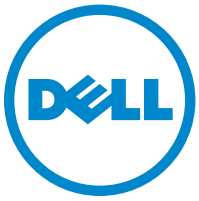
CIO strategies for consumerization: The future of enterprise mobile computing

by Paul D'Arcy, Executive Director,
Large Enterprise Marketing, Dell Inc.



Dell CIO Insight Series

The Inevitable Consumerization of Employee Devices & Applications

It's been a generation since the first workers to grow up with personal computers at home entered the workforce. Twenty years ago, this new generation of workers helped fuel the massive expansion of business computer use and the productivity gains that ensued.

2011 will mark a similar milestone as the first new knowledge workers raised with the Internet begin graduating from college and entering the workforce. When these workers learned to read, the World Wide Web and email were in a period of mass expansion and commercialization. They were in elementary school when the dot-com boom peaked, and in college as social media and smartphone usage exploded.

Already, the expectations of a new generation of workers are resetting the CIO agenda. As social media becomes a foundational component of work life and corporate collaboration, as new mobile devices and application platforms proliferate, and as more employees work from home, traditional corporate policies on personal computer usage, data security, and application usage are quickly becoming antiquated.

The result is the rapid consumerization of IT. We define consumerization as the migration of consumer technology -- including electronic devices, platforms, and applications – into enterprise computing environments as home technology becomes, in some instances – as capable and cost effective as its enterprise equivalents. Today, the issue is most pronounced with consumer smartphones, media tablets, and Internet applications which have been intentionally excluded by many company's IT policies.

With the cloud providing applications and computing power to anyone with a credit card, employees are increasingly bypassing IT altogether to get the tools and technology that they desire without the hassle of outdated IT processes. Unfortunately, employee self-provisioning of third party cloud services includes complex enterprise applications that may store sensitive corporate data in the cloud.

For IT, the key issue is what we call the "Consumerization Catch-22" which can be summarized along the following lines: Corporate IT policies that ban the use of employee-owned devices in the name of security inadvertently create new bigger security holes as users skirt IT restrictions. In other words, locking down the employee computing environment forces users to find their own alternatives, undermining the very policies that IT is trying to enforce. Often, one of the first offenders is a C-level executive who requires network access for their own personal smartphone, PC, or tablet.

This difficult situation is echoed by Gartner which advises that, "most organizations realize that they cannot stop the influx of personal devices and are looking to the post-consumerization era, seeking ways to stop managing the devices used by workers."[1]

Five Trends Shaping the Future of Enterprise Mobility

2011 will see a perfect storm of consumerization as five trends intersect to create an important workplace inflection point:

Trend # 1: The rise of social media as a business application

It's hard to underestimate the impact of social media on not just the workplace, but on society in general. By the beginning of 2011, the average Facebook user spent 1,400 minutes, or 23.3 hours, on the site each month.[2] With more than 500 million active users around the world, U.S. Facebook users spend the equivalent of roughly 29% of their leisure time on the site.[3]

Corporate IT policies that ban the use of employee-owned devices in the name of security inadvertently create new security holes.

The newsworthy growth of social media goes well beyond the meteoric rise of Facebook.

According to Nielson, "the world now spends over 110 billion minutes on social networks and blog sites. This equates to 22% of all time online or one in every four and half minutes. For the first time ever, social network or blog sites are visited by three quarters of global consumers who go online, after the numbers of people visiting these sites increased by 24% over last year. The average visitor spends 66% more time on these sites than a year ago." [4]

With the growth of social media, it's not just technology that is changing, it's people and society itself that are evolving alongside the new online world. Few statistics demonstrate this better than the fact that one-in-six U.S. couples who married in the last three years met online.[5] Around the world, social media and new mobile devices are becoming extensions of personal relationships in a way that makes it difficult to separate the technology from personal social networks.

