

# BYOD: A Global Perspective

## Harnessing Employee-Led Innovation

Joseph Bradley  
Jeff Loucks  
James Macaulay  
Richard Medcalf  
Lauren Buckalew



### Executive Summary

To determine whether BYOD is simply a U.S. — or even just a “U.S. enterprise” — phenomenon, the Cisco® Internet Business Solutions Group (IBSG) expanded its original “BYOD and Virtualization” study to include IT decision makers in both enterprises (1,000 or more employees) and midsize companies (500-999 employees) in eight countries across three regions. Our results show that BYOD’s growth isn’t limited to the United States or to large companies.

BYOD has a regional flavor: Asian and Latin American countries see — and encourage — extensive BYOD, while Europe is more cautious and restrictive.

### Key Global Findings and Conclusions

- BYOD is a global phenomenon: strong evidence of employees everywhere using own devices for work; 89 percent of IT departments enable BYOD in some form
- Top BYOD benefits to companies are increased productivity, employee satisfaction, lower costs; 69 percent of IT leaders are “positive” about BYOD
- Employees want BYOD for choice of device, applications, and ability to combine personal and work lives
- Transformative benefit of BYOD is employee-driven innovation — by allowing employees to decide how, when, and with which tools work is done, companies can unlock the next wave of value
- BYOD, however, implies new challenges in security and IT support
- Companies must respond proactively to BYOD with improved mobile policy and cost-reduction strategies; desktop virtualization could help

### Key Regional and Company Findings

- High degree of consistency between midsize companies and enterprises in attitudes toward BYOD
- BYOD has regional flavor: Asian and Latin American companies see — and encourage — extensive BYOD, while Europe is more cautious and restrictive
- U.S. is the overall leader in BYOD adoption and policy
- U.S. and India are far ahead in desktop virtualization: other IT leaders are aware of it, but implementation is lagging



Internet Business  
Solutions Group (IBSG)

With employees using increasing numbers of these devices for both work and personal purposes, Cisco IBSG wanted to know how prevalent BYOD is in companies, and how corporate IT departments are handling these new devices in terms of support, network access, and security.

## Introduction: BYOD Has Gone Global

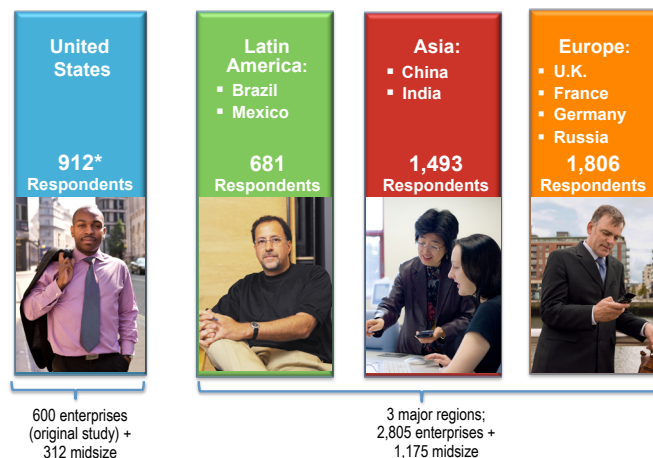
Millions of consumers — many of whom are also employees<sup>1</sup> — are purchasing advanced mobile devices such as smartphones and tablets for their personal use,<sup>2</sup> and then loading them with applications to help manage their lives better. These powerful devices have intuitive user interfaces, come equipped with two-way cameras for video conferencing, and can access hundreds of thousands of applications not only for personal uses and entertainment, but for business as well. Increasingly, people are taking these devices to work and integrating them into their daily workflow. This trend is often called “bring your own device” (BYOD).

BYOD could have profound implications for how companies manage their networks, mobile devices, and even their employees, who are redefining what it means to be “in the office.” Thus, Cisco IBSG wanted to know how prevalent BYOD is in companies, and how corporate IT departments are handling these new devices in terms of support, network access, and security. We also wanted to know whether corporate IT is supportive, indifferent, or hostile toward BYOD.

In spring 2012, we surveyed 600 IT decision makers in U.S. enterprises to answer these and other questions,<sup>3</sup> as part of our ongoing “Horizons” program of research and analysis. The results provided evidence of a fundamental shift in how corporations support and provision devices. Ninety-five percent of IT decision makers said their companies support BYOD in some form. Equally important was their attitude toward BYOD. Without downplaying the challenges BYOD poses, 76 percent saw it as “somewhat” or “extremely” positive for IT departments.

To determine whether BYOD is simply a U.S. — or even just a “U.S. enterprise” — phenomenon, we expanded our original study to include IT decision makers in both enterprises (1,000 or more employees) and midsize companies (500–999 employees) in eight countries across three regions. We also added more than 300 IT decision makers from midsize U.S. firms to our initial 600 enterprise respondents<sup>4</sup> (see Figure 1). All told, we interviewed nearly 4,900 IT decision makers in 18 industries, all of whom either direct or influence their companies’ mobile policy.

Figure 1. Cisco IBSG Horizons Global BYOD Study Details.



By fostering BYOD with proper management and a BYOD-ready governance model and network, companies can move from merely reacting to employee demand to harnessing a latent – and potent – source of value.

