, including security agencies of nations that regard themselves as being in conflict with the targeted state, pseudo-national movements and terrorist organizations, organized crime or internal factions within a nation (including rogue military units).

- These forces have in the past taken arms against a state, to varying degrees. The change is that these attacks can now be conducted entirely or primarily online, with no spilling of human blood (on the part of the attacker). The impact of an online attack can be as lasting and deep as an attack conducted using legacy means.

- Leading up to this prediction are several precursor events, from 2007 to 2010, some of which appear to be intentional attacks and others with unknown origin. In some cases, these events result not from hostile action but from internal system errors (which a future attacker could emulate). These precursor events include:

- The cyber attacks on Lithuania in 2008 and Estonia in 2007.

- The hacking of Google and allegedly 30 other U.S. companies in 2Q10, including some military contractor firms, by unknown people.

- The U.S. stock market anomaly in 2Q10 that had some stocks and stock indexes drop to a price of zero for a short period, which appeared to be human error but exposed a vulnerability in the system that an attacker could possibly exploit.

- The Stuxnet malware for industrial control systems in 3Q10, a weaponized virus meant to destroy a physical facility, by taking over embedded control systems. One suggested target is Iran's nuclear plant.

- A denial-of-service attack that disrupted Internet communications in Myanmar (Burma) in October 2010, in advance of the country's first election in 20 years.

- The prediction extrapolates from these precursor events that more sophisticated attacks are bound to occur and their impact will grow to the scale of a G20 country, and the disruptive effect will linger for months, rather than hours or days.

- An online attack could target one of several G20 nations, but it is impossible to predict which one, because each functions in a particular political, economic and social context. For example, in 2010, the government of Mexico is facing significant challenge from drug cartels in the physical arena. It is possible in 2015 that these cartels could move to online actions, as they have recently started large-scale software counterfeiting.

Market Implications:

The market implications will depend on the target. After the attack, one can expect various responses. Governments will pass legislation and launch security-related initiatives, as the U.S. did after Sept. 11. This will boost the sector of the security industry that can provide protection against these attacks, similar to how revamped airport security measures led to the emergence and growth of an industry sector around transportation and airport security.

Consumers in affected regions, as well as those outside, will seek protection, including privacy and security products and services, even though these might not be directly related to a cyberattack, nor will they necessarily be able to mitigate effects. This could occur in the same manner that some citizens built fallout shelters in the 1950s in the U.S.

Recommendations:

- CIOs and IT organizations should consider scenarios in which normal operations could be disrupted and adopt/adapt practices and technologies that enable them to deal with potential disruption from hostile, external actions as well as internal system failures.

- Technology and service providers should model this scale of attack and architect specialized systems for select clients.

- Governments should prepare disaster response plans to more effectively mount a response to cyberwarfare, and work with allied nations to coordinate responses.

- Citizens could mitigate some risk by spreading assets to different regions, although obviously a large-scale disruption can block access to other regions.

4.0 Revenue Growth

Strategic Planning Assumption: By 2015, new revenue generated each year by IT will determine the annual compensation of most new Global 2000 CIOs.

Analysis By: Ken McGee

Key Findings:

- In post-recession periods, capital markets tend to reward companies that report organic growth in revenue more than they reward companies that meet or surpass earnings expectations via cost cutting.

- Although operating at lowest possible costs remains an imperative, enterprise executives understand that, without revenue growth from increased customer demand, returning to a sustained period of economic recovery will be impossible.

- As economies recover or expand worldwide, the greatest business contribution CIOs will deliver to their enterprises will be to foster revenue growth.

- Gartner's analysis revealed that four IT-enabled initiatives – context-aware computing, Pattern-Based Strategies, social networks and the channeling of IT staff innovation toward enterprise product development – can potentially deliver the most favorable effects to an income statement and increase enterprise revenue.

Owing to the revenue-generating potential of those four IT-enabled initiatives by mid-decade, two trends are likely to unfold:

- CIOs who are already skilled at generating revenue via IT will be enticed to join companies with an incentive compensation plan based on how much revenue the CIOs' efforts yield.

- CIOs heedful of the revenue-generating potential of IT will offer to place the entire incentive portion of their total compensation at risk, in return for being rewarded based on how much new revenue their guidance, vision, creativity and leadership creates.

Market Implications:

Even the darkest economic period in eight decades could not stop IT offerings from being developed and evolving. Four initiatives – context-aware computing, IT's direct involvement in enterprise innovation development efforts, Pattern-Based Strategies and harnessing the power of social networks – can potentially directly increase enterprise revenue. *Executive and board-level expectations for realizing revenue from those and other IT initiatives will become so common that, in 2015, the amount of new revenue generated from IT initiatives will become the primary factor determining the incentive portion of new Global 2000 CIOs' annual compensation.*

Before CIOs formulate strategies to leverage the four revenue-increasing initiatives, they must first determine whether their current missions should be unaltered, augmented or fundamentally overhauled. CIOs who want their groups to continue in the traditional role of planning, designing, implementing and operating IT solutions can expect few changes in the coming years. However, CIOs wanting to make "information" just as important to their mission as information "technology" can expect many new demands in the new decade:

- CIO staffs must complement established technical skills with new skills rooted in the social sciences. Doing so enables them to engage with sales, marketing and other professionals who find revenue opportunities through context-aware computing, Pattern-Based Strategies and social networks.

- Investing in skills and know-how around social science disciplines, such as sociology, anthropology and economics, as well as specific fields, such as cognitive psychology and ethnomethodology, will help businesses and governments understand and explain human behaviors, with an emphasis on how people react to one another in different cultural settings.

- Investing in analytic skills will help staffs uncover trends and opportunities, and avoid missing critically meaningful shifts in customer sentiments and preferences.

- Training in techniques such as critical thinking – a disciplined and methodical approach to analyzing information and reaching conclusions – will be key to revealing new revenue sources. Vendors that facilitate critical thinking analyses in their context-aware, pattern and social network analysis offerings will present truly attractive differentiating features.

Recommendations for CIOs:

- Identify your enterprise's 20 largest revenue-generating products or services.

- Master your knowledge of the channels by which each of the top 20 products is sold.

- Build individual cases, specifying how context offerings, pattern recognition and social networks will sell in a way that will lead customers to buy.

- Devote 50% of the R&D and training budgets toward funding social science education for staff. Examples include sociology, anthropology, cognitive psychology and ethnomethodology.

5.0 Costs and Investment

Strategic Planning Assumption: By 2015, information-smart businesses will increase recognized IT spending per head by 60%.

Analysis By: Kurt Potter

Key Findings:

- Those IT-enabled enterprises that successfully navigated the recent recession and returned to growth will benefit from many internal and external dynamics. This should reward them with an IT productivity windfall that culminates in at least a 60% increase in the metric for "IT spending per enterprise employee" when compared against the metrics of peer organizations and internal trending metrics. These enterprises can be classified as the large leading adopters in their industry segment, based in Western Europe or North America, that are information-enabled businesses and are traditionally less labor-based in their business models.