It's in this context that today's employees arrive at work each day. They expect instant communication and access to the sorts of applications that help them be effective in their personal life. For knowledge workers, personal devices and consumer social networks are ideal tools for building work relationships and conducting business. But at work, 56% of employers prohibit access to non-work related websites and 63% prohibit the storage of personal data and files on company resources. As a result, a recent study reports that "Nearly half of all iWorkers (46%) surveyed give their employers extremely low marks for the integration of consumer devices and social networks with enterprise applications." [6]

Trend # 2: The blurring of work and home

For CIOs, the blurring of work and home environments complicates the development of employee technology policy. Flexible work arrangements that encourage employees to work from home – or any location – make it difficult to control employee technology usage.

Over the next year, 35% of employers plan to provide more flexible work arrangements for employees.

For employers in the United States, the adoption of flexible work arrangements is rapidly accelerating. Over the next year, 35% of employers plan to provide more flexible work arrangements for employees. In particular, 73% plan to implement flexible schedules and 41% plan to implement telecommuting options.[7] As a result, 43% of the American Workforce – more than 63 million workers -- will telecommute occasionally by 2016.[8]

As knowledge workers increasingly work from outside the office, it is difficult for corporations to control device usage, application usage, and most importantly, to monitor the flow of corporate information and intellectual property beyond the company's walls. IT departments need to develop policies to deliver and secure sensitive date on both IT-owned and employee-owned devices.

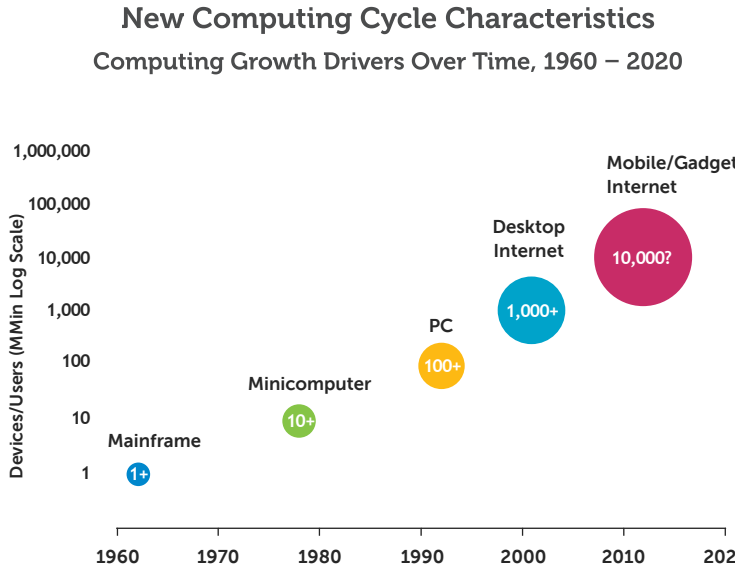


Figure 1.

Note: PC installed base reached 100MM in 1993, cellphone / Internet users reached 1B in 2002 / 2005 respectively; Source: ITU, Mark Lipacis, Morgan Stanley Research.

Trend # 3: The emergence of new mobile devices

Every decade, the world sees a new paradigm for end user computing. So far, there have been distinct eras for mainframe computing, minicomputers, personal computing, the desktop Internet, and most recently, devices for mobile Internet access.

With each era, there has been exponential growth in the number of devices in use at any one point in time: When there was a worldwide market for a million mainframes, the market for minicomputers was closer to 10 million+ units, the early PC market was 100 million+ units, and the desktop internet market is 1 billion+ units. In the next era -- mobile Internet devices including smart phones, media tablets, and internet-connected personal media players – the number of new devices will far exceed the size of the total PC market. According to Vinod Khosla, a prominent entrepreneur and investor, it is possible that ten years from now the full market for these devices could be as high as 10 billion units (Fig. 1).[9]

"33% of 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".[11]

By next year, global smartphone shipments – a subset of the mobile Internet device market – will exceed personal computer shipments for the first time in history. Just a year later, in 2013, global smartphone shipments are expected to exceed personal computer shipments by more than 150 million units.[10]