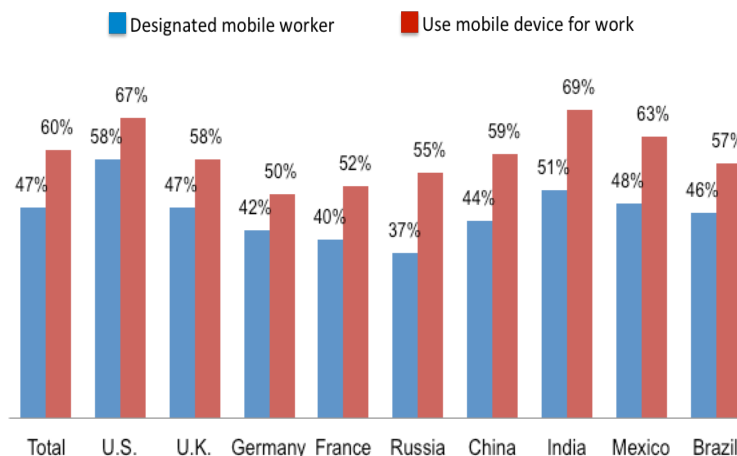
Our results show that BYOD's growth is neither a U.S.-only phenomenon nor limited to large companies. Globally, 89 percent of IT leaders from both enterprises and midsize companies support BYOD in some form. And 69 percent view BYOD "somewhat" or "extremely" positively. These figures are staggering. They show that companies around the world (not merely in the United States) are embracing BYOD. This has profound implications for how companies provision devices and govern network access.

But Cisco IBSG believes that the transformative value of BYOD rests in giving employees the freedom to innovate how they work. If allowed to use the devices, applications, and cloud services they prefer, and to choose the time and location for work, employees have the potential to drive the next wave of corporate efficiency and productivity. By fostering BYOD with proper management and a BYOD-ready governance model and network, companies can move from merely reacting to employee demand to harnessing a latent – and potent – source of value. Already, companies around the world are on the cusp of this breakthrough.

## BYOD Is Fueling Mobile Growth

Mobility – working away from a traditional office setting or fixed location – has become a common requirement for today's knowledge worker. Forty-seven percent of employees in the companies we interviewed are officially designated "mobile workers." But 60 percent of employees use a mobile device for work<sup>5</sup> – 13 percent more than are officially considered "mobile workers" (see Figure 2). These additional devices are mainly the result of employee initiative: even if they do not "officially" need mobile devices to do their work, they are integrating mobility into how they work on a daily basis. And corporate IT departments are obliging them. When we asked how their companies segment mobile workers, 36 percent said they grant mobility privileges according to employee request.

**Figure 2.** Percentage of Employees Designated Mobile Workers vs. Employees Who Use Mobile Device for Work.



Source: Cisco IBSG, 2012

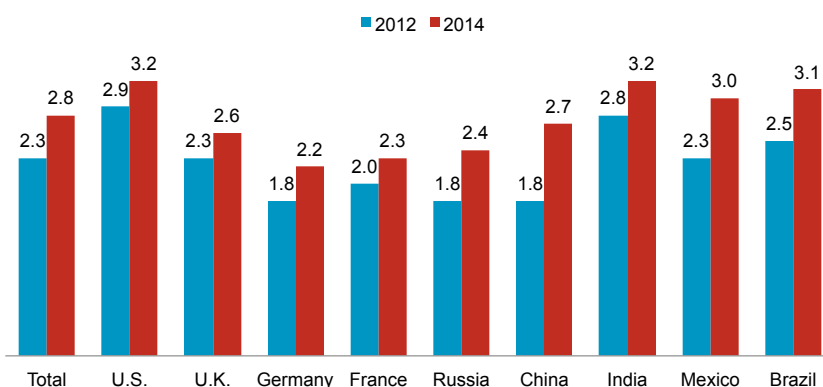
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Nowhere will device growth be faster than in China, which, although being tied with Russia and Germany for the lowest current adoption level of mobile devices per knowledge worker, expects a CAGR of nearly 23 percent – from 1.8 devices to 2.7 – over the next two years.

The United States and India lead other countries in the percentage of knowledge workers who use mobile devices (at nearly 70 percent), but China and Mexico are not far behind. On the other hand, in Germany and France, only about 50 percent of knowledge workers use mobile devices. We shall see throughout the research findings that while European nations are witnessing significant penetration of mobility and BYOD, they are behind other countries in embracing and fully enabling them.

Not only are knowledge workers using mobile devices for work, they are using multiple mobile devices, such as laptops, smartphones, and tablet computers, to help them accomplish their tasks. On average, IT leaders expect the number of devices to rise from 2.3 per employee in 2012 to 2.8 in 2014 (see Figure 3), a compound annual growth rate (CAGR) of 10.3 percent. Once again, differences at the country and regional levels are significant. While growth rates in the United States and India are comparatively low, companies in these countries are the most enthusiastic adopters of mobile technologies, having already achieved the highest device-per-worker ratio. Brazil is not far behind at 2.5 devices per employee, and IT leaders expect robust growth in the next two years. Nowhere will device growth be faster than in China, which, although being tied with Russia and Germany for the lowest current adoption level of mobile devices per knowledge worker, expects a CAGR of nearly 23 percent – from 1.8 devices to 2.7 – over the next two years. Once again, European countries are taking the most cautious stance.