- Between 2003 and 2010, Gartner surveys, databases and benchmarks show that the statistical average for IT spending per enterprise employee or head in the typical enterprise increased 52% from $8,500 to $12,900, and this includes centrally known, enterprisewide IT operating expenses and capital expenses. For information-enabled industries or "information-smart" (banking and financial services, insurance, healthcare, media, professional services, telecommunications, IT software or those otherwise considered "services") enterprises, the metric increased 63% from $11,000 to $17,900. Based on our estimates, this trend will continue for information-enabled industries and result in an increase from $17,900 in 2010 to $28,500 in 2015. Those enterprises that are leading edge will often exceed the 60% increase.

- Before 2010, much of the increase in IT spending per employee came from spending that promised softer or less-quantifiable benefits (with much of this investment delivering only indirect or dubious benefits); after 2010, IT spending per employee will increase due to fewer enterprise staff and a focus on projects with quantifiable productivity improvements via automation or industrialization.

- Best-practice enterprises have found that relentless focus on managing IT spending as a percentage of revenue is now yielding marginal returns as a goal. These enterprises will turn to the performance metric of IT spending per enterprise employee as a better high-level indicator of IT's contribution to business outcomes. In the face of intense cost cutting during the darkest days of the recession, many high-level IT spending metrics were forced down, but IT spending per employee increased, sometimes significantly.

- IT consolidation, centralization, optimization and cost transparency programs related to the recent economic downturn have made IT spending more visible than in the past, increasing the "recognized" IT spending per employee now and in the future. The addiction to IT cost transparency has forced it onto a new plateau that makes even decentralized

and unregulated IT spending more visible and "recognized" than in the past. As new and often impatient IT spending on nontraditional IT needs continues to infiltrate various business units, business processes and buying centers, much of it will be wasted (or they will spend more than if they filtered requirements and requests through the central IT organization for better calibration of costs and benefits).

- Continuation of enterprise staff reduction and freezes – as evidenced by continuing high unemployment rates (double-digit in most countries) – will drive IT spending per employee higher as the "jobless recovery" continues and higher IT capital spending returns to enterprises before increases in hiring. Many of the largest enterprises are just now reducing their staffing levels to meet long-term goals for enterprise optimizations, and new investment will be required to reach strategic optimization goals.

- Best-practice organizations will see higher IT spending per employee as a key performance indicator of enterprise health because it indicates the need for fewer enterprise staff due to current and future investments that enable automation, capital-labor substitution and industrialization of IT-enabled business processes. The rate of inflation in Western Europe and North America is also expected to have an impact on this metric.

- Recession-based introspection by enterprises has forced near-radical changes in IT governance and IT capital allocation policies where more quantitative proof of IT project benefits are mandatory. This environment will favor approval of projects with quantifiable productivity benefits from automation. This often means less reliance on business process staff, and these benefits will be enforced or otherwise harvested (where they were delayed or ignored in the past).

- The severity and length of the economic turmoil drove a focus on core enterprise competencies, and thus a focus on IT investments that further improved productivity on these core competencies in the first half of the five-year planning horizon. During the second half of the five-year planning horizon the focus will shift to IT spending that supports business transformation goals rather than the focus on core competencies as the recession risks and uncertainty subsides.

- Those enterprises in major business-model or supply-side transitions due to the recession (e.g., the new normal) will also see the benefit of higher IT spending per employee. Enterprises employing nontraditional or alternative sourcing strategies to reduce the number of employees significantly or dampen the need for new hiring due to business process outsourcing, extensive use of contract labor (not considered "employees" in these calculations), or creative variations of vertical integration will organically drive higher IT spending per employee, and not all of them will be information-enabled or intensive businesses. For many of these enterprises, the increase will come from increases in capital and operating budgets for IT above what was traditional in old or declining business models.

Market Implications:

Traditional IT financial performance metrics have shifted 180 degrees due to the recession, and IT investment contribution to business success must now be proven. As IT spending per employee organically increases in these market conditions, enterprise leaders and stakeholders must change their way of thinking that "lower is better" for this metric. Unrecognized enterprise goals will create or promote "value destruction" where the viability of the enterprise will be at risk.

Business reinvestment where operational savings harvested within IT are redeployed to discretionary IT spending to promote productivity improvement will become a standard funding practice. In the second half of the five-year planning horizon, more IT capital will be allocated to business transformation initiatives. After an initial period of massive centralization and consolidation, rogue IT spending in business units, agencies and departments will increase. These purchases will include alternative acquisition and delivery models, like cloud computing, software as a service (SaaS) and IT utility computing – most without rigorous business cases now required for approval from central funding.

The bulk of IT innovation during the past two decades has entered the enterprise from outside the traditional IT organization, only to be centralized in future years. Cloud computing and the like will follow this trend, seeing its biggest initial demand from business units, which will often pay a premium for the convenience of simplicity and flexibility. Recent transparency initiatives will make this spending more visible than in the past.

Development of IT financial management and IT business management capabilities, where "success" of IT investment is proven, will be a milestone that needs to be reached before significant levels of discretionary spending will be released for new IT projects. Enterprises that are unable to deliver additional estimation and actionable transparency will see IT spending reduced to the point where merger, acquisition and divesture activity is the only alternative for sustaining stockholder interest.

While this period of doing "more with less" or doing "less with less" will increase IT spending per employee, best-practice enterprises will also pursue goals of flat or marginally declining IT spending as a percentage of revenue (or operational expense). The IT organization's focus on these long-term results should deliver new enterprise benefits and build trust for future business justification of more entrepreneurial IT spending in "experience-based" areas like social computing, pattern-based strategies, consumerization of IT, and other areas where quantifying benefits or proving success will be more difficult, with more project and enterprise risk.

As the jobless recovery continues, many large enterprises will find it less difficult to justify IT and business investments than increasing staffing levels. While declining or flat enterprise staffing is the primary driver of higher IT spending per employee levels, other implications are pent-up demand for infrastructure replacement between now and 2015, where three- to five-year replacement cycles have been abandoned due to constrained budgets; and frustration over system failure, poor availability and an overall decline in IT service levels due to austerity measures that drive replacement investment in IT, but not enterprise staff.

Recommendations:

For CEOs, CFOs and business leaders:

- Enterprise and IT leaders must improve the capabilities and maturity of the key IT financial management practices that provide better IT cost and benefit transparency, to include IT portfolio management, cost allocation and chargeback, IT performance management, IT budgeting and accounting, and benchmarking and measurement.

- Enterprises should re-evaluate the traditional "success" metrics for the IT organization to drive the right behaviors regarding enterprise productivity improvement and investment priorities. IT spending per employee should be evaluated as the primary success factor for the largest projects and for the entire IT investment portfolio, while IT spending as a percentage of revenue should be flat, declining marginally and seen as incidental to a better IT planning and budgeting process.