With these changes, employees are showing up to work with their personal devices with increasing frequency. A September 2010 Gartner survey of 512 U.S.-based knowledge workers found that "33% of 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".[11] According to a separate study, "iWorkers report using an average of four consumer devices and multiple third-party applications, such as social networking sites, in the course of their day."[12]

Today's IT departments typically decide what devices and software to deploy on their environment. This approach simplifies support, image management, application deployment, as well as device maintenance, security, and management. With the coming proliferation of devices, applications, and operating systems, IT departments will face tremendous challenges to deliver end user service and support.

Trend # 4: Shifting business models require tech savvy employees

As the use of social media and mobile devices explodes, it is changing the technology relationship between employers and employees. These same trends also affect the relationship between businesses and their customers and public institutions and their constituents.

With an explosion of mobile devices, mobile ecommerce is expected to grow to one quarter of ecommerce sales in the United States by next year.[13] With the proliferation of mobile devices and mobile operating systems, businesses are challenged with developing new mobile applications and Internet services to interact with their customers.

While mobile commerce is an important trend for businesses, it pales in comparison to the impact that social media is already having on many traditional industries. According to McKinsey & Company, "word of mouth is the primary factor behind 20 to 50 percent of all purchasing decisions. Its influence is greatest when consumers are buying a product for the first time or when products are relatively expensive, factors that tend to make people conduct more research, seek more opinions, and deliberate longer than they otherwise would. And its influence will probably grow: the digital revolution has amplified and accelerated its reach to the point where word of mouth is no longer an act of intimate, one-on-one communication. Today, it also operates on a one-to-many basis: product reviews are posted online and opinions disseminated through social networks. Some customers even create Web sites or blogs to praise or punish brands."[14]

As more of the economy shifts towards personal recommendations and social media accelerates the impact of personal recommendations on almost every type of business, companies will increasingly need a new set of workforce skills. In particular, companies will need Internet savvy knowledge workers who can navigate the complex ecosystems of social media. As the control of corporate brands shifts to online conversations outside of corporate control, organizations will increasingly value employees who are influencers in their social networks.

It's in this context that consumerization will become as much of a business decision as a technology decision. To attract and retain the right employees – and to make sure they thrive – many organizations will need to increase the types of devices and applications that they support and pay for.

Trend # 5: Employee expectations of corporate IT are changing

With a new generation of knowledge workers, end user technology is increasingly becoming a talent recruitment and retention issue. Companies that invest in end user technology and implement innovative technology policy will see advantages as they look to recruit the new generation of knowledge workers.

When the employee opens their new PC, they are even more surprised to see that the new computer is running a locked down version of an operating system that was first released when a 2011 college graduate was 12 years old.

According to a recent study, "a majority of employees indicate that the technology tools provided to them and supported by their organizations would be a critical or positive factor in taking a job with a new employer."[15] Unfortunately, most new employees are shocked to find that their employers -- while keen to innovate and eager to compete in this fast changing technology era – provide new employees with little more than an entry-level PC. When the employee opens their new PC, they are even more surprised to see that the new computer is running a locked down version of an operating system that was first released when a 2011 college graduate was 12 years old.

As These Trends Collide, Consumerization Becomes a Business Decision

While all 5 of these trends are yet to peak– social media as a business application, the blurring of work and home, new mobile devices, shifting business models, and changing employee expectations of IT – they are already creating significant pressure for change in most IT organizations.

