

## IT Consumerization: When Gadgets Turn Into Enterprise IT Tools

*IT consumerization, or the adoption of consumer devices and applications in the workforce, is pervasive. Employees bring computer tablets and smartphones into the workplace and harness social media applications and special purpose apps for their work lives. But how should the IT organization respond? This article examines how organizations, facing the consumerization and consequent complexity of IT, seek to minimize security risks and redundancy of IT resources while maximizing the business benefits of IT consumerization.<sup>1</sup>*

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### Challenges of the Rise of IT Consumerization

The arrival of consumer-originated devices and applications into the workplace is empowering a second iteration of an employee-driven IT revolution. The first revolution, over 40 years ago, was the invasion of corporate offices by employees armed with Commodore Pet, Apple 1 and TRS 80 personal computers. Today's revolution, likely to be far more invasive and threatening, is driven by the omnipresence of powerful consumer technologies, including smartphones, iPads and notepad computers serving as platforms for applications such as Yammer, Dropbox, Skype, EverNote and Google Docs. The formerly sovereign territory of enterprise IT is being overrun by an infestation of consumer electronics technologies, scurrying into the workplace and lurking in employees' pockets, purses and briefcases.

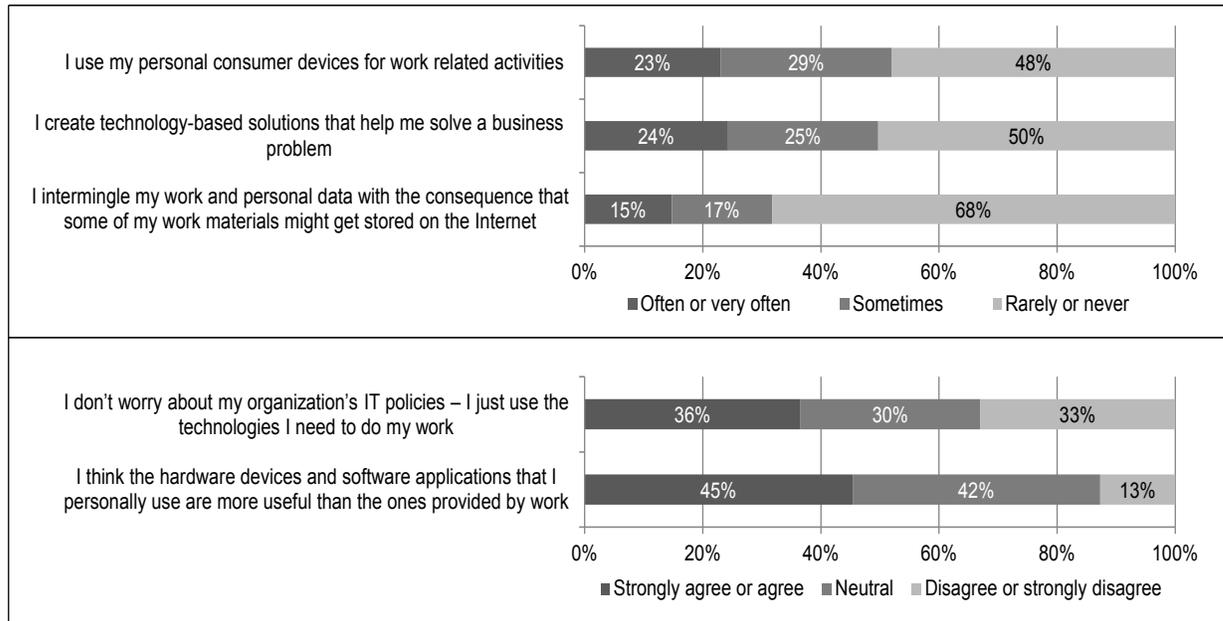
The first revolution was largely mitigated in 1981 by the arrival of the IBM PC, which transformed hobby computers into professional tools. IBM's endorsement of personal computing precipitated acceptance by IT departments and, in time, policies for appropriate use. In the 1980s, the near-monopolistic IBM had the clout to charge to the rescue of IT departments. Today, however, there is no dominant vendor in the position to do this. The threats from consumer devices with low price points are too many and too dispersed. These



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<sup>1</sup> Jeanne Ross is the accepting senior editor for this article.

**Figure 1: IT Consumerization from an Employee Perspective**



(Source: Survey of 4,017 employees conducted by Accenture in March 2011)

devices are readily armed with software from bulging app stores—low-cost distribution channels readily available to any developer with the time, motivation and minuscule resources needed to create a new tool. Affordable by almost any employee, apps are the camel’s nose aggressively poking under enterprise IT’s tent.

According to a recent global survey by Accenture, in 2011, 23% of employees were already using personal technology tools for work on a routine basis, with an additional 29% deploying them at least once a week (see Figure 1). Often, employees perceive these tools to be—and often they are—more powerful, more useful, easier to use, faster to obtain and more fun than those provided by enterprise IT. The devices are attractive and inexpensive; so too are the readily available Web-based services and million plus mobile apps that run on them. In the near future, many employees will turn first to “the cloud” to find the right application for both personal and work-related jobs.