For CIOs and IT organizations

- Senior IT leaders should demand a higher level of due diligence in the business case for new IT investments, starting with expansion of the business case template to include quantifiable productivity improvements, enterprise goal alignment, multiyear cost estimates and funding commitments. Both IT and business leaders should be co-sponsors, accountable for success and harvesting post-project productivity improvement.

- Make the fundamental question in all IT and business planning sessions this year: "Is IT spending per employee going to increase by 60% by 2015?" If the answer is no, ask these questions:

  - Does this mean we don't have a legitimate business case for IT investment?

  - Are we circling back after major initiatives to find that business case assumptions have not been met?

  - Are we overstaffing to prepare for scaling the business when this is no longer a planning assumption?

  - How will future business-model changes and industry value-chain evolution affect our IT spending per employee metric?

  - Are the IT strategy, goals and key performance indicators putting the right focus on the value needed for future IT investments?

  - Is the delta between a 60% increase in IT spending per employee and our current trending an indication of business and IT waste?

Strategic Planning Assumption: By 2015, tools and automation will eliminate 25% of labor hours associated with IT services.

Analysis By: Susan Tan

Key Findings:

- As the IT service industry matures, it will increasingly mirror other industries, such as manufacturing, in transforming from a craftsmanship to a more industrialized model. Tools and automation are part of this transition.

- Although firms have typically thrown more and cheaper labor at solving IT problems, creating an offshore IT service industry, labor arbitrage is an interim solution. The next wave of maturity in the IT service industry will involve the innovative use of tools and automation that reduce cost and variability in quality, as well as increase the predictability of results. For example, understanding user requirements has always been a tricky problem, because IT and business users often speak different languages. Enter visualization tools – which enable users to quickly and iteratively mock up the user interface and process flows and get users/business sponsors to sign off before writing a single line of code. This results in requirements being more accurately met, as well as savings on the costs of rework.

- External service providers (ESPs) such as IBM and CSC have seen savings of as much as 30% on the cost of developing complex designs in an IT project through use of visualization tools. ESPs such as Capgemini have seen leaps in productivity in the data center, as a result of adopting standard processes and automation – for example, increasing the number of servers per administrator from approximately 30 to more than 100 in one year.

- Cloud computing will hasten the use of tools and automation in IT services, as the new paradigm brings self-service, automated provisioning and metering, etc., to deliver industrialized services with the potential to transform the industry from a high-touch custom environment to one characterized by automated delivery of IT services. Initially, the cloud-based changes will occur at the infrastructure level and move upward through the stack. At the same time, cloud services in the business services and software-as-a-service (SaaS) layers will push changes down through the stack.

Market Implications:

- ESPs with the financial and intellectual capital to invest in tools and automation will create a competitive advantage for themselves through the ability to lower overall costs, as well as decrease the time to deliver solutions. ESPs will sell tools and automation as products; thus, their advantage will be that they can control more of the entire stack and plan new components accordingly.

- ESPs will increasingly lead with automated offerings, such as assessments, that deliver value quickly for free or for a nominal price in a bid to win the bigger downstream implementation prize. For example, Hitachi Consulting is offering a free Oracle R12 Assessment Tool that can save clients weeks and, in some cases, months, of labor.

- Leveraging tools and automation will free up resources from repetitive, low-value tasks (such as data gathering), enabling ESPs to perform higher-value activities (such as gaining insights from the data and recommending appropriate actions) to add value to the engagement. The use of tools and automation has implications for hiring and training. There will be less need for repetitive or low-value tasks and more demand for higher-value work, requiring the reskilling of the workforce. The new reality will be characterized by demand for IT professionals able to analyze, interpret and add value to a business problem, rather than merely providing the "arms and legs" to execute technical tasks.

- This trend does not necessarily mean thousands of IT jobs will disappear – tools and automation improve productivity and reduce the cost to serve, which means they have the potential to lower the cost of IT services, enabling more companies to afford the services of ESPs and invest savings into more IT projects. The composition of jobs will change. Some basic work functions and related jobs will just disappear or be reduced in scope. Jobs will be restructured, so certain functions will disappear and there will be a need for new skills. As a result, there will be a bigger addressable market, creating more demand for IT services, even though each project may be smaller, due to lower levels of effort.

- The trend means IT services firms need to invest in developing or adopting tools and automation to stay ahead in this market or risk being irrelevant. Those that lack the intellectual or financial capital to do so will be relegated to commodity staff augmentation status. This can also mean that the competitive advantage of low-cost-labor countries will be lessened, and the move to offshoring will slow.

Recommendations:

For IT buyer organizations:

- Look for ESPs that can embed their services with a wide array of tools and automation that can reduce the time and effort involved. Their use of tools and methods should be globally consistent, and their people and contractors should be uniformly trained to use them. With rising automation you may no longer be able to insist on the use of specific tools (the ones you use), as you might today. Instead you will need to, together with the service provider, work to achieve good integration with your own internal processes.

- Pay for outcomes rather than labor hours. Providers with tools and automation do not generally charge for the use of those tools. However, they need to recoup their investments and traditional time and material contracts do not encourage efficiencies using tools and automation. Some providers will write off investments in tools and automation as the cost of doing business while others will "split the difference" or spread the investments over multiple current or future client engagements.

- Ensure there is sufficient training and change management for end users. Automation often involves self-service by end users. Adequate training and change management is required to enable successful adoption.

For technology and service providers:

- IT service firms need to leverage automation tools offered by software vendors, as well as develop their own tools.

- IT service providers should refocus their attention and skill sets on value-added services. This means hiring the right people with the right skills, or training existing professionals for higher-value-added work, while automating as much as possible.

- IT service providers should offer fixed-price or outcome-based pricing that has the potential to improve margins to recoup investments in tools and automation, while reducing client's costs and risks.

6.0 External Assessments

Strategic Planning Assumption: By 2015, most external assessments of enterprise value and viability will include explicit analysis of IT assets and capabilities.

Analysis By: Dave Aron and Richard Hunter

Key Findings:

- During the due diligence for mergers and acquisitions, IT assets and costs are normally examined as part of estimating integration timing and cost, and synergy opportunities.

- Other assessments of company and government agency value, strategic position and viability, such as valuation for the purpose of equity or debt issuance, do not commonly include substantive analyses of IT capabilities.

- Increasing digitization of business processes, products and channels, integration of IT and operational technologies (OT), and the criticality of IT to competitive differentiation make it more essential for all analyses to include an examination of IT assets and capabilities.

- The broadening contribution of IT beyond process improvement to product innovation, business model innovation and management innovation mean that analyses must go beyond IT cost and business efficiencies to include IT's current and potential contribution to top-line growth, differentiation and business agility.

- The widely held expectation that the future will include more loosely coupled enterprises and alliances further increases the importance of IT's contribution.

- Current approaches for external assessments of IT tend to focus on cost and risk only, and are relatively immature in assessing business value contribution.