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Moving from...	...to
Limited connectivity	Always on, anywhere
Email or IM communications	Freedom to participate
IT chooses the PC	Devices that reflect "me"
Primary device is fixed	Primary device is mobile
IT has control	Users want agility and freedom
One device, one task	One device, many tasks
Management and security inside the firewall	Boundary-less security and manageability

For the CIO, consumerization represents the confluence of a difficult set of IT challenges (security, technology policy, data protection, end user technology) and business strategy (new business models, talent strategy, corporate brand and identity). For this reason, Gartner has declared that "for CIO's, ensure that consumerization of IT is always factored into business strategy development exercises."[16]

For most organizations, consumerization quickly becomes a talent management issue – it's a key part of any strategy for workforce enablement in the coming decade of technological change. Today, too many companies are driving for innovation in the market but restricting internal technology usage with policy frameworks that are at best outdated, and at worst hindering the innovation that the business is seeking. It is this increasing gap between business strategy and end user technology that limits many companies' ability to attract talent and compete in the new business area.

This same gap also limits the ability of leadership to drive productivity gains that can come from these new technologies. According to McKinsey & Company, "the heart of what knowledge workers do on the job is collaborate, which in the broadest terms means they interact to solve problems, serve customers, engage with partners, and nurture new ideas. Technology and workflow processes support knowledge worker success and are increasingly sources of comparative differentiation. Those able to use new technologies to reshape how they work are finding significant productivity gains."[17]

As companies embrace consumerization, a number of changes will need to occur:

These changes, however, can be difficult to execute. For most CIO's, many questions come to mind: How do companies maintain security and protect data as they loosen IT standards? How will companies support heterogeneous employee devices? Does consumerization apply to all employees or only to certain employee segments? What will companies pay for that they don't pay for today? What happens to employee IT platforms? Which applications need to be modernized to work with a broader set of employee devices?

CIO Roadmap: 9 Key Recommendations on Consumerization & the New Era of Enterprise Mobility

Recommendation # 1: Articulate your company's end user workplace and technology philosophy and use that as a basis for setting consumerization strategy.

Technology philosophy, like business strategy, is unique to the culture and purpose of every organization. When evaluating technology changes, there are seven questions that can help you ascertain how far and how fast your organization can move to embrace the new era of consumerization:

77% of very large businesses said securing corporate data on mobile devices was their most important mobile security objective.[18]

- What are the demographics or your user population and what type of work do your user segments do?
- Where are your employees doing their work?
- Does your company take pride in offering innovative benefits and policies to attract and retain employees?
- How strongly is your company moving towards flexible working arrangements?
- Are business executives advocating for expanded device usage or trying to prevent it?
- What regulations and security concerns limit your options?
- In your organization, how important are the Internet and social media to driving customer engagement?

Recommendation # 2: Recognize that IT security and data protection policies that restrict the use of personal devices and social media

applications may actually increase security and data loss risk. Begin evolving security policies to protect data in a heterogeneous device environment.

As the pressure for consumerization continues to grow, security capabilities will create obstacles for organizations looking to implement progressive end user technology policy. According to a Dell/TBR study, 77% of very large businesses said securing corporate data on mobile devices was their most important mobile security objective.[18]

In the post-consumerization era of heterogeneous devices, companies will need to re-architect security. As part of this evolution, companies should:

- Develop clear policies for business use of employee owned smartphones, tablets, and PCs.
- Consider "containerized" security solutions which deploy secure containers for applications and data onto mobile devices which can be managed by IT.
- Consider desktop virtualization and remote application portals to provide secure computing environments on a wide variety of devices.
- Provide employee email access on personal devices using technology that secures email data.
- Manage data loss risk --- and device loss risk –- through clearly communicated employee policies and by using tools that restrict the flow of sensitive information off of the network or to unsupported devices.
- Prioritize application architectures that store data securely in the cloud or on servers to allow secure access from employee-owned devices, mitigating the need for employees to store data locally.
- As uncontrolled platforms, consumer devices – especially PCs – carry a significantly increased risk of malware infection. Companies need to develop policies that mitigate the risk and potential damages from malware – especially botnets – that may arise through the use of employee-owned devices for business purposes.
- Extend guest networks to employees to allow on-premise use of personal mobile devices without compromising corporate networks.
- IT should educate the business on the risk of breached policies – reinforcing compliance and fiduciary duties – to make the business aware of the broader issues related to the new technology era.