**Figure 3.** Average Number of Connected Devices per Knowledge Worker, 2012 and 2014.



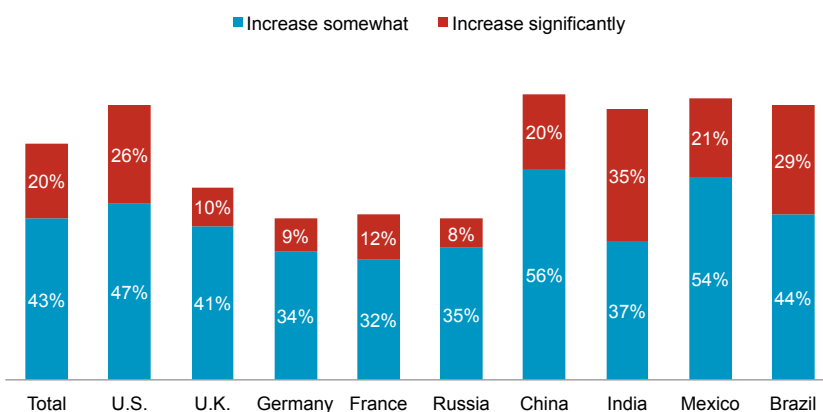
Source: Cisco IBSG, 2012

N = 4,892

The growing number of devices per user is, to a large degree, the result of BYOD. For example, 42 percent of smartphones and 38 percent of laptops used in the workplace are now employee-owned. This shows that BYOD, far from being an emerging trend, is already well-entrenched in corporations throughout the world. And IT leaders see strong growth for BYOD in the next two years, with 63 percent saying they expect the percentage of employee-owned devices to increase (see figure 4).

Higher current adoption and growth outside Europe will quickly make BYOD the predominant approach in those countries.

**Figure 4.** Percentage of Companies that Expect the Share of Employee-Owned Devices To Increase in the Next Two Years.

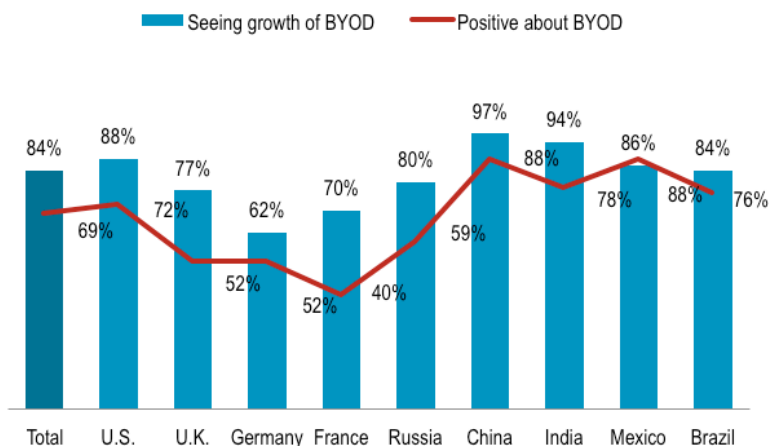


Source: Cisco IBSG, 2012

N = 4,892

Higher current adoption and growth outside Europe will quickly make BYOD the predominant approach in those countries. Of special note is the high percentage of IT decision makers who say BYOD increases will be “significant”: 35 percent in India, where more than 50 percent of smartphones and laptops are already employee-owned, and 29 percent in Brazil, where more than 40 percent of major mobile devices are employee-owned. Despite the relatively low penetration of BYOD in European countries, IT decision makers expect less growth in Europe than in Latin America and Asia over the next two years.

**Figure 5.** Percentage of IT Leaders Who Are Seeing Growth of BYOD, and the Percentage Who Are Positive About the Trend.



Source: Cisco IBSG, 2012

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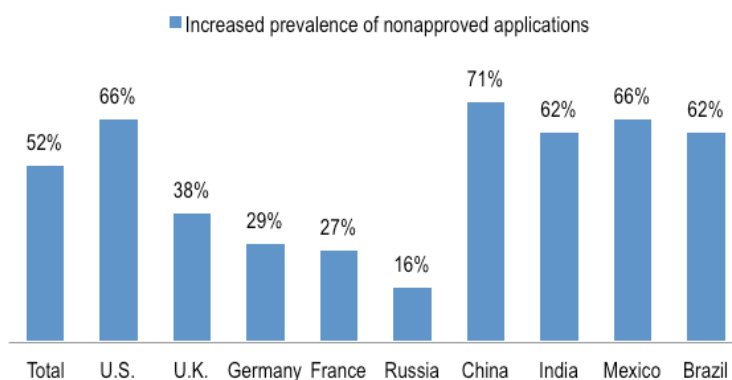
Employees' ability to blend their personal and work lives seamlessly is one of the key benefits of BYOD.

Eighty-four percent of the IT leaders in this study say they are seeing BYOD growth in their companies (see Figure 5). While IT decision makers have different expectations for the degree of BYOD growth, 84 percent agree that more employees are using their own devices for work purposes. Even in Europe, where the BYOD trend is less prevalent, between 62 percent and 80 percent are witnessing growth. That being said, European IT leaders are clearly seeing less prevalence of BYOD than their counterparts in other countries.

In Cisco's own experience, once employee-owned devices were permitted and supported by corporate IT, the number of mobile devices connected to the network more than doubled.<sup>6</sup> Perhaps companies that put IT support behind BYOD see more growth, and are more positive about growth, because they have made a deliberate decision to support it, rather than feeling as if BYOD is being imposed upon them by employees.

Along with the growth of employee-owned devices, 52 percent of IT leaders say that nonapproved software applications and cloud services are "somewhat" or "much more" prevalent today than two years ago (see Figure 6). It makes sense that nonapproved applications would increase, since employees do not simply want to use the device of their choice, but also the software and cloud services they prefer. However thorough a toolkit companies may provide, there are thousands of mobile applications and online services that can aid employees in how they collaborate, analyze data, and present their ideas. With app stores from Apple and Google, employees can browse and download these instantly, often for free. In addition, employees want to use their own devices to have their personal applications and content near at hand. As we shall see, employees' ability to blend their personal and work lives seamlessly is one of the key benefits of BYOD.