The rising tide of IT consumerization sounds alarm bells for senior IT executives. The prospect of employees bringing consumer IT to work raises concerns about data security, reliability and performance, and apprehensions about accuracy, dependability, availability and connectivity. But

employees grow frustrated when prohibited from using apps and devices at work that enhance their productivity at home. They argue that consumer apps are cheaper and easier to use, quicker to implement, use more current technology and foster innovation. Employees welcome the opportunity to choose their own tools.

Executives from the IT organization and from the business are hesitant. They fear the unknown risks posed by relinquishing partial control over their hardware and software environments and may feel obliged to push for tight controls. Proponents of tight controls, on the other hand, are increasingly fighting stubborn brush fires: How to satisfy senior executives insisting on using iPads to view corporate information? How to satisfy employees who want to use personal phones for work-related activities, such as checking corporate email from their own phone?

Even organizations that sanction the use of consumer technologies find it challenging to stay ahead of their tech-savvy employees, and worry about the security vulnerabilities a more liberal policy might expose. Moreover, the life cycle of these technologies is far shorter than what IT departments have grown accustomed to or can provide. For instance, many professionals replace their cell phones in two years or less. Similarly,

the iPad was first launched in March 2010; two years later, the iPad was everywhere.

## Our Research on How Organizations Are Responding to the Challenges

Organizations, and particularly enterprise IT groups, need to work out how they will respond to IT consumerization. In this article we describe how forward-looking organizations are adapting to IT consumerization and the consequent complexity of IT, and how IT consumerization is enabling individual and team work, while minimizing risk, within businesses. We interviewed senior executives from more than 25 organizations that are trying to appropriately position themselves on a continuum between the extremes of “authoritarian”—the exercise of tight control over the scope and number of consumer devices and applications entering the organization—and “laissez-faire”—boundless tolerance for allowing consumer devices and applications into the workplace. Based on these interviews and supplemented by two international surveys—one taken from the perspective of over 4,000 employees, the other from the perspective of executives in more than 300 businesses—we provide a set of lessons for IT leaders on how to adjust to a world in which IT consumerization will need to productively co-exist with enterprise-controlled technology. The Appendix contains more details of the interviews and surveys.

### IT Consumerization Is Multi-faceted

In very broad terms and as alluded to above, IT consumerization encompasses the phenomenon of more and more employees bringing their own IT into the workplace and using these tools for work purposes. But does an employee have to own the IT for it to qualify as IT consumerization? What if a company purchases numerous iPads and distributes them to its employees—does that qualify as IT consumerization?

As these questions show, IT consumerization is an amorphous term. In fact, depending on the stakeholder, it leads to different definitions. First, from an employee perspective, IT

consumerization captures an individual’s usage of, and familiarity with, devices and applications in his or her personal life that are useful when applied to the individual’s job; experiences gained from personal life are seamlessly transferred and expected in the workplace. Second, from the perspective of an organization’s IT department, IT consumerization is the plethora of devices and applications used within the corporate firewall that may not be part of a company-sanctioned list and/or have not been formally approved and that may be seen as either a threat or an opportunity. Third, from a market perspective, IT consumerization could be defined as every device and application that originates in the consumer market and that, at least originally, was not targeted to be used in addition to, or in lieu of, enterprise IT. This third perspective captures the trend that more and more computing technologies available in the consumer marketplace are finding their way into the enterprise and, in so doing, are consumerizing the previously sovereign territory of the IT department.

We view IT consumerization as encompassing all three of these perspectives—i.e., IT consumerization is not confined to employees using their own IT at work; an IT department deploying consumer-originated technology as part of its portfolio equally qualifies. However, these three seemingly different perspectives all have a deep-seated influence on behaviors across all stakeholders: IT consumerization redefines how employees consume IT, how markets offer IT and how IT departments deploy and maintain IT. It was therefore important for us to capture IT consumerization data from multiple perspectives (i.e., employees vs. employer), using different methods (i.e., interviews and surveys).

### Benefits of IT Consumerization

The interviews we conducted with executives across multiple industries showed that IT consumerization was a pressing topic for most of them. While many were still in the contemplative, reactive or experimentation phases, they acknowledged—voluntarily or not—that IT consumerization presented a real problem to their organizations, while some also saw opportunities. Most were still in the process of making sense of the phenomenon. For example,

none of the executives had attempted to formally quantify the benefits of a proactive approach to IT consumerization. Their common understanding was that cost savings are obtainable, but likely modest. Organizations that had previously paid for employee phones and were now either sharing those costs or permitting their employees to buy their own, had obtained some savings. These savings, however, were offset by the increased costs required to manage and secure a more complex computing environment. The benefits of IT consumerization identified by executives fell primarily within the categories of innovation, productivity and employee satisfaction.

### **Innovation Benefits**

Innovation, particularly in business processes, was commonly mentioned as a potential outcome of IT consumerization that, over time, would likely turn into cost savings. A hospital physician, for instance, described a nurse's innovation that led to cost savings, better customer service, safer operations and a decline in staff frustration:

*"There is always some inefficiency in bandaging wounds. The nurses change the dressing on schedule but, then, perhaps 20 minutes later, the doctor arrives and wants to look at the wound. One day, before taking off a fresh bandage, the nurse asked me to look at pictures of the wound she had taken with her phone moments before. I didn't need her to cut the bandage off. It looked fine; that was all I needed to see."*

Later, the hospital IT group helped to institutionalize a new process by providing a wizard for uploading and storing such images and linking them to a streaming viewer that allowed doctors to securely retrieve the images. As a follow-on development, the hospital is contemplating using consumer devices to display diagnostic images, MRI scans, lab tests, surgical notes, etc., and also reference material and artistic drawings of the human body to describe and reassure patients about upcoming procedures.