Mobile Broadband Subscription Growth

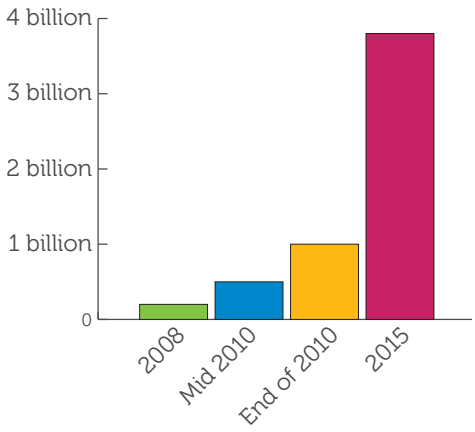

Figure 2.

As more applications move to the cloud and more devices move off the network and out of IT's direct control, the framework for end point security will also benefit from cloud-based delivery. Increasingly, this means using Managed Security Service Providers to provide cloud-based end-point protection for distributed devices. According to Gartner, "An increasingly common scenario will be high-value employees accessing critical business and customer information stored in the cloud from employee-owned PCs or smartphones. Gartner believes that delivering security as a cloud-based service will be a key component of how many enterprises will enable this scenario, while achieving a balance of security and manageability."[19]

Recommendation # 3: Liberalize rules that prohibit business use of employee-owned technology in your environment, start by encouraging the business use of employee-owned smart phones.

In most organizations, start by allowing employees to do what they already are secretly doing today.

While most organizations limit employee use of personal devices on the corporate network, employees have always found ways to get work done on unsanctioned computers, smartphones, and tablets. Employees often skirt many restrictions on technology usage by forwarding email, using guest networks, and by leveraging web-based file storage and transfer services. According to the Unysis / IDC study, employees "report using an average of four consumer devices and multiple third-party applications, such as social networking sites, in the course of their day."[20]

Why start with smartphones? There are three reasons:

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

1. No area of personal technology is growing as fast. According to Ericsson, mobile broadband subscriptions have skyrocketed: growing from 200 million mobile Internet subscribers in 2008 to 500 million mobile broadband subscribers in mid-2010 and 1 billion at the end of 2010. By 2015, the company believes that there will be more than 3.8 billion mobile broadband subscriptions globally.[21]
2. Smartphones are important tools for managing contacts, email, calendar, social media, accessing cloud data, and when allowed, accessing the corporate directory.
3. Smartphones are expensive and most organizations will not pay for smartphone voice and data plans for the broad employee population. Since employees are making these investments and bringing the devices to work, expanded use can benefit end user productivity.

As companies increase the business use of smartphones, they will need to implement solutions that allow them to manage policies and security on a broader range of devices. In particular, companies will need the capability to enforce passwords and enable remote data deletion for lost or stolen devices.

Recommendation # 4: Launch enterprise applications that replicate the best aspects of consumer communication and social media within your worker community.

In this era of consumerization, it's important to recognize that end users want more than just liberalization of technology restrictions. The heart of the consumerization is a human desire -- end users want to work in the same way that they now live -- using the Internet to facilitate relationships and communication.

Consumer tools, although powerful and rapidly evolving, can't fully close this expectation gap. This provides an opportunity for organizations to introduce corporate platforms that replicate the best aspects of successful consumer platforms. In particular, organizations need to complement email with rapid communication options such as instant messaging and community social applications such as Salesforce.com's Chatter. They need to build collaborative wiki-like Intranets and deploy internal portals that allow end users to provide feedback, rate content, and participate in community discussions.

By segmenting users based on information usage patterns, organizations can closely align match device strategy with unique segments of their user population.

By harnessing the web's innate ability to crowd-source ideas and to collaboratively sort information through, IT organizations can harness the trends behind consumerization while increase employee engagement and productivity.