Market Implications:

- IT is having and will continue to have an increasing impact on business performance, competitive advantage, risk management and transparency, and enterprise ability to merge, acquire and partner. Methodologies for external assessment of IT assets, capabilities and contribution need to broaden to reflect the stronger, broader and more diffused contribution of IT to business viability and success.

- As this trend becomes more widespread, an increasing number of enterprises that believe they have superior IT capabilities will proactively ensure this becomes part of their brand image and reputation. Communications skills need to be built related to IT capabilities and IT organizations. CIOs need to be ready to communicate to new classes of stakeholders, and in new ways.

Recommendations:

For CIOs:

- Ensure you have the information and communications evidence to answer external stakeholders' questions about IT costs, IT-related risk, and IT's contribution to business success.

- Ensure that you have the right relationships within your enterprise, in areas such as finance, corporate relations, PR and legal, to make such communications routine and minimally disruptive. This will likely include increased engagement of members of your finance organization.

- Work to improve all business executives' ability to articulate the contribution of IT to business success.

- Build your skills and knowledge, and those of your planned successors in corporate finance, business strategy and communications.

For CEOs, CFOs and business leaders:

- Make sure that your CIO is proactively producing powerful, transparent communications that address IT assets, capabilities, and contributions to business value and business success.

- Consider whether you have got the right CIO, and whether your CIO needs any skill development or extra resources to support increased or new stakeholder assessment and communication needs.

For financial analysts and other external assessors of company value and viability:

- Ensure that you are looking at IT assets and capabilities not just in the context of cost and risk, but contribution to all forms of business value, including efficiency, effectiveness and growth, business integrity and agility.

7.0 Accountability

Strategic Planning Assumption: By 2015, 80% of enterprises using external cloud services will demand independent certification that providers can restore operations and data.

Analysis By: Jay Heiser

Key Findings:

- Cloud services are highly exposed to attack and require a relatively high level of security functionality to protect customer data from other customers, privileged users and Internet attackers.

- Many cloud service providers are making extreme and undocumented claims about the superiority of their fault-tolerant mechanisms, claiming that traditional disaster recovery mechanisms, such as offline backups, are no longer needed.

- It is difficult or impossible for existing, let alone prospective, cloud service customers to adequately evaluate a service provider's ability to recover from a data loss event or a disaster (man-made or natural) at one of their data centers.

- Risk assessments performed by neutral third parties are the most efficient way to leverage the work of qualified risk examiners across a repeatable business model, but "certification" programs that fully address the unique aspects of the cloud service market are not yet available.

Market Implications: Cloud service products cannot meet their full potential until buyers are able to quickly and reliably determine if an available product meets their requirements for security controls, regulatory compliance, business continuity and data recovery. The only practical way to perform an evaluation of a cloud service provider that is consistent with the computing and business model's economies of scale is to leverage a single assessment across multiple customers. Such a third-party "certification" model is beneficial to both buyers and sellers, enabling even very small customers to take advantage of highly skilled risk assessors. However, a number of practical issues must be addressed before a program can be widely considered suitable for the cloud services model.

Although many organizations have significant concerns about the confidentiality of their data when stored within a multitenanted cloud service, in many cases, the greater risk is one of data loss through an unrecoverable technical failure, a clumsy user error or a deliberate attack against a prominent cloud vendor. Some providers make no provision for it, claiming that their fault-tolerant mechanisms make offline backups unnecessary. Just as buyers have recognized the importance of vendor viability and are performing continual evaluations of their critical providers' financial health, recognition is increasing the need to assess and monitor data continuity and recovery capabilities.

Unfortunately, some buyers are accepting vendor claims that a SAS 70 provides adequate evidence of both security and data recoverability, even in the case of a widespread technical failure or human attack. This is leaving these organizations unknowingly exposed to a potential for data compromise or loss that exceeds their risk appetite and business

requirements. Although the American Institute for Certified Public Accountants' (AICPA's) SAS 70 program is the most-common form of third-party assessment today, this form of third-party assessment is increasingly being recognized as inadequate for this task and was never intended for it in the first place. SAS 70 will be renamed and modified in 2011, in part to address the challenges of cloud computing. However, the new program, SSAE 16, will still not include specific standards for security, continuity or recovery, and it will still not be a form of certification.

The fact that the U.S. and European Union governments, along with at least one major cloud industry consortium, are creating new certification programs is evidence that neither the prospective customers nor the cloud service providers consider any of today's certification programs adequate. Over the next several years, existing certification programs such as ISO/IEC 27001 will increasingly be supplanted by cloud-specific security standards such as the U.S. federal government's FedRAMP and the Trusted Cloud Initiative. The benefit of BCM standards, such as BS-25999, ASIS SPC.1-2009 and NFPA 1600, will not become more apparent until there have been several prominent instances of unrecoverable data loss events.

Today's risk assessment standards concentrate overwhelmingly on process issues. While human activity is critical, it doesn't represent the full spectrum of risk-relevant information. It should never be automatically assumed that new and complex proprietary technologies will perform as claimed by vendors. It remains to be seen whether any sort of cloud service assessment standard or program can adequately address the challenges of determining the ability of these highly sophisticated platforms to maintain their integrity while subjected to conflicting expectations for economies of scale, evolving business models and the global threat environment. If technology quality is not adequately addressed, then new and modified risk assessment standards will provide misleading results.

The market is held back by buyers that lack a mature understanding of the relative importance, or classification, of their data and processes. Underestimating information sensitivity can lead to purchasing an inappropriately unreliable service, while overestimation can result in an organization avoiding what would otherwise be a useful service type, or paying too much for unnecessary levels of robustness.

Recommendations:

Risk management professionals on the buyer side:

- Security, BCM and IT DRM professionals should support business decision makers by providing them with practical data classification models that allow them to quickly and reliably determine their risk control needs so that the buying team can match it to available service offerings.

- Those organizations with a desire to improve the state of the practice and improve the utility of third-party assessments should make their voices heard now by participating in the development of new processes such as FedRAMP and the Trusted Cloud Initiative.

Procurement specialists on the buyer side:

- If the intended application involves sensitive information or processes, purchasing teams must demand specific and comprehensive information about provider technology and control process to make a defensible assessment of the relative likelihood of the provider to experience and recover from an incident.

- Base procurement questionnaires on international standards, such as ISO/IEC 27002, and the BITS Standardized Information Gathering Questionnaire and the Agreed Upon Procedures (http://sharedassessments.org; both of which are undergoing modifications to better address cloud-computing services). It is more defensible to use standards, and it reduces the cost of evaluating a service provider.

- Be realistic about the relative lack of risk-relevant information needed to assess the risk ramifications of most of today's cloud service products. It is especially difficult to determine the likelihood of complex and proprietary new technology to meet vendor claims about confidentiality and recovery time objectives. If it involves sensitive information, buying teams must be prepared to break the bad news to business managers that it is impossible to reliably determine whether any service available today can fully meet their requirements.