**Figure 6.** Percentage of Companies Saying the Number of Nonapproved Applications Is "Somewhat" or "Much More" Prevalent.



Source: Cisco IBSG, 2012

N = 4,892



While it may be beneficial for employees to use the collaboration tools that suit them best, especially if the ones with which they are provided are limited or inadequate, the potential exists for multiple self-created “islands” of collaboration that unwittingly exclude others.

Our research revealed that there is a stark difference in the prevalence of nonapproved applications between European countries and all other countries in our study. In Russia, for example, only 16 percent of IT leaders say they have seen more nonapproved applications, versus 71 percent in China.

There are potential costs for companies when employees use their own applications, however. One of them is the increased bandwidth many of these applications require. Some of the most popular applications used by employees feature rich media, including social networks and streaming media services. The combination of more devices on the network and media-rich, nonapproved applications can create network bottlenecks unless IT departments are vigilant in their network management and resource planning.

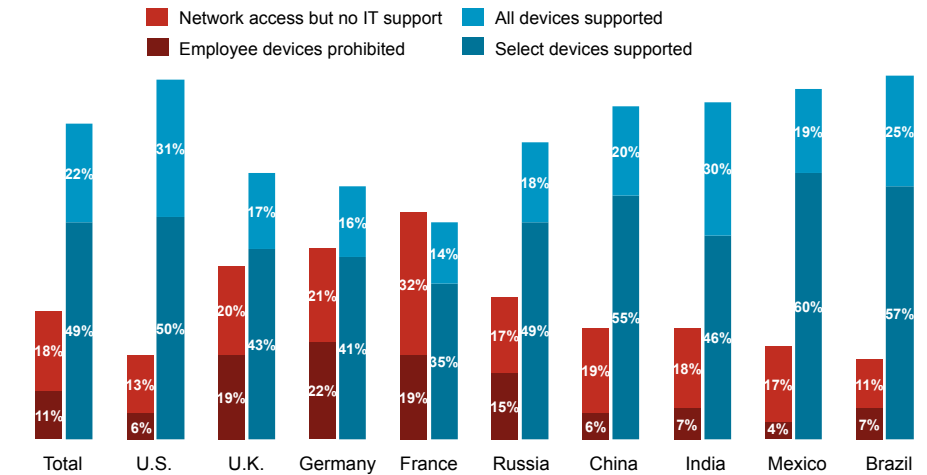
Another area that requires active management is the growing use of nonapproved collaboration tools. Employees are increasingly using instant messaging, file-management, mobile video conferencing, and cloud-based collaboration services to supplement, or even replace, corporate collaboration applications. While it may be beneficial for employees to use the collaboration tools that suit them best, especially if the ones with which they are provided are limited or inadequate, the potential exists for multiple self-created “islands” of collaboration that unwittingly exclude others. It is vital for companies to ensure that nonapproved collaboration tools are integrated into corporate IM, corporate directories, corporate social software, and video collaboration tools to prevent these “islands” from forming.

Perhaps part of the reason IT leaders in countries like China, India, and Mexico see higher growth of employee-owned devices and applications in the workplace than their European peers is that they are more supportive of them. Only 52 percent of IT leaders in Germany and the United Kingdom, and 40 percent in France, believe that BYOD is a positive development for their departments. In contrast, 80 percent of IT leaders outside Europe believe BYOD is having a positive effect. In Brazil, China, India, and Mexico, 32 percent are “extremely positive” about BYOD, as opposed to 10 percent in the United Kingdom, Germany, France, and Russia.

Divergent beliefs about the benefits of BYOD to IT departments are manifested in how, and whether, employee-owned devices are supported. Overall, there is strong acceptance of BYOD among corporate IT leaders. Nearly 90 percent endorse BYOD in some form, ranging from simply allowing employee-owned devices on the corporate network to offering full IT support for all employee-owned devices. The United States and India provide the most comprehensive backing of employee-owned devices, with about 30 percent of companies offering IT support for all devices. Brazil has the most liberal policies, with 82 percent of companies supporting either select or all employee-owned devices (see Figure 7).

Another area that could restrict the potential benefits of BYOD is a lack of clarity around mobility policy . . . .

Figure 7. Levels of Company IT Support for Employee-Owned Devices.



Source: Cisco IBSG, 2012

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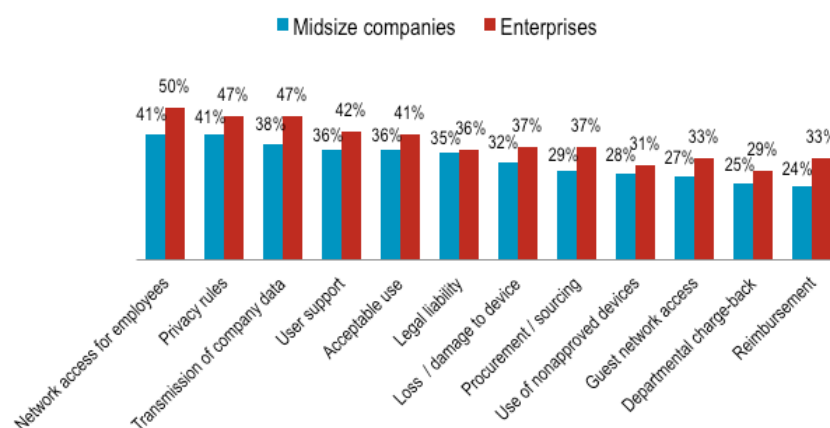
The countries in which IT leaders were least positive about the impact of BYOD – France, Germany, and the United Kingdom – have the most-restrictive policies. In France, for example, a higher percentage of companies either prohibit employee-owned devices in the workplace or offer only network access, with no other forms of support. While allowing corporate network access helps employees use their devices at work, their ability to be productive is curtailed because they are not able to download corporate applications and cloud services, or to access technical support when there are problems. It appears, therefore, that we may be seeing both *virtuous* circles (positive impressions of BYOD, resulting in more favorable network policies, thereby producing enhanced benefits and increasing enthusiasm) and *vicious* circles (suspicion of BYOD, resulting in restrictive policies and muted impact, reinforcing the initial skepticism) at play.