### **Productivity Benefits**

The hospital example illustrates another potential benefit of IT consumerization: productivity. Several respondents mentioned the value to their organizations of employees

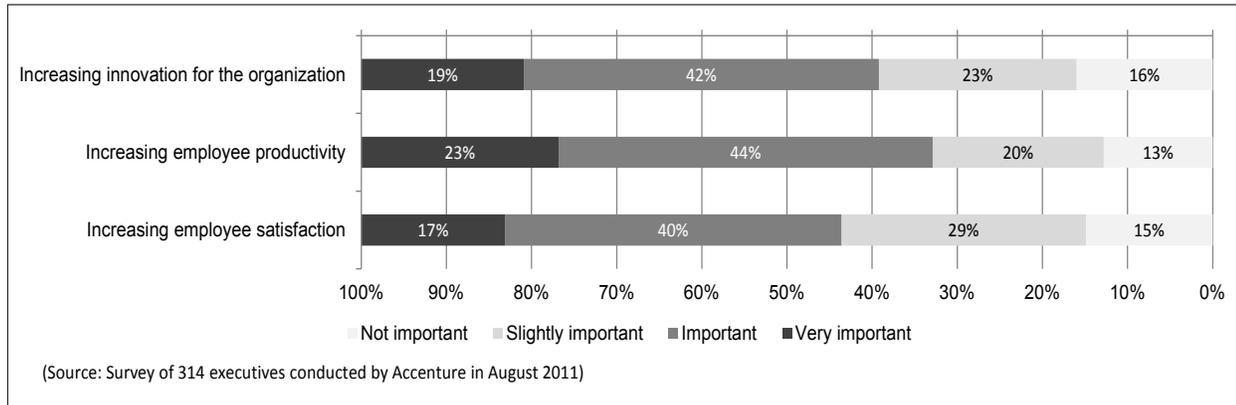
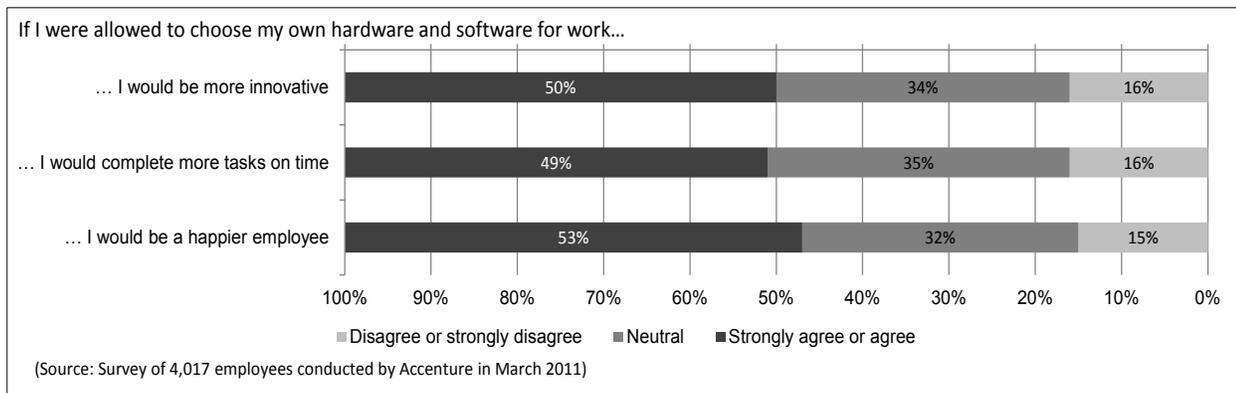
using consumer devices to productively link to resources while outside enterprise boundaries and normal working hours. One of our surveys, for example, reported that 14% of employees access corporate applications and databases from consumer devices on a regular basis outside of business hours; and 22% of employees use their personal phone routinely to check their corporate email before going to bed. Others mentioned the opportunity to enrich the interaction with customers—such as a pharmaceutical representative using a tablet computer and an interactive app or short video in a dialog with a busy physician. Another example is the U.S. Marine pilot who replaced a chartbook full of maps of Afghanistan with a light-weight iPad, a simple improvement that quickly caught on among his fellow pilots and those of other squadrons.<sup>2</sup>

### **Employee Satisfaction Benefits**

The third commonly discussed benefit of IT consumerization related to employee satisfaction. Many interviewees recognized the changing characteristics of the generation of employees now entering the workforce, particularly their high levels of comfort with, and expectations about, social networking and consumer technologies. IT consumerization was seen as a valuable tool in attracting and retaining these new hires. Current employees, on the other hand, were perceived as valuing the independence and even the enjoyment that came from being able to choose their own tools. These employees also like the convenience of working with up-to-date technology that matches what they use outside of work and better suits the characteristics of their job. For a third of employees in our survey, state-of-the-art technology will be an important decision criterion when choosing their next employer—and not only the youngsters say so. More than 11% of employees over 45 view technology as important for their job satisfaction, compared to 13% for those under 35.