Product planners and marketers with service providers:

- Offer your customers a choice of online and offline options for backing up their data, and provide evidence that you would be able to restore it to a functioning system, even after a widespread failure.

- Never position the existence of a SAS 70 assessment as being "proof" of anything. While it may be necessary for your company to undergo a SAS 70 evaluation to meet customer demands, it is not a "certification," nor does it include specific requirements for security or recovery.

- Treat risk transparency as a competitive advantage. If you do have a SAS 70 evaluation, make it useful for buyers by providing them with the list of evaluated controls.

- Consider using the BITS Standardized Information Gathering Questionnaire and the Agreed Upon Procedures as defensible standards that can reduce procurement assessment costs for both buyers and sellers.

- Proactively obtain FedRAMP, BS 25999, ASIS SPC.1-2009 or NFPA 1600 certification for your BCM operations.

8.0 Expanding Markets

Strategic Planning Assumption: By 2015, 20% of non-IT Global 500 companies will be cloud service providers.

Analysis By: Brian Prentice

Key Findings:

- The conversation about cloud computing has been focused on things like private vs. public cloud, or its infrastructure-, platform- or software-as-a-service variations. This indicates that the current focal point of cloud computing is on the delivery of IT-related capabilities from IT-related providers, largely for things that are related to things that the IT department is responsible for managing.

- Over time, we believe businesses will better understand the principle that cloud computing is a means to deliver "IT-enabled capabilities," not just "IT capabilities." As this thinking evolves, the focus of cloud computing will shift toward exploiting it as a service delivery mechanism for the provision of non-IT capabilities. In this context, cloud computing enables these services to be delivered from organizations that are not traditionally seen as IT companies, nor have any intention of ever being seen in this way.

- Gartner is seeing examples of this emerging. Large retail organizations have begun to recognize that supply-chain competencies do not need to be commercialized solely through their stores, either physical or online. As discrete capabilities, they have their own revenue potential. We've seen distribution business undertaking the same strategy.

- This trend is not being wholly enabled, or strictly defined, by cloud computing. Gartner has highlighted several related trends that are actually fueling the business mandate behind this. One such trend is the "hyperdigitization" of many industries such as financial services, education, communications and media, government and industry-specific intermediaries (i.e., travel, insurance). Additionally we've been exploring the move toward process externalization driven by activities such as open innovation. Cloud computing, therefore, is essentially the conduit through which these trends become tangible to IT professionals and the IT industry as a whole.

Market Implications:

The move by non-IT organizations to provide non-IT capabilities via the cloud will further expand the role of IT decision making outside the IT organization. Ultimately these services are bound to service-level agreements that will be understood and contextualized by the specific process or domain owners. Yet, while the barriers that historically prohibit these groups from directly provisioning these services drop, the need to manage data and integration requirements remain. Far from being a problem, this represents another opportunity for IT organizations to redefine their value propositions as service enablers – either with consumption or provisions of cloud-based services.

At a broader level, the IT industry as a whole will have to confront a fundamental re-assessment of what it means to be an IT provider. As non-IT players externalize core competencies via the cloud, they will be interjected into value chain systems and competing directly with IT organizations that have traditionally served in this capacity. Consider the provision of IT-enabled business process capability. Traditionally, this is left to the business application vendor, with the IT department acting as the conduit between the vendor and the organization. In a cloud-enabled world, logistics IT-enabled capabilities will be supplied directly by logistics companies, or supply-chain IT-enabled capabilities from organizations with supply chain competencies. This will be an acceleration of a trend that is already occurring in areas such as payroll management.

Prior to cloud computing, such an effort would require a company to operate as an IT company, needing to consider many technology-related issues in the construction and distribution of its solution. Cloud computing radically reduces the barriers for non-IT companies to provide IT-related capabilities. A couple of years ago, Gartner spoke with a container shipping port that was planning on responding to the two tenders for an ERP system from competing ports in their own country, based on their own customized version of a commercial package. When asked why they would consider purchasing such a solution from its competitor, the company explained that it was because of unique process innovations it had crafted to manage the movement of dangerous goods – a critical requirement in a post-Sept. 11 world. However, upon careful reflection of the implications of the ongoing maintenance of an entire ERP system, it was decided to forgo this option. In today's world of cloud computing, an IT-enabled capability for the management of dangerous goods could have been commercialized to ports around the world with a fraction of the underlying technical consideration necessary only a few years ago.

Recommendations:

For CIOs and IT organizations

- Understand that the IT department's role is not simply one of provisioning cloud services, but rather one of enabling the organization as a whole to become a cloud service provider in its own right.

- Begin recrafting business analyst roles. These people should no longer just be the conduit for the business into the IT organization, but should also be a conduit to help them externalize digitized core competencies to external stakeholders via the cloud.

For technology and service providers:

- Begin broadening partner programs to embrace organizations normally considered end users.

- Reconsider intellectual-property-related contract clauses that can create unnecessary tension and disputes with end users.

- Consider cobranding options with key non-IT cloud service providers.

Strategic Planning Assumption: By 2015, companies will generate 50% of Web sales via their social presence and mobile applications.

Analysis By: Gene Alvarez

Key Findings:

- Organizations seeking to generate new sales and sales leads through new mobile and social channels (such as Facebook, Twitter and YouTube) are reinvesting in e-commerce capabilities. Internet users are spending more hours per week with social media than they are with e-mail. When a Gartner consumer survey asked (total sample of 3,969, respondents aged between 13 and 74 years): "To what extent is each of the following an important reason for you to use the Internet?," it uncovered that the third-largest activity for consumers on the Web is shopping and that social activities are the eighth-largest activity. Because shopping is a social experience in itself, online communities and websites have a natural affinity for each other and a proven capability to drive sales.

- Smartphones, in tandem with available and more-affordable 3G services, have made accessing social media on the go more user-friendly, and are increasing the popularity of social media overall. A second Gartner consumer survey (same sample size and demographics) revealed that, while the adoption of social media activity via the PC has almost doubled, from 32% in 2007 to 53% in 2009, the adoption of social activity via mobile phones has tripled, from 8% in 2007 to 24% in 2009. This increase in the overall adoption of social media via PC and mobile devices, along with the amount of time spent by consumers engaging in social media, is opening up new sales opportunities for organizations

- Web capable mobile phones and smartphones are untethering customers from laptop or PC-based shopping experiences, and, by 2013, the combined installed base of smartphones and browser-equipped enhanced phones will exceed 1.82 billion units. From 2013 onward, this combined installed base will be greater than the installed base for PCs. This is enabling organizations to sell to B2B and business-to-consumer (B2C) customers using Web-enabled phones, smartphones and devices like iPads via Short Message Service (SMS), mobile Web browsers and applications, and to gain access to their social networks, locations and contacts.

- E-commerce organizations (both B2B and B2C) are seeking sales growth in new markets, such as Japan, China, India and Korea, where mobile is a preferred method of Internet access. These initiatives are coupled with a desire to increase sales via SMS, mobile Web browsers and applications in North America and Europe.