Another area that could restrict the potential benefits of BYOD is a lack of clarity around mobility policy, both as it pertains to BYOD and in general. Regarding the maturity of corporate mobile policy, enterprises have implemented more comprehensive policies in most areas than midsize firms (see Figure 8). While this finding is not surprising, it speaks well for midsize firms that in many areas, the differences between them and enterprises are modest.



In several areas fundamental not only to BYOD but to all mobility initiatives, too many companies are unprepared. For example, only half of enterprises and 41 percent of midsize firms have a policy in place regarding employee network access for mobile devices.

**Figure 8.** Areas Covered by Companies' Mobile Device / Mobility Policies.



Source: Cisco IBSG, 2012

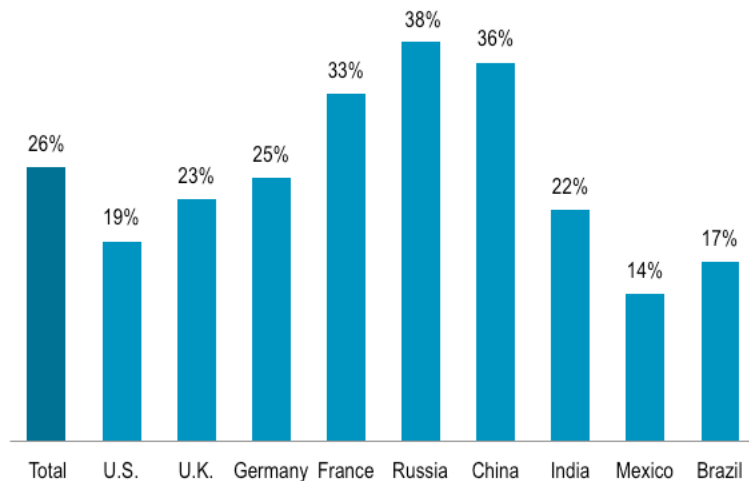
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On the negative side, for both corporate and midsize firms, there is plenty of work to be done before mobility policy can be considered robust. In several areas fundamental not only to BYOD but to all mobility initiatives, too many companies are unprepared. For example, only half of enterprises and 41 percent of midsize firms have a policy in place regarding employee network access for mobile devices. And only 31 percent have a policy around nonapproved devices.

The lack of policy clarity – and the sheer absence of policy in many cases – could contribute to the belief that BYOD leads to security problems. New threats to the security of company data from viruses, malware, and network intrusion was by far the biggest downside of BYOD identified by IT leaders (see Figure 9). The perceived danger of BYOD to corporate network security is likely a major reason that companies in Europe have not embraced the trend as fully as others. With the exception of China, European countries are the most concerned with the negative effects of BYOD on the security of corporate networks. Interestingly, the concern over network security has not made Chinese companies reluctant to embrace BYOD, since they believe the benefits far outweigh the potential costs.

Overall, the primary benefit IT leaders see from BYOD is increased employee productivity, both in terms of greater output and improved collaboration with others.

Figure 9. Percentage of Companies that Find Security the Top BYOD Challenge.



Source: Cisco IBSG, 2012

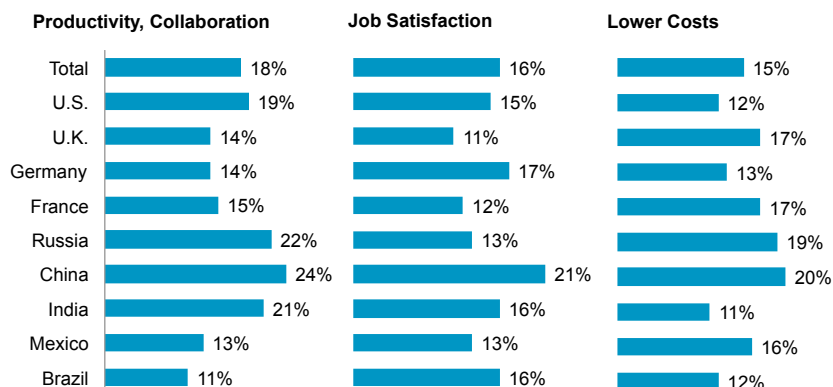
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When it comes to the benefits companies receive from BYOD, IT leaders identified three that stood out<sup>7</sup> (see Figure 10):

- Productivity:** Overall, the primary benefit IT leaders see from BYOD is increased employee productivity, both in terms of greater output and improved collaboration with others. This is an important finding because fears that employees would be distracted by personal applications and content (e.g., using social networks, playing games, using unauthorized sites for personal business and entertainment) have been an argument against BYOD.
- Job satisfaction:** Employees want to use the same devices for work that they use in their personal lives. When they are allowed to choose their own devices, employees are happier and more satisfied in their work.
- Lower costs:** Reduced mobility costs, due to employees paying for part (or all) of the costs of their mobile devices and to improved IT resource utilization, is the third benefit on average, just below job satisfaction. It is the top benefit for several countries, however, especially where the reception to BYOD has been cooler, such as France and the United Kingdom.