A subsequent survey with a different set of executives confirmed the importance of these three areas of IT consumerization benefits (see Figure 2). What stood out was that each of these three areas was deemed equally important; no industry stood out as placing higher emphasis on

<sup>2</sup> Osborne, T. "iPad proving invaluable for Marine Corps aviators," *Shephard News*, May 31, 2011, <http://www.shephard.co.uk/news/9172/>.

**Figure 2: Importance of IT Consumerization Benefits, as Evaluated by Executives****Figure 3: IT Consumerization Benefits, as Evaluated by Employees**

one or the other. In contrast, Figure 3 summarizes and quantifies the benefits of IT consumerization from an employee's perspective.

## Strategies for Responding to IT Consumerization

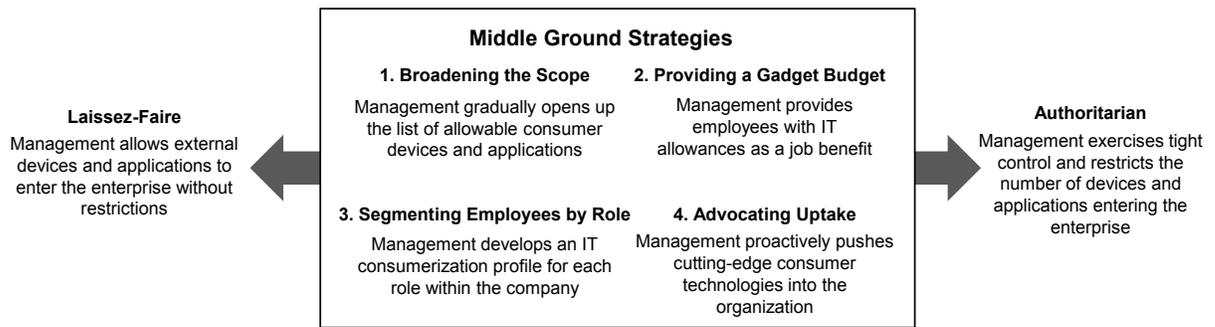
Organizations want the benefits of IT consumerization, but they also recognize that consumer IT devices bring a new set of risks. In our research, we identified how IT departments, up to now the sole dispenser and manager of hardware and software, are coping with the challenges posed by employees using smartphones and tablet PCs, and the millions of apps available for these devices from open and closed app stores. The strategies adopted will also have to take account of frequent product introductions, a multitude of versions of operating systems, public clouds, high consumer expectations, demanding employees and senior executives, and growing security threats.

At one extreme, organizations can adopt what we call the "laissez-faire" strategy—a

boundless tolerance of consumer IT devices in the workplace. At the other extreme is the "authoritarian" strategy where organizations tightly control the use of consumer devices. About a third of the organizations in our research had adopted the laissez-faire strategy with a further third following the authoritarian strategy.

The remaining third had positioned themselves somewhere in the middle on the continuum between "laissez-faire" and "authoritarian." They are neither dictatorial, nor are they turning a blind eye against consumer IT entering the workspace. Instead they have adopted middle ground strategies. In these companies, executives have acknowledged employees' use of consumer IT for work-related activities and needs; they have either recognized the potential of consumer IT in the workplace or accepted the inevitability of its use.

We have identified four middle ground strategies, which we label "broadening the scope," "providing a gadget budget," "segmenting employees by role" and "advocating uptake" (see Figure 4). While these four stood out, they

**Figure 4: Management Strategies for IT Consumerization**

might not be the only ones—and neither are they mutually exclusive. In a handful of organizations, two (or more) middle ground strategies were being followed simultaneously. In the majority of cases, however, only one was prevalent.

### The Laissez-Faire Strategy

Approximately one third of the executives we surveyed, perhaps surprisingly, implied their organizations had not addressed IT consumerization at all. Failing to address the issue can be seen as a head-in-the-sand or a “laissez-faire” approach—i.e., either as simple ignorance or as boundless tolerance of allowing consumer IT into the workplace. A company that uses the laissez-faire strategy lets devices and applications enter the enterprise without restrictions.<sup>3</sup> Some such organizations have no policies, mandates or incentives in place; others may have them but do not enforce them. Employees are free to use their own devices and some organizations even provide IT to support their use.

While it might be argued that laissez-faire is not a strategy—rather it is the result of failing to address IT consumerization—it nevertheless appeals to many employees. Forty-three percent of employees in our study feel comfortable making their own technology choices for use on the job and appreciate the prospect of using consumer devices and apps for their work whenever and wherever they want. Some start-up companies and universities let their employees choose their own technology; loose

venture partnerships are also candidates for this arrangement.

Proponents of the laissez-faire strategy claim that freedom of choice promotes entrepreneurship, or as one of our interviewees put it:

*“Our R&D department has always embraced choosing what IT to work with ... They’ve set up their own servers under their desks and even if I’d tried to consolidate those, they wouldn’t have it. The next day that thing would be up and running again ... Innovation is just part of their daily business ... nowadays it’s different tools, but the same problem.”*

The laissez-faire strategy can also reduce organizational expenditures on IT infrastructure. However, this advantage comes at the expense of concerns about data security as well as technology standardization and compatibility. Most organizations are not willing to take on these risks. In others, industry or national regulations mean they cannot accept the risks.