- The mobile device has the most potential of any channel to provide "in context" offers to customers because of its access to identity (e.g., calendar), environmental (e.g., GPS location), process (e.g., wish list) and community (e.g., Facebook friends) information about the mobile device user.

Market Implications:

- E-commerce providers of all types – licensed software, hosted, SaaS, and outsourced – are offering mobile e-commerce capabilities, such as SMS for couponing, improvements for mobile browser usage of their sites and mobile shopping applications. Additionally, there is a collection of specialized service providers. These vendors will vie for organizations' mobile initiatives, and their success will be driven by how well they help mobile customers make purchases easily, and by tapping into their social network connections.

- Enterprises will be challenged with determining customer expectations for mobile and social capabilities. In both cases (mobile and social), the organization will need to enable a useful customer experience that keeps the customer from "unfriending" the organization socially, "opting out" of SMS offers or deleting its mobile application. However, some organizations (such as those with branded consumer products) may suffer from not participating in social networks; such organizations should first focus on social capabilities, and leave mobile capabilities for a later phase.

- Companies will be challenged to keep pace with customers expectations for new capabilities. This fast-paced evolution will be driven by constant innovation from the mobile and social vendor community as it creates functions as a way to retain users.

- Enterprises' websites will be at the center of their customer experiences as activities such as product search, evaluations, promotions, and collaborative shopping from mobile devices and social communities drive leads and transactions to their websites.

- Enterprises will need to compete on multiple fronts at the same time. In the mobile arena, they will need to address SMS, Wireless Application Protocol (WAP) websites and mobile application requirements that are based on customer demographics, the size of the device's installed base and the enterprises' desire to provide a simple (e.g., SMS) to rich (e.g., mobile application) customer experience. In the social space, organizations will need to participate in many communities (e.g., Facebook, QQ and Twitter) and communication types (e.g., fan pages, status updates, tweets and other SMS-type communication). This will drive enterprises to add staff with these skills into their organization.

Recommendations:

- Get going with mobile trials, but don't assume that you know what mobile customers want and need. Regularly conduct surveys and run pilots, and measure the results to track customer value and use. Start small, then build on them.

- Enterprises that have avoided the iPhone or iPad due to the Flash/HTML support issues with the devices should consider working with these devices as their installed bases grow.

- Ensure you have a mobile strategy that is customer-driven, not technology-driven. Keep in mind the eight ways to improve the stickiness of your mobile application (see Related Research section directly below), and regularly enhance these applications with new features or upgrade the application consistently.

- Use analysis tools, such as social graphs, to monitor your market and organization, to find key influencers, and to determine how to engage with customers.

- Ensure that you choose capabilities based on their returns, not just their "coolness" – but be sure to experiment a little.

- Ensure that you update your budgets to include mobile and social sales initiatives.

- Ensure that all community initiatives have a clear purpose (e.g., to drive leads, get users to register for event-based sales or theme sales, such as ecofriendly products, etc.) before starting.

- Move to a context-aware promotions model that leverages information about the mobile and social user.

- Monitor traffic coming from mobile and social channels to ensure that it is not experiencing delays or lost connections.

9.0 User Productivity

Strategic Planning Assumption: By 2014, 90% of organizations will support corporate applications on personal devices.

Analysis By: Monica Basso

Key Findings:

- Mobile consumer device markets are going through a period of rapid innovation and adoption. Since 2007, Apple's iPhone has disrupted the smartphone market, forcing Nokia, RIM and others to develop touchscreen devices and create application stores. Google's Android open-source mobile OS is experiencing rapid adoption, having been chosen by Motorola, Samsung, LG and many other manufacturers. In 2Q10, Android overtook iPhone to become the third-most-popular OS globally, and RIM to become the most popular OS in the U.S. Microsoft launched Windows Phone 7, with an optimized user interface and 11 models, which shipped in November 2010. Apple's iPad also experienced rapid adoption in 2010, forcing other manufacturers to launch media tablet products. Handset manufacturers will continue to innovate in consumer mobile devices and will focus less on enterprise-specific devices, expanding the wide range of available models.

- iPhone and Android are driving demand among consumers and business users for enhanced consumer smartphones; enterprise-specific smartphones have lost their appeal for many business users. In mature markets, smartphones are set to dominate device sales. By 2014, approximately 90% of mobile devices shipping in Western Europe and North America will be smartphones, most of which will be consumer-oriented devices.

- E-mail servers are increasingly capable of supporting push e-mail delivery to mobile devices, natively, without an additional wireless e-mail gateway.

- IT organizations are seeing growing demand by employees who want to use personal consumer devices, such as iPhones, iPads and Android smartphones, to connect with corporate e-mail, applications and data. A recent U.S.-focused Gartner survey of CIOs indicates that 85% of the respondents have users who demand access for the iPhone, iPod Touch and iPad, and 74% of the respondents already support these devices as personal assets.

- Use of personally owned notebooks for work continues to increase. The number of organizations establishing "bring your own PC" programs to support or encourage use of personally owned notebooks is growing steadily.

- According to a September 2010 Gartner survey of 512 U.S.-based knowledge workers, 33% of the respondents used their personal devices while at work during the past 30 days (of the date of the survey) to access social networking sites such as Facebook. In Germany, that number was 31% among 245 respondents.

- IT organizations are increasingly dealing with hybrid deployments that include personal and corporate devices connecting to corporate applications. A few organizations have moved completely to personal devices. Some organizations have also moved data contracts to personal liability to reduce mobility costs.

- The biggest challenge for IT organizations is to control the corporate footprint of personal devices and their access to corporate servers. Often, mobile consumer devices are not equipped with the security and management capabilities that can enforce IT policies. This situation is very different than that of past corporate BlackBerry deployments, over which IT organizations had full control.

- When building client computing strategies, most organizations realize that they cannot stop the influx of personal devices and are looking to the postconsumerization era, seeking ways to stop managing the devices used by workers. Hosted virtual desktops or server-based computing accessed through a secure access client provides an easy path to supporting notebooks, and even personal iPads, without compromising current desktop software approaches.

Market Implications:

The trend to support corporate applications on employee-owned smartphones is more pronounced in the U.S. than in other regions, probably because of prior adoption of iPhones and Android devices in the U.S. However, the trend is also under way outside the U.S., especially in companies with U.S. branches or that are part of multinational groups. Currently, the trend affects less than 2% to 5% of all mobile workers who use a mobile device to access corporate applications. However, this trend is set to impact an increasing number of organizations and will become commonplace

in four years. The main driver for adoption of mobile devices will be employees – i.e., individuals who prefer to use private consumer smartphones or notebooks for business, rather than using old-style limited enterprise devices.