The main driver is that employees want more control over how, where, when, and with which device they perform their work.

Figure 10. Top Benefits BYOD Brings to the Company.

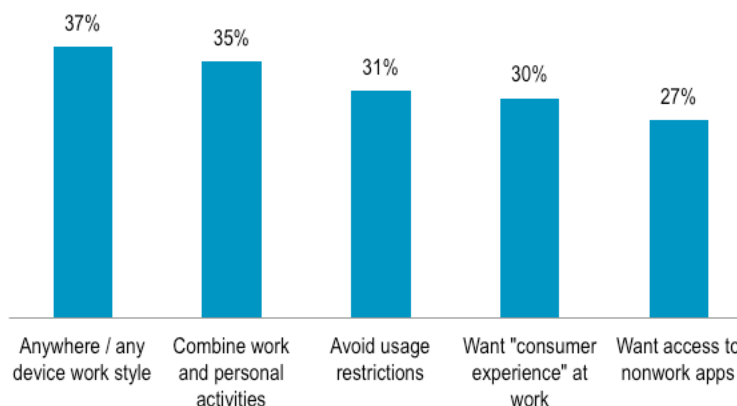


Source: Cisco IBSG, 2012

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What, according to IT leaders, are the main motivations for employees to embrace BYOD? Overall, the main driver is that employees want more control over how, where, when, and with which device they perform their work (see Figure 11).

Figure 11. Top Reasons Employees Use Their Own Devices for Work.



Source: Cisco IBSG, 2012

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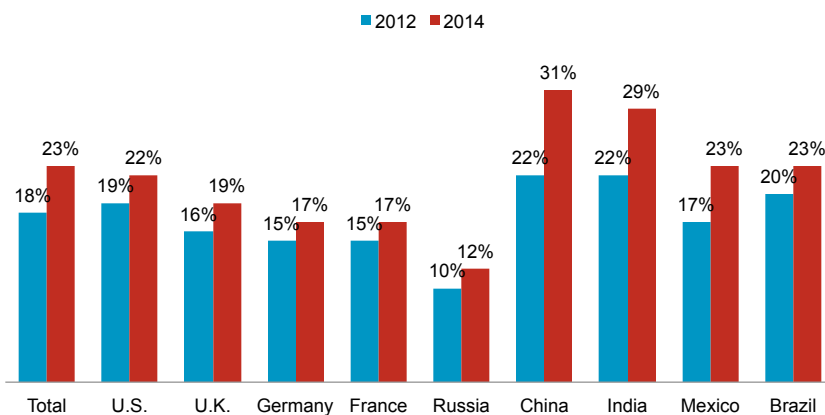
They also want to be able to switch from personal activities to work activities throughout the course of the day – or night. The ability to conduct personal business at work, and to work during personal time, has become a hallmark of knowledge work. Mobility, especially BYOD, has been driving this trend because employees always have their personal device with them, allowing friends, family, and colleagues to reach them at any time. And mobile presence applications such as IM mean employees can be found and contacted instantly. In short, today's knowledge worker is never really "out of the office," even if he or she seldom enters the physical office.

This growth in mobile devices and network traffic will have a profound impact on IT budgets in several countries.

Finally, employees want the freedom to use their own applications and cloud services without restrictions, for both personal and work tasks. BYOD is attractive because the strict lines of demarcation over what can be accessed, downloaded, and used on a company-owned device are blurred on a device owned by the employee, which has both personal and work content on it by design.

It is clear that both companies and employees see valuable benefits from BYOD. These benefits will drive increased device growth, as we have seen, as well as higher network bandwidth. This growth in mobile devices and network traffic will have a profound impact on IT budgets in several countries (see Figure 12). The IT leaders in this study expect the share of IT spending on mobile devices to grow from 18 percent in 2012 to 23 percent by 2014. In China and India, where mobile budgets already represent a high percentage of IT spending, that figure will rise from 22 percent of spending for both countries in 2012 to 31 percent and 29 percent, respectively, by 2014. While these countries are bullish on the potential benefits of mobility, especially BYOD, escalating budgets could pose a problem if they continue to grow at this rate.

**Figure 12.** Percentage of Mobile Budget Spent on Mobile Initiatives.



Source: Cisco IBSG, 2012

N = 4,892

This is true of China in particular, despite having a device-per-employee ratio of only 1.8. In contrast, Brazilian companies expect to keep their costs in line, despite robust growth projections. In Europe, mobility as a percentage of total IT spending is much lower, in keeping with the lesser emphasis these countries place on mobility initiatives.

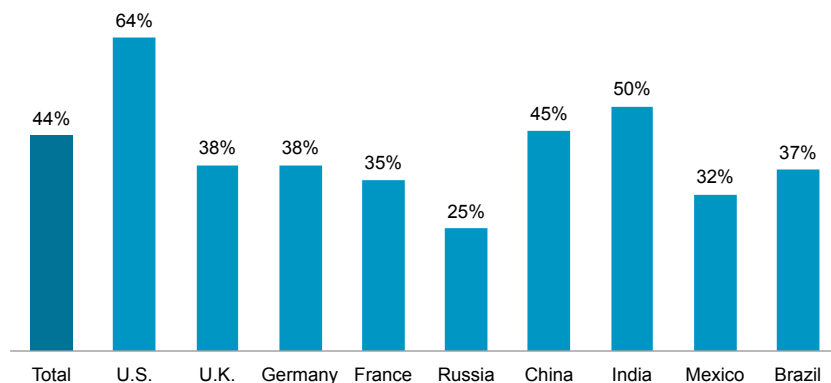
Desktop virtualization is a natural fit with BYOD in many ways because it enables companies to provide and manage a single software environment, which resides on corporate servers.