### The Authoritarian Strategy

Another third of organizations have, thus far, chosen the opposite extreme to the laissez-faire strategy by adopting what we term the authoritarian strategy. These organizations strive to limit or exercise tight control over the scope and number of consumer devices and applications used inside organizational boundaries. Motivations for following this strategy include anticipated cost savings (achieved through standardization), easier maintenance and simplified security measures. Most organizations opting for the authoritarian strategy have a corporate- or country-wide contract with a single desktop vendor, a limited

<sup>3</sup> A laissez-faire label has also been used for IS management “approaches” in earlier decades. For example, see Munro, M. C., Huff, S. L. and Moore, G. “Expansion and control in end-user computing,” *Journal of Management Information Systems* (4:3), 1987, pp. 5-27.

set of hardware and software options, common desktop images and so on. Executives in these organizations assume that a smaller number of hardware and software options will result in more cost-effective IT. Carried to the extreme, an authoritarian strategy results in a single, organization-wide standard for each category of technology, including email, laptops, cell phones, tablets and productivity tools.

This strategy has been followed by organizations where compliance is a major concern and, until recently, by security specialists, or as one of our interviewees put it:

*“Running a financial organization with consumer IT is neither advisable nor feasible ... and potentially throws me into jail.”*

Having one technical choice certainly makes security simpler to achieve and monitor, while formal policies and vigorous enforcement provide the consistency that a country’s legal system demands. Nevertheless, personal phones and tablets—coupled with 3G or 4G access and technically literate employees—have made it increasingly difficult to curb workers’ use of these devices. In many organizations, executives recognize that employees want and expect a degree of freedom. One IT executive in a financial services firm noted:

*“Our traders work crazy hours. If they choose to work in their spare time, they certainly don’t want to do it on technology that annoys them.”*

Nevertheless, the authoritarian strategy remains popular and is usually demanded in highly regulated industries where security and/or privacy concerns are paramount, such as financial services, healthcare and government. But even in organizations such as these, regulations often result in less control over consumer IT than many executives assume. Mindlessly enforcing regulations can spark resistance from employees. President Barack Obama, for example, rebelled against what he saw as the unexciting phone technology the White House provided, insisting that he

be allowed to use a smart phone.<sup>4</sup> Similarly, in many firms it has been members of senior management, armed with their new iPhones or iPads, that pressured the IT department to rethink, or at least make exceptions to, authoritarian policies. *“If I need tech support, I ask my grandkids,”* was one of the most jovial comments by one of the senior executives we interviewed.

### **Middle Ground Strategy #1: Broadening the Scope**

Broadening the scope of allowable consumer devices—say, by adding an Android phone or iPhone option to a list of acceptable phones—can be a first step to managing adoption of consumer IT. Rather than approving specific devices, some firms focus on technical requirements; one company created a set of specifications (encryption, passwords and remote locking) that employee-owned phones had to meet before they could be used on the corporate network. An electronics retailer located in the vicinity of one of our interviewees and eager to attract the firm’s employees, worked with the organization’s IT department to build a compliant list of phones.

Companies that follow this strategy typically require employees to agree to an acceptable-use policy that allows the corporation to remove all data—company and non-company—from the device should it be lost or should the employee resign. Adding to the complexity of device management is the fact that the legality of such policies varies from country to country. In particular, the ownership of corporate data stored on a device that an employee has purchased is different in different countries (see Lesson 3 below for more detail).

In addition to devices, organizations may choose to widen the range of applications that employees can use for work purposes. As long as employee-chosen apps do not interfere with existing enterprise systems, companies seem more willing to add them to their portfolio. For example, in lieu of an existing CRM system, Facebook is often chosen by small companies to keep in touch with customers. In other organizations—small and large—Yammer is a prominent tool that provides an outlet

<sup>4</sup> Cohan, P. “Obama Adds iPad to BlackBerry, Time to Short RIMM?” *Forbes*, May 31, 2011, <http://blogs.forbes.com/petercohan/2011/05/31/obama-adds-ipad-to-blackberry-time-to-short-rimm/>.

for employees to discuss and answer ad-hoc questions that the corporate knowledge management system often cannot.

Sometimes, however, employees' choices conflict with enterprise standards. For example, staff members at a properties management company had independently chosen a free consumer app that lets engineers and clients share drawings. Our executive interviewee later asked employees to use another consumer application that, while more expensive, offered greater data security.

The broadening strategy can constitute a first step toward embracing IT consumerization within the corporate firewall. Interviewees whose organizations have chosen this strategy see it as a safe way to venture into an unknown territory. There's a downside, however. Constantly updating the list of acceptable devices and apps is tedious. It requires a series of approvals across all organizational levels. And the devices and apps involved can quickly become obsolete.

### **Middle Ground Strategy #2: Providing a Gadget Budget**

The second middle ground strategy for adopting consumer IT is to provide employees with IT allowances (a gadget budget) as a job benefit. With this strategy, employees receive a fixed allowance that they can use to pay for their own IT devices (which may include smartphones, laptops or tablet PCs), app subscriptions or new software releases. The allowance usually comes with constraints—often, employees must choose from a list of allowable items. The allowance may be included as part of a cafeteria-style extended-benefits program: one employee may choose a health-club membership or a new bike while another will use her allowance for a new laptop or a monthly cell-phone bill.