Recommendation # 5: Pilot media tablets with field workers and executives to see if they can replace other devices; look at allowing other populations to bring personally owned tablets to work.

The media tablet market is poised to grow dramatically: expected to go from 19 million units in 2010 to 208 million units in 2014.[22] As a broad selection of new devices hit the market, tablet use

is expected to skyrocket based on convenience, high levels of customer satisfaction, and relatively low device prices.

The new generation of media tablets will create tough decisions for IT organizations. While the market for such devices is booming and user satisfaction is very high, the devices do not replace smartphones or PC's for most users. So, while user demand is high, the business case to add tablets is hard to justify for most organizations and users.

According to Gartner, "by 2013, 80% of businesses will support a workforce using tablets." Further, "The age where price dictates one computer per person has long past, and tablets represent convenience over necessity. It is also inevitable that these units will find their way into enterprises. IT has shown that it is powerless to stop such incursions, as adoption is often fueled by upper management, and the tools provided by the tablet vendor are extremely effective at circumventing IT security and use policies."[23]

As IT organizations consider piloting company-paid and/or employee-owned tablets to the workplace, there are important considerations:

- Users love media tablets, user satisfaction is very high, support costs appear to be low.
- Media tablets are great devices for the road and for quick access to email, the Internet, calendaring, social media, mobile business applications from companies like Salesforce.com, and for access to corporate application portals and virtualized desktops.
- Media tablets are not practical for content creation.
- Media tablets will replace many vertically-owned tablet PC's and specialty devices. When this is the case, the units will be provided and supported by IT.
- Media tablet theft rates are very high.

Throughout 2011, device and platform choice will dramatically expand providing enterprises with options that meet corporate security, manageability, and lifecycle planning needs.

For most organizations, the hidden costs will come from management and security changes that will be required to support users and protect the enterprise in a heterogeneous device environment.

The stratification of end user computing into PCs for content creation and media tablets for content consumption parallels the stratification of knowledge workers. Today, there are three main categories of knowledge workers segmented by the way they work with information:

- Information Multiplexers create, consume, and process information. These users are most likely to stick with full featured client platforms due to rich functionality, demand for processing power, and overall utility. These users often carry 2-3 devices.
- Information Consumers primarily read and review content – they do much of their processing on mobile devices such as a BlackBerry. For these users, media tablets are highly attractive. This is one reason why many executives are attracted to media tablets.
- Information Processors process information created by others using cloud-based tools and applications typically accessed through the browser. These users can work with less richly configured clients. This category includes executives and white collar workers who use their mobile device as the key platform and then view/consume on client or tablet. Also includes call center sales and service professionals who use browser-based tools to process customer information.

By segmenting users based on information usage patterns, organizations can closely align match device strategy with unique segments of their user population. Thus, as enterprise-ready media tablets come to market, organizations should seed them to key user populations – executives, IT, and select field and sales workers -- to evaluate their future potential.

Recommendation # 6: Develop a clear point of view on company vs. employee cost sharing. Develop a business case for incremental investment by linking end user technology strategy with human resource planning, facilities planning, and business strategy.

For CIO's, one of the biggest challenges of driving consumerization will be the development of the business case to justify incremental investments. While improving end user technology, enabling new capabilities, and allowing employees to make better use of their own technology will improve productivity and help companies move to next generation business models, the immediate benefits are "soft'' and hard to measure. For most organizations, consumerization will likely increase IT costs as organizations increase their investments in technology and expand security, management, and support capabilities.

The introduction of employee-owned devices further complicates licensing as large vendors like Microsoft make distinctions between categories of users in their licensing agreements.