**Desktop Virtualization.** This study also explored desktop virtualization,<sup>8</sup> which separates the desktop environment from the device and enables employees to get the same or similar experience regardless of where they are or which device they are using. Desktop virtualization was the one area where our findings from the original U.S. survey diverged significantly from the rest of the countries surveyed. While there is strong awareness about desktop virtualization among most IT leaders, most countries are not very advanced in executing desktop virtualization strategies.

In the United States, 51 percent of companies have either completed or are in the process of implementing their desktop virtualization strategy. India and China are next at 40 and 36 percent, respectively. All other countries are under 30 percent.

These countries are “behind” in implementing desktop virtualization because they believe it to be less applicable to knowledge workers than do U.S. IT leaders (see Figure 13).

**Figure 13.** Percentage of Respondents Who Believe a Majority of Knowledge Workers Are Suitable for Desktop Virtualization.



Source: Cisco IBSG, 2012

N = 4,892

This conclusion may change as BYOD becomes more firmly entrenched, and as IT leaders come to understand the benefits of desktop virtualization in a mobile environment. Desktop virtualization is a natural fit with BYOD in many ways because it enables companies to provide and manage a single software environment, which resides on corporate servers. Corporate data and work files also live on the server. No matter which device the employee uses, the data and files that are needed will be available. This also makes it secure, since no data stays on the device. For some companies, however, native mobile applications may be a more appropriate deployment strategy.

Security policies and tools should be seen as enabling BYOD by making the network more intelligent and safe.

## Implications for IT Leaders

As we have seen, only 50 percent of enterprises and 41 percent of midsize companies have mobility policies in place to govern who is on the corporate network, and with which device. This is problematic even when the vast majority of mobile devices are company-owned; the risks to network security, intellectual property, and corporate data increase as employees connect more of their own devices to the network. This is not because employees will act with bad intentions, but because it becomes increasingly hard for IT leaders to know which devices are legitimate and which ones are not. In this sense, security policies and tools should be seen as enabling BYOD by making the network more intelligent and safe. Some of the most important security capabilities required for BYOD are:

- **Unified policy management:** A single policy secures data, applications, and systems, while recognizing the type of user (i.e., guest, multiple employee profiles). A single policy platform, rather than multiple policies delivered by separate IT systems, can help companies quickly and efficiently close the “mobile policy gap” and make BYOD more secure. Unified policy management also identifies and manages all mobile devices that access the network.
- **Securing and delivering corporate network access and services:** BYOD requires IT departments to deliver the right level of access to the corporate network, based on the user’s profile and device. User’s must also be able to access the appropriate applications, data, and services.
- **Device protection:** An additional layer of security at the device level, for both corporate and employee-owned devices, is essential for protecting sensitive company data. Mobile device management allows network administrators to deny access and remotely wipe data from lost or stolen devices.
- **Secure data transmission:** Security and encryption directly from the device to the network infrastructure, whether wired or wireless, allows companies to provide even their most sensitive data to mobile users regardless of device or location.

But enabling BYOD means much more than reducing risks. It requires policies and network capacity that help employees get the most from the devices they bring, and from the applications and cloud services they access. The goal is to innovate how employees do their work using the following capabilities:

- **Mobile, device-agnostic collaboration:** Employees are using a variety of devices – and tools – to collaborate with their colleagues. While freeing employees to choose the right tool, regardless of whether it is officially supported by IT, is the essence of BYOD, there are risks that employees could find themselves in self-created silos. With collaboration tools that can allow employees to use a single interface for multiple IM accounts, access voice messages, and enable others to see them when they are online, these risks are eliminated, leaving only the benefits.

Cloud-based tools that enable collaboration both within and outside the confines of the corporate network are vital to today's mobile culture, and to BYOD in particular.

- **Mobile video and desktop sharing:** The ability to join meetings, share or view applications, and have video calls from any location or device is now essential for knowledge workers, 60 percent of whom use a mobile device for work. This is especially true of executives, whose tight calendars and travel schedules make it increasingly difficult for them to hold traditional, "conference room" meetings. Yet, collaboration is vital to enabling better decision making. If they are unable to have instant, rich collaboration sessions both on the go and on the road, decisions can be delayed, and execution compromised. Cloud-based tools that enable collaboration both within and outside the confines of the corporate network are vital to today's mobile culture, and to BYOD in particular.
- **Robust network infrastructure:** As we have seen, the number of devices connecting to the corporate network is set to increase from 2.3 to 2.8 per knowledge worker. The flexibility to use the best device for the job – be it a laptop, smartphone, or tablet – leads to both device proliferation and increased network traffic, especially since our study found that knowledge workers use a variety of bandwidth-intensive applications, including video collaboration and media-rich cloud services. Moreover, these devices now connect to the corporate network in multiple ways – wired, Wi-Fi, and 3G/4G – both on and off-premises. Companies must develop networks that can handle increased bandwidth and a growing number of devices, while ensuring that devices connect to the network in the most cost-effective way. We have seen that companies are using a variety of cost-saving measures, including fixed-mobile convergence, to reduce rapidly increasing mobility budgets. A converged network, especially one that can unify cellular and Wi-Fi traffic, and manage mobile device policy, is not a luxury, but a requirement as a company's BYOD needs evolve.
- **Desktop virtualization for compatibility, support across devices:** As more employees bring their own devices to work, the variety of operating systems and configurations raises serious compatibility challenges for IT departments. Desktop virtualization solves compatibility problems by enabling IT to deliver a "virtual desktop" comprised of applications and data that employees can access regardless of the device they use. The applications and the data they access are transmitted directly from the data center to the device. This solution not only makes any device compatible with corporate software, but it also makes devices more secure, since the data is stored in the data center rather than on the device, which functions as a thin client. Employees want and expect corporate IT to support the devices they use for work, whether they are owned by the employee or provided by the company. The study shows that only 22 percent of companies currently provide IT support for all employee-owned devices. With virtual desktops, applications can be centrally managed and run independently from the user device. This allows IT to focus on maintaining the desktop, thus supporting the corporate software, and leaving device support to the user.