Enterprises will no longer be able to standardize on one or a few corporate mobile device platforms, but instead will have to support a variety of mobile platforms, including personal devices, for which they will have to choose an approach that enables selected corporate applications while enforcing IT policies through management tools and capabilities. Enterprises will also have to redesign their enterprise application architectures to optimize delivery of applications to personal mobile devices. Organizations that do not support personal devices and fail to set and enforce policies will experience an increased number of security exposures and incidents.

Anecdotal evidence based on discussions with Gartner clients indicates that an even greater percentage of employees (perhaps 20%) who used company-provided PCs or notebooks also use their personal systems to access company networks.

Organizations will have to change their mobile user support strategies, and perhaps reduce service levels, increasing their costs through support for personal devices. In particular, they will have to plan deployment of self-service capabilities through corporate portals and internal application stores to minimize requests from users. Community-based, self-service support could represent a viable alternative to traditional IT support services for personal devices connected to corporate applications.

A growing number of companies will introduce personal liability data contracts along with personal devices. This could raise many data tariffs, as mobile operators realize that the private contracts will erode their revenue from business contracts.

This trend will change the shape of enterprise mobility in four years, not only forcing organizations to invest in new products, but also driving disinvestment from products such as wireless e-mail gateways that are no longer required.

Recommendations:

For CIOs and IT organizations:

- Estimate the size and nature of internal demand for personal devices, including user demographics and the range of device types. Consider requirements across multiple client platforms, from smartphones to media tablets and notebooks/PCs.

- Evaluate the potential benefits in terms of cost savings and user satisfaction, and for supporting corporate applications on personal devices.

- Evaluate the risks, then develop and implement a set of IT policies to minimize them. Choose the best approach and tools to implement these policies, and control your corporate applications on personal devices.

- Evaluate the impact of personal devices on enterprise application architectures and delivery models to identify a common approach.

- Pursue a cross-platform application development strategy to minimize efforts for internal application developments.

Strategic Planning Assumption: By 2013, 80% of businesses will support a workforce using tablets.

Analysis By: Leslie Fiering and Ken Dulaney

Key Findings:

- The Apple iPad is the first of what promises to be a huge wave of media tablets focused largely on content consumption (and to some extent communications) rather than content creation, with fewer features and processing power than traditional PCs and notebooks or pen-centric tablet PCs. However, eye-catching graphics and multitouch are improving application usability and enabling new usage scenarios. Although targeted toward consumers, the iPad is already having an impact on business usage and IT support models.

- For the immediate future, the main use of media tablets will be as notebook companions or as a secondary device to take on the road for fast access to e-mail, calendaring, interrogating Web applications and information sources, and showing PowerPoint presentations (with an external Video Graphics Array [VGA] out cable, the iPad can connect to video projectors). Although the lightweight, large screen, instant on and long battery life provide convenience for traveling workers, media tablets do not have enough content creation capability to replace either notebooks or smartphones. As a result, they will be "third devices" for most workers and so most companies will not purchase media tablets for their workers. However, we are already seeing a huge influx of these devices into the enterprise.

- A recent survey of Gartner CIO clients showed that 85% have been getting requests for Apple iPhones, iPods or iPads, and that almost 75% have found that end users are connecting those devices to the enterprise network with or without permission. In a poll of attendees at two different media tablet presentations at Gartner's U.S. Symposium 2010 in Orlando, Florida, nearly 50% indicated that they had been mandated to support iPads by C-level executives within the past six months. Granted, the sample is self-selected. Nonetheless, the results are strong indicators of the speed of adoption.

- This level of interest from end users and executives has been confirmed by a high rate of client inquiries regarding media tablets to Gartner client-computing and mobile and wireless analysts.

- While the earliest media tablet uses in the enterprise are driven by employees' personal use, businesses are already seeking ways to leverage media tablets in healthcare, pharmaceutical, field service, retail, hospitality and other vertical industries, sales, marketing and for B2C applications. Many of these are verticals where the traditional pen-centric tablet PC, with full Windows OS and notebook capability, are strong today. Over time, the lighter weight and greater convenience of media tablets will erode tablet PC adoption except for cases where a significant amount of pen input is required, for example, for forms and clipboard replacement.

- Despite growing interest in tablet adoption for enterprise applications, the majority of the devices will be employee-owned. iPad, as the first mover in the media tablet market, has been the main focus for most of 2010 adoption. However, through 2011, all the major PC OEMs and ODMs (Samsung, Cisco, RIM, Acer, MSI and AsusTek among others) will introduce their own media tablets using Android and a variety of other operating systems.

Market Implications:

Fueled by the dramatic early growth of Apple iPads, media tablets are poised to grow dramatically (from 19 million units in 2010 to 208 million in 2014). Almost every major PC and smartphone manufacturer has launched or is planning to introduce a media tablet offering. Given that media tablets are based on low-cost min-notebook technology (flash memory), they should be much less expensive than the PC tablets that were the primary choices until 2010. During the next year, we expect prices as low as $250, and possibly lower when subsidized by various mobile operators. The low price means buyers will not have to rely on the product as a primary device, instead using it where its convenience offers distinct benefits. PC tablets will remain priced at more than $800 in many cases (such as ultramobile PC devices), and their volume should remain stable and an insignificant factor in the market.

Given the low prices, combined with high end-user satisfaction with media tablets, as we saw with smartphones, users will adopt them in high volumes. The age where price dictates one computer per person has long past, and tablets represent convenience over necessity. It is inevitable that these units will find their way into enterprises. IT organizations have demonstrated an inability to stop such incursions as they are often fueled by upper management, and the tools provided by the tablet vendors are extremely effective at circumventing IT security and use policies.

Support requirements for media tablets will vary across and within enterprises depending on usage scenario. At minimum, in cases where employees are bringing their own devices for convenience, enterprises will have to offer appliance-level support with a limited level of network connectivity (which will likely include access to enterprise mail and calendaring) and help desk support for connectivity issues.

Interest in extending the capability of media tablets will also lead to the growing adoption of utilities that enable the use of applications running on another computer, server or in the cloud. Secure access clients, in particular, will run with enterprise-level security while establishing no footprint (leaving no enterprise code or data) on the client device. Today, Citrix Receiver for iPad connects to XenApps and XenDesktop, while Wyse PocketCloud can connect to a variety of platforms including VMware View and XenDesktop. Expect a growing number of proprietary and generic secure access clients to emerge and for the underlying protocols to become embedded in software. These applications will facilitate supporting media tablets and integrating them with enterprise applications.

In addition enterprises will need to develop new policies and IT skill sets to support media tablets. At minimum, they will need to use Gartner's managed diversity to tier the levels of support depending on enterprise usage. As media tablets are used for enterprise-developed applications, a broader range of platform coverage will be required from mobile device management applications to ensure security, provisioning and manageability. Changes will also be required in application development focus: enterprises will need to design for mobile first, and design to work on multiple screen sizes with multiple resolutions, with greater focus on user interface and usability issues.

Recommendations:

For CIOs and IT organizations

- Prepare for the fact that many employees have already purchased iPads and are likely to use them on enterprise networks.