Who will pay for all of this new technology in the new post-consumerization era? CIO's should expect the following to occur:

- Companies will increasingly pay for IT-owned laptops instead of desktops for knowledge workers.
- For workers using vertical PC tablet applications, companies will provide media tablets instead of PC tablets / application-specific specialty devices.
- For companies that provide company-paid mobile phones, these phones will increasingly be smartphones with company-paid voice and data.
  - Companies will save money by eliminating desk phones for employees with company-paid mobile phones.
  - In general, the third device will always be paid for by the employee.
- Some companies with high-value knowledge workers in competitive fields will differentiate their workplace by allowing three paid devices per employees (management consultants, executives, software developers, etc.)
- Increasingly, tablets will become standard devices for customer-facing field roles including sales, retail, and hospitality environments.
- Some organizations will link technology changes to flexible working arrangements in order to offset new technology investments with facility cost reductions.

For most organizations, the hidden costs will come from management and security changes that will be required to support users and protect the enterprise in a heterogeneous device environment.

Recommendation # 7: Consider desktop virtualization and other new technologies to reduce security and data loss risks as the demand for consumerization grows.

In a heterogeneous device environment that includes employee-owned devices, the primary CIO concern is preventing data loss and ensuring security across unmanaged devices.

Desktop virtualization will become a primary model for organizations to securely drive consumerization. By storing data and applications on the server in controlled standardized images, desktop virtualization combines the benefits of corporate images, centralized storage, centralized management and policy enforcement with the freedom to use a wide variety of company and employee provided devices.

Virtual desktops, as well as web-based application portals, allow users on a wide variety of devices – including smartphones and tablets – to access corporate resources efficiently and securely and to move between devices. With the advent of client hosted hypervisors, the same benefits can be extended to laptops and other mobile devices that need to remain fully functional when disconnected from the network.

In addition to virtualization, some mobile applications may be better suited to more traditional native or platform applications – especially those devices with smaller screen sizes (5" or less). In these cases, Mobile Enterprise Application Platforms (MEAP) allow IT departments to securely manage access and deployment of corporate applications, as well as enable "write once, deploy many" scenarios which support the variety of devices and carriers in the enterprise today.

Recommendation # 8: Understand the software licensing implications of consumerization.

As company-issued smartphones and tablets are increasingly used to access email, virtual desktops, and server-based applications, companies will need to look at software licensing agreements and practices to ensure compliance. The introduction of employee-owned devices further complicates licensing as large vendors like Microsoft® make distinctions between categories of users in their licensing agreements.

IT consumerization and the rethinking of employee technology is the foundation for the next wave of business, management, and employee change.

In particular, organizations that have device-based licenses (the default under Microsoft enterprise agreements) will need to pay for licensing for the new devices. For most organizations, IT will need to consider three licensing scenarios as part of their consumerization efforts:

Rights to access email and other server applications from the new devices.

- Rights to run a server-based operating system in a virtual desktop environment if used.
- Rights to access applications running on a server or in a hosted desktop environment (i.e. Office).
- All of these scenarios typically require additional licensing fees for the new devices whether they are employee or company owned. As organizations connect additional endpoints, especially net new endpoints like tablets, they need to look closely at the licensing implications. For organizations that are broadly adopting new devices, it may make sense to restructure licensing agreements to be user-oriented as opposed to device-oriented.

Recommendation # 9: Avoid end user stipends.

Many organizations have piloted user stipend programs where employees are provided funds to purchase the PC or computing device of their choice. In the vast majority of pilots, poor user and IT experiences have led companies to cancel plans for further stipend roll outs.

Stipend programs are designed around the assumption that user technology choice creates improved user satisfaction. With a better user experience should come improved employee morale, productivity, and use of technology to meet business requirements. Unfortunately, real world pilots show that stipend programs often fail to deliver on these promises for the following reasons:

- Many employees are not able to choose technology on their own: they often pick equipment that is mobile and small but underpowered for enterprise work.
- It's impossible for IT to provide great end user support to a population with an infinite combination of devices. As a result, the support experience usually receives poor marks from both end users and the IT team.
- It is difficult to tune applications to work with an infinite variety of end user configurations causing additional device compatibility and user satisfaction issues.
- In the end, pilots have shown poor end user satisfaction with the stipend experience, negating the primary benefit that these programs were designed to achieve.
- An alternative to stipends is to provide employees with a broader selection of IT-supported PC's and work requirements. When combined with policies that enable employees to

bring employee-owned devices to work, companies should be able to reap the broad benefits of end user consumerization.