One high-tech enterprise we studied has used this strategy for several years. The company provides its U.S. employees with an allowance of \$2,000 (it gives different amounts to employees in other countries, based on local economics). The firm maintains a master list of acceptable choices covered by the gadget budget as well as a process for approving new ones. iPhones and iPads are currently on the list; Microsoft's Kinect, thus far, is not.

For this approach to work, companies must keep the list of acceptable technologies current as well as establish an efficient approval process. The gadget budget strategy is mostly applicable for organizations where employees are technically literate and expect to be able to use current technology to carry out their jobs. In the high-tech organization mentioned above, employees are familiar with leading-edge technologies and know which technologies the company's customers are adopting. Moreover, they are technically talented and thus well prepared to provide support for themselves and their colleagues.

### **Middle Ground Strategy #3: Segmenting Employees by Role**

Employees have different levels of need for, and interest in, using consumer technology in the workplace. For many organizations, it makes sense to segment the workforce by roles and job descriptions and to tailor consumer IT policies to their needs. If the CEO wants an iPad, for instance, she'll get it and the IT organization will support it. But a tablet may make sense for other employee segments as well—like pharmaceutical sales reps. Reps often conduct quick meetings with physicians in hospital corridors. A small, interactive display device, like the iPad, that lets them demonstrate and discuss products is a boon in these settings. One of the hospital CIOs reported, for example, that doctors use tablets to view medical images, while nurses, who mostly deal with text and written medical records, use smartphones that easily fit their pockets.

One consumer products firm in our study identified ten different role categories and developed an IT consumerization profile for each. Employees in one segment are permitted to purchase an iPad at company expense due to the mobile nature of their work and their intense client-facing role. Those in another segment are allowed to buy a smartphone to support their coordinating work role in the back office. Workers in a third segment, comprised of individual contributors with little or no client interaction, can select from a set of acceptable phones and be partially reimbursed for the cost of the device and the monthly bill.

The employee segmentation strategy works well for companies that have a diversified

workforce with varying technological needs. While it requires substantial planning and development, the advantage is that it aligns job content with technological tools efficiently and effectively.

#### **Middle Ground Strategy #4: Advocating Uptake**

Some firms see real business advantages in aggressively advocating the use of cutting-edge consumer electronics in their organizations. The CIO of a Canadian organization described a business trip he made to Las Vegas at the time when Apple was putting the iPad 2 on sale. The device was not yet available in Canada, but before returning home he went to an Apple store and bought four of them. Testing and experimenting with them at work gave the impetus to advocate its rapid adoption when the devices went on sale in Canada. Now, there are more than 2,000 company-issued and supported iPad users in his organization. Another example of this strategy is provided by Standard Chartered Bank, which gave iPhones and iPads to its 15,000 employees.<sup>5</sup> Through apps downloaded from the bank's internal app store, employees can now remotely tap into the company's back-end systems and communicate with increasingly tech-savvy customers from anywhere, anytime. Similarly, a law firm selected iPads to enable its attorneys to read, mark and edit the plethora of legal documents involved in their work. As most of their clientele stem from high-tech industries, using the latest technologies not only simplified client interactions, but also turned the firm's stuffy image into a tech-savvy one.<sup>6</sup> Unsurprisingly, Apple stores use iPhones as point-of-sale devices and iPads to demonstrate the features of its products.

The advocating strategy is particularly appropriate for organizations that want to demonstrate how technology can be employed in new, and perhaps unanticipated, ways. It can also prove valuable for enterprises that recognize

these technologies' power to quickly enhance—even transform—their business processes.

## **Lessons Learned**

For executives grappling with IT consumerization, the key is to find a manageable compromise between the laissez-faire and authoritarian strategies—most likely following a path of carefully managed adoption. The four middle ground strategies described above, alone or in combination, can make the path much smoother. However, finding the optimum path is as difficult as understanding the phenomenon itself. We have distilled five lessons from our interviewees for developing thoughtful and pragmatic strategies that can harness the potential benefits of IT consumerization in innovation, productivity and employee satisfaction.

### **1. Consumer Technology Has Many Faces**

IT consumerization comes in many shapes and forms. Whether it is smartphones or tablet PCs, LinkedIn, Skype or Dropbox, recognizing that IT consumerization is taking place is not as simple as one might think. Sometimes it is camouflaged as a social media strategy, or arrives under the covers of a BYOD (bring your own device) initiative. At other times, it comes as a senior executive who wants to use his new iPad on the corporate network, or an employee who advocates the use of YouTube for training. IT consumerization has many faces, and understanding it as an encompassing and still-evolving phenomenon that goes beyond Facebook and iPads is vital; as one concerned CIO noted: *"I worry about keeping pace."* But whatever approach is chosen to understanding and addressing IT consumerization, one thing is certain: the rules of the IT game will have to change. The sovereign territory of enterprise IT and enterprise IT vendors is being eroded by consumers, their vendors and their social networks. The boundaries of an organization's information network are no longer clearly defined. In several of the organizations we spoke with, including those furthest along the consumerization path, the chief executive is leading the charge to harness consumer tools

<sup>5</sup> "Standard Chartered – Multinational banking goes mobile," Apple, August 2011, <http://www.apple.com/ipad/business/profiles/standard-chartered/>.