- Provide iPads (and consider newer media tablets as they come to market) to IT staff and key users to understand which applications and uses the iPad can – and cannot – support.

- Leverage the use of secure access client utilities like Citrix Receiver and Wyse PocketCloud to provide "zero footprint" access to centralized enterprise applications and data.

- Continue to offer traditional tablet PCs to standing and walking workers using forms and requiring extensive pen input.

- Focus long-term application strategies on Web-centric, cross-platform, cross-vendor tools such as HTML5 (Web-centric models are replacing client/server models), and design user experiences for mobile devices first to force simplicity and improved user experience on all platforms.

10.0 Society

Strategic Planning Assumption: By 2015, 10% of your online "friends" will be nonhuman.

Analysis By: Ray Valdes

Key Findings:

- There is an emerging "engagement gap" in the way that enterprises and organizations approach the social Web, a gap that will be partially filled by the arrival of automated software agents – "social bots" – that will help address the need for larger-scale social interaction between organizational entities and broad communities of users.

- The Web continues to evolve in the social dimension. Almost every website is becoming a social site, and every social site is evolving toward a social platform. Most efforts at social engagement are handled manually (with paid staff or volunteers), in a manner that is hard to scale.

- Major brands have established a Facebook presence, a Twitter feed, a YouTube channel, and so on. Even the British monarchy has joined Facebook in an official capacity, in addition to its activities on Twitter and YouTube. However, most efforts by big brands, corporations, organizations and monarchies have achieved limited success in social media in terms of cultivating and maintaining a community of engaged participants ("fans").

- Having a Facebook presence is a must-have for brands and organizations, but in many cases it is little more than a label or badge of affiliation for groups of enthusiasts. This limited success is due in part to built-in limitations of the Facebook group mechanism, as well as to a lack of skills among organizations in the social arena. Over time, another constraining factor will appear – the limits of manual efforts in scaling up the online social conversation.

- As with many technologies, the early adopters are often from the darker corners of society – spammers, scammers and others who move quickly to gain advantage. Some of these have created precursors to the software agents in our prediction.

- Some e-commerce sites have live chat that is either fully or semi-automated, providing canned answers to questions, and redirecting as necessary to a human operator. Some users of these systems are not aware they are dealing with an automated software agent.

Market Implications:

Social media strategy involves several steps: establishing a presence, listening to the conversation, speaking (articulating a message), and, ultimately, interacting in a two-way, fully engaged manner. Thus far, many organizations have established a presence, and are mostly projecting messages through Twitter feeds and Facebook updates that are often only an incremental step up from RSS feeds.

In the 2006 to 2008 time frame, when the social network MySpace was dominant, a new user's in-box, if the user was male, was often filled with messages from fake online personas, ostensibly females, who were trying to lure the user to buy adult content or access adult sites. On Twitter, in 2009 and 2010, fake (nonhuman) profiles inject spam messages (with links) into trending topics so that these will be visible to any user who uses the hashtag mechanism for retrieving content about a breaking event or conference.

In 2010, large organizations embarked on systematizing the act of listening – monitoring social media conversations in blogs, social sites, forums, and more. Vendors like Attensity, Radian6 and Visible Technologies are making inroads into the enterprise sector. However, the act of engagement – projecting a message through social channels, not in a broadcast style, but in an interactive manner suited to the characteristics of the social medium – has yet to be systematized and automated.

Celebrities and politicians often have staffs that author their tweets and/or Facebook status updates. In the same way that politicians have speechwriters craft their spoken word, there are tweet-writers to craft online communication. Although these are human authors, some rely on scripts and publishing systems. Over time, depending on the use case, some of these interactions will become fully automated.

In 2010, Nigel Leck, a software developer who favored the political issue of global warming and viewed those who opposed the issue as uninformed people in need of information, created a program to interact with Twitter users. The program scans for certain keywords that are indicators of certain positions about global warming, and responds to users (using the Twitter at-sign mention facility) with specific arguments and pointers to information. Many of the recipients respond to global warming chatbot assuming they are dealing with an individual. Some users will have extended "conversations" with the chatbot, spanning dozens of tweets over a period of days.

Technology for language understanding and conversational interaction has improved over the years. Although this technology is imperfect, it will improve steadily in the years from 2010 until 2015. There will be progress in artificial "intelligence" in the classic aspect of linguistic processing, semantic knowledge and logical inferences, but also in the area of "emotional intelligence" to make conversations appear even more natural. The problem is complex, and will likely only be effective in well-defined problem domains, with supplemental human assistance, or with full disclosure to users so that they know they are dealing with an imperfect piece of software (just like voice-response systems that recognize speech as imperfect, but users accept the limitations in return for greater convenience).

In 2010, the average user of Facebook has 120 to 150 friends. Some portion of these "friends" are not real friends, in the conventional sense of someone that one interacts with in the real world. Today, a portion of a user's contacts are "Facebook friends" – people that users have never met in the real world, and have only contacted in the online world. Many users find this situation to be quite natural. A next step in the evolution of online interaction is to have software bots as friends. In some cases, users will be aware they are dealing with a bot, and will find this acceptable.

By 2015, efforts to systematize and automate social engagement will result in the rise of social bots – automated software agents that can handle, to varying degrees, interaction with communities of users in a manner personalized to each individual.

A major inhibiting factor is that the largest social site, Facebook, has a core design goal that friends on Facebook are real people and not fake personas (and therefore created Facebook fan pages to serve the needs of corporate entities). Other social sites do not make as rigorous a distinction. It is possible that Facebook may relax its approach over time, or alternatively that the quantity of "casual connections" on services such as Twitter will result in greater numbers of connections to meet the prediction forecast of one-tenth of online friends. As the Web becomes increasingly social, the job of marketers will shift from one-way broadcast or projection of a market message to two-way, personalized interaction with individual users. Organizations that discover or develop ways to achieve this on a broad scale will gain competitive advantage over those who can't or won't. At the same time, there is the risk of backlash and brand damage if an organization approaches this in a clumsy or socially tone-deaf manner – one that is not accompanied by full disclosure and transparency in use of these technologies.

Recommendations:

For CIOs and IT organizations

- Organizations and enterprises that address large constituencies or audiences should anticipate an "engagement gap" in large-scale use of social media, and should formulate a strategy to address that gap.

- Social media strategists and community facilitators should analyze tools for automating (fully or partially) certain aspects of social engagement, and weigh these tools (including their attendant imperfections) against lost opportunities by not using them. A hybrid approach that combines automated assist with human talent and skill may be the best approach. Regardless of approach, strategists and policymakers should favor a policy of full disclosure and transparency regarding the use of these technologies.

For technology and service providers:

- Vendors of sentiment analysis tools should consider supplementing their tools for automated listening with tools for automated engagement.

This research is part of a set of related research pieces. See "Predicts 2011: IT Opens Up to New Demands and New Outcomes" for an overview.