To embrace consumerization, companies need to understand application usage patterns and they need to have clear picture of software licensing compliance.

Conclusions

Consumerization is but one key element in an important change that is happening today in the relationship between employees and employers. New technology and the expanding role of the Internet are forever changing social relationships, management philosophies, and business models around the world.

In the words of Gary Hamel, a prominent management professor and author, "while no company would put up with a 1940s-era phone system, or forgo the efficiency-enhancing benefits of modern IT, that's exactly what companies are doing when they fail to exploit the Web's potential to transform the way the work of management is accomplished. Most managers still see the Internet as a productivity tool, or as a way of delivering 24/7 customer service. Some understand its power to upend old business models. But few have faced up to the fact that sooner or later, the Web is going to turn our smoke-stack management model on its head."[24]

For companies with knowledge workers, IT consumerization and the rethinking of employee technology is the foundation for the next wave of business, management, and employee change. Companies that adapt quickly and actively change the relationship between IT and end users will be better able to attract talent, execute new business models, and evolve management capabilities to improve competitiveness.

CIO Strategies for Consumerization: How Dell Can Help

At Dell, we are uniquely prepared to help our customers embrace and manage consumerization and the challenges and risk that come with consumerization-related changes. With nearly 100,000 employees worldwide, Dell can help your company develop strategies for the next generation of end user computing and implement the changes needed to ensure security and manageability in a heterogeneous device environment.
In particular, Dell can help companies of all sizes through the following services and solutions:

Desktop Virtualization Solutions & Services

Whether you need to secure employee data in a heterogeneous device environment, you want to enable employees to use their own devices at work, or you just want to centralize your data and ensure that your workforce benefits from a rich productivity environment, Dell can help companies design, pilot and implement desktop virtualization in your organization.
Learn More ›
Dell.com/virtualdesktops

Distributed PC & Device Management with Dell KACE

As consumerization drives large increases in the number of devices under management, Dell can help organizations streamline PC management and security. With Dell KACE, organizations can manage more devices with greatly reduced labor and capital investment. KACE Appliances make efficient computer management and server management a reality by providing a low cost alternative to computer management software using an appliance-based architecture. Simply plug the appliance into your network, give it an IP address and you are ready to begin managing all your desktops, laptops and servers. Unlike traditional computer management software, KACE Appliances typically deploy in one day.
Learn More ›
Dell.com/KACE

Managed Security Services with Dell SecureWorks

In order to expand network access to new device categories and employee-owned devices, companies need to review and modernize security for the network, end points, and applications. In early 2011, Dell announced its intention to acquire SecureWorks, one of the leading managed security service providers.

SecureWorks provides managed services and consulting to help companies manage security threats. SecureWorks managed service offerings including Security Information Management, Log Monitoring, Intrusion Prevention Systems, Counter Threat Unit Intelligence, Firewall Management, and Web Application Scanning.
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Dell Software Inventory and Usage Management

For IT organizations, consumerization of IT creates challenges for application compatibility and software licensing as the number and types of devices expands. To embrace consumerization, companies need to understand application usage patterns and they need to have clear picture of software licensing compliance. The Dell Software Inventory & Usage Management service automates asset discovery, helps monitor usage and simplifies license compliance to help eliminate unused applications, track licensing compliance, and profile application usage across the organization.
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Footnotes

1. Gartner. (2010, November 18). Predicts 2011: Network Capacity and Consumers Impact Mobile and Wireless Technologies (G00208871). Dulaney, K., Redman, P., Milanesi, C., Baker, V. L., Basso, M., & Fiering, L.

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