<sup>6</sup> Kaneshige, T. "Trials of iPad Enterprise Adoption," *CIO*, June 30, 2011, [http://www.cio.com/article/685421/Trials\\_of\\_iPad\\_Enterprise\\_Adoption?source=CIONLE\\_nlt\\_research\\_2011-07-06](http://www.cio.com/article/685421/Trials_of_iPad_Enterprise_Adoption?source=CIONLE_nlt_research_2011-07-06).

to business strategy and processes. Given the traditional influence of cautious corporate lawyers and controlling IT security specialists, that high-level leadership may be essential.

## 2. Security Is Achievable

Security can be embedded in the consumer device, the network, the application and in corporate policy. But the focus of security will increasingly be on applications and policy as less confidence can be placed in device and network security. While firms happy to embrace IT consumerization often set minimum security requirements on allowable devices (e.g., data encryption, remote locking and remote wiping) and continue to constrain access to corporate networks, the risk of losing mobile devices forces greater attention on locking down applications and databases. One of our interviewees, a hospital CIO, for instance, reported that his organization displays patient information from the cloud via a specially designed streaming viewer, thus ensuring no data is stored on consumer devices. Also important is ensuring a viable set of usage policies and a concerted effort to educate personnel about the importance of adhering to those policies. This is particularly important as employees begin to make greater use of IT functionality outside of the enterprise's jurisdiction. Recognize too, that the security fences must vary with the risk. For instance, following the theft of an Apple iPhone 4 and its pre-release to the press, Apple reportedly instituted a policy of having to enter a secret code into a test phone every 12 hours to prevent it being locked and wiped.

To address concerns about data security, many IT executives are also counting on the emergence of "containerized" phones. These devices are expected to be equipped with multiple independent processors that split the phone into two containers: one half contains the employee's personal data and apps; the other half hosts corporate email, address book and calendar.<sup>7</sup> On phones with this feature, work-related data could be made available for viewing only and would not be downloadable to the

device. Security features (including encryption, remote locking and wiping) would be available for corporate information and applications, but not for personal data stored on the device. As devices increasingly support this container model and as cloud services become more widely adopted and standardized, IT consumerization will become less risky, and therefore more acceptable, to businesses with stringent security needs.

## 3. Different Countries Have Different Rules

In the U.S., employees' email located on corporate devices or networks is considered the property of, and accessible by, the employer. In the European Union or Canada, it's exactly the opposite: email is the protected property of the employee—even if stored on a corporate email server. The U.S. Stored Communications Act, Title II of the Electronic Communications Privacy Act (ECPA), while originally intended to protect telephone records, now safeguards Internet communication. It is the only law in the U.S. that governs stored messages on private, corporate and third-party equipment. This protection extends to cloud providers, which are obliged to only provide information requested via a criminal subpoena. Thus, in the U.S., the legality of employer access to information on employee-owned devices is much less clear. However, one of our interviewees, an attorney, observed that:

*"If the employee uses a device for business purposes, for example by sending an email to his home mail account and loading it on his home computer, or by using Webmail from his house, he automatically—under the e-discovery law—loses his rights because the data belongs to his employer."*

That is not the case in much of the rest of the world. An international patchwork of law appears to provide the U.S. with an advantage in IT consumerization. While a European employee might consent to waiving privacy rights when using his own device for work, courts are unlikely to uphold such a policy. In Germany, for example, if an employer allows employees to access its network with their personal devices, the firm takes on the same rights and duties

<sup>7</sup> Garlati, C. "Consumerization Talks with Ken Dulaney, VP Gartner Research," *BringYourOwnIT.com*, June 28, 2011, <http://bringyourownit.com/2011/06/28/consumerization-taks-with-ken-dulaney-vp-gartner-research/>.

as that of a telecom provider—with no right to screen the content of network traffic, a necessity for corporate IT infrastructure.

Other economic and cultural factors will impact IT consumerization policies across countries. Cafeteria benefits plans, for instance, may prove unpopular in less developed countries where other benefits—say a transportation allowance—might be far more desirable.

#### 4. The User Base and Its Motivations Are Changing

Younger workers have grown up with Facebook, Twitter and YouTube. They are comfortable not only with using technology but also in selecting it. A U.S. Army Colonel described a recent IT training session he led for young soldiers:

*“Familiarity with technology is the least of our problems. I went outside during the break and, almost to a man, they had their phones out and were typing away on Facebook or chatting with friends and family back home.”*

That level of technical sophistication will only increase as computers and networks permeate the entertainment and education of students, if not their educational institutions. The power of social networks, coupled with organizations’ increasing tendency to contract out work rather than hire full-time employees, seems likely to also weaken employee loyalty and reduce the length of time they will stay with any one firm. One HR executive told us:

*“We try to identify the expectations of kids coming out of college and then build our HR strategy around that. We are finding a lot of people for whom 18 months is a fine amount of time to be at a company, while the three to five years we are hoping for is no longer realistic.”*

As employee loyalty toward organizations weakens, professional networks will grow in importance. In our interviews, students moving into the workforce for the first time were described as wanting to develop their own identities, their unique skill sets and capabilities; they want to be in charge of their own talent and

have no objections to choosing the technology tool needed to get the job done. In fact, they view IT choice as a form of empowerment. Taking a PC-centric perspective that assumes a static, tightly constrained, set of installed corporate applications is therefore no longer viable. To do otherwise only invites newer employees to thwart company controls, or as one CIO put it:

*“If I shut off Facebook [from the corporate systems], they will sit on their phones and do it anyway. We treat them like adults, monitor behavior and, where necessary, work on the exceptions; we might have a chat if we see someone streaming too much video ... Innovative thinking emerges from not being too draconian.”*

#### 5. Leverage Consumer IT as Part of Corporate Strategy and Processes

While many of the organizations we interviewed were still in the contemplative phase of thinking about IT consumerization, CIOs are very keen on harnessing consumer technology for business strategy and business processes. A temporary service provider, for instance, now makes heavy use of Facebook to attract work applicants. It noticed that patterns for job recommendations mimic the pathways that communications travel in social networks. The same company, inspired by the ease with which YouTube videos can be created and uploaded, now also encourages prospects to submit a marketing video of themselves as part of the application process.

Others have also recognized that IT consumerization provides an infrastructure that might otherwise be impossible to create. For instance, an agricultural company in India developed a simple app that lets farmers use their cell phones to sell produce while standing in their rice paddies. With only a few words, mostly in pictogram format, the same cell phone is also used to receive and manage payments from the sale. In general, we found that CIOs are very aware of the long-term effect that IT consumerization will have on their organizations, and, while still in its infancy, many are currently rethinking their most fundamental business processes in the light of it.

## Concluding Comments

Common metaphors that emerged in our interviews reflected the inevitability of IT consumerization: *"The genie is out of the bottle"* or *"You can't stuff the cat back into the bag."* The trend towards IT consumerization is strong and likely unstoppable. Devices will become ever smaller and therefore less visible; they will be cheaper, more capable, more concealable and faster. App stores will add more and more capabilities and evolve into low-cost engines of innovation as well as distribution channels allowing vendors, big and small, to bypass the oversight of the IT organization. Together, the marriage of consumer devices, app stores, the cloud and ever-more technically proficient people entering the workforce provide a classic illustration of disruptive technology for enterprise IT. In this article, based on the experiences of firms that are already wrestling with such disruption, we have provided guidance for others now facing the challenges of IT consumerization. The most important guidance may be to recognize the inevitability of IT consumerization and to proactively embrace it.

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## Appendix: Research Conducted

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Our study is based on a variety of sources. Two of the authors first conducted 47 semi-structured interviews, including 12 CIOs, three CEOs, three CTOs, three HR executives, two executives from security and database vendors and two legal executives; the remaining 22 interviewees included their direct reports. All were in organizations wrestling with IT consumerization issues. Many of the interview contacts were provided by senior partners at Accenture, who not only sponsored but also helped to identify organizations they felt were pushing the envelope of IT consumerization. Almost all interviews were conducted by phone, lasting from 40 to 90 minutes, with at least two of the authors participating in each interview. Each interviewer took notes, and the notes were subsequently checked for consistency and combined. The firms were mostly large or very large and represented a cross section of industries, including healthcare, financial services, real estate, automotive, personnel services, oil/gas and consumer goods, as well as several not-for-profit organizations, including a hospital and the U.S. military.

The interview study was supplemented by two international surveys. The first, which contained more than 80 questions and was conducted in March 2011, included 4,017 employees worldwide, working for medium-to large-sized companies in a variety of industries. The sample was distributed equally across industries and age groups, with approximately 250 employees from each of 16 countries. The second survey, which contained more than 50 questions and was conducted in August 2011, was conducted among 314 business and IT executives from medium and large companies in four countries (U.K., U.S., India and France) and with a balance across industries. The table below provides the demographic details for both surveys. The interviews and surveys ensured we collected qualitative and quantitative data from employees' and executives' perspectives.

Respondent Profiles for the Two Surveys Conducted in 2011

		Employee Survey (n = 4,017)	Business and IT Executive Survey (n = 314)
<b>Industry</b>	Communications, Media and High Tech	10%	12%
	Financial Services	9%	26%
	Health and Public Services	20%	11%
	Products	34%	34%
	Resources	4%	4%
	Other	24%	13%
<b>Organizational Size</b>	100-499	28%	3%
	500-999	15%	7%
	1,000-4,999	22%	17%
	5,000-9,999	10%	13%
	10,000-49,999	12%	26%
	>50,000	13%	35%
<b>Sample Size of Participating Countries</b>	Australia	250	-
	Brazil	252	-
	Canada	267	-
	China	256	-
	France	261	50
	Germany	261	-
	India	250	59
	Italy	267	-
	Japan	254	-
	Mexico	250	-
	Scandinavia	254	-
	Singapore	250	-
	South Korea	250	-
	Spain	263	-
	U.K.	250	84
U.S.	262	121	
<b>Respondent Age</b>	18-24	10%	14%
	25-34	25%	26%
	35-44	25%	26%
	45-54	24%	26%
	55-65	17%	7%
<b>Respondent Job Role</b>	<b>Employee Survey:</b>		
	Individual contributor	61%	-
	Manager	29%	-
	Manager of managers	6%	-
	Manager of senior managers	5%	-
	CEO	1%	-
	<b>Business and IT Executive Survey:</b>		
	IT executive	-	52%
	Non-IT executive	-	48%

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