Companies can use BYOD-driven benefits such as these to attract and retain talented employees, and to ensure they are productive wherever they are.

## Implications for Business Executives

Ultimately, employees want more control over where and how they work, and which tools they use to get the job done. They want less emphasis on things that are peripheral to succeeding in their job roles, such as putting in “face time” at the office, or choosing among a narrow range of devices and applications. Mobile devices are now so sophisticated and easy to use, and the selection of mobile applications and cloud services so wide, that being forced to use a company-prescribed tool no longer registers with many employees. They want companies to trust them to get the job done in the way they see fit, and during the hours of the day that are most convenient.

Employee desire for more freedom, control, and flexibility may give some companies pause, for it makes both IT provisioning and management potentially more complex. But the mutually reinforcing benefits for the company and employee are substantial. For employees, BYOD can help them balance their work with social and family commitments. It fits naturally with “family-friendly” policies such as telework and flex-time. Companies can use BYOD-driven benefits such as these to attract and retain talented employees, and to ensure they are productive wherever they are.

Beyond these benefits, Cisco IBSG believes that by giving employees freedom to choose the devices, applications, and cloud services they use, work processes can be redefined. Employee-led innovation extends far beyond when and where to work. Through BYOD, employees can continually innovate in a multitude of ways, such as using cloud-based services to analyze and visualize data on a mobile device, discovering the perfect tool for managing complex workflows, or recording video meetings to improve execution when decisions are made. The potential for consistent bottom-up innovation is tremendous, and the tools are readily at hand: increasingly inexpensive, powerful devices; thousands of mobile applications with enterprise-level power and sophistication that cost only a few dollars; and application-development tools that nonexperts can use to quickly design their own custom applications.

*In the next wave of the Cisco IBSG Horizons BYOD program, scheduled for autumn 2012, Cisco IBSG will present a detailed analysis of the financial impact of BYOD on an enterprise, including an assessment of the benefits of enhancing employee-led innovation and productivity. This analysis will provide IT and business leaders with an understanding of the value of current BYOD initiatives, and a roadmap for improving BYOD policies and network capabilities to derive the maximum value from BYOD. This is vital to turning BYOD into a strategic advantage, rather than a phenomenon to which companies have reacted.*

China: highest growth of mobile devices, from 1.8 per knowledge worker in 2012 to 2.7 in 2014.

India: highest percentage of employees who use a mobile device for work: 69 percent

## Appendix 1: Regional Summary – Asia

The survey included companies from two of Asia's largest and most influential economies: China and India. Overall, Chinese and Indian IT leaders are strongly supportive of BYOD, and are excited about the benefits BYOD brings to their companies and departments. Below are several areas in which each country stood out.

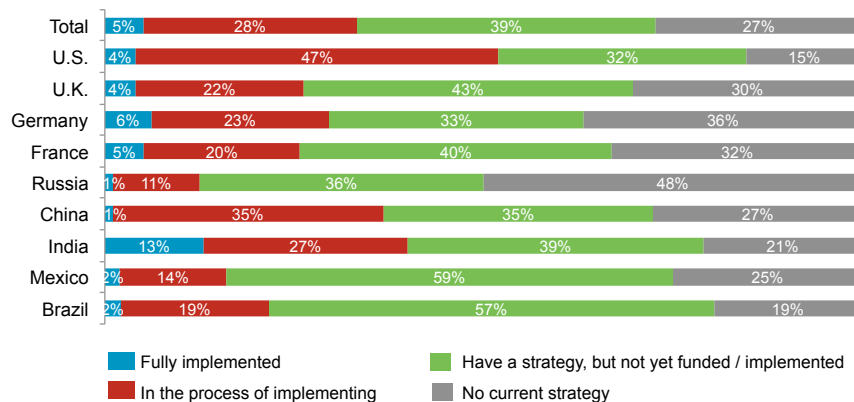
### China

- Highest growth of mobile devices, from 1.8 per knowledge worker in 2012 to 2.7 in 2014
- Most bullish on the benefits of BYOD to the company: highest percentage of companies seeing benefits in employee productivity (24 percent), employee satisfaction (21 percent), and lower costs (20 percent)
- Highest percentage growth of mobility budgets as a part of total IT spending, from 22 percent in 2012 to 31 percent in 2014
- Highest percentage of companies that expect BYOD to increase in the next two years: 76 percent

### India

- Thirty percent of Indian companies support all employee-owned devices, second only to the United States
- Highest percentage of employees who use a mobile device for work: 69 percent
- Along with the United States, highest number of connected devices per knowledge worker: 2.8 in 2012, and 3.2 in 2014
- Highest rate of desktop virtualization implementation: 13 percent have fully implemented their virtualization strategy, and India is close to the U.S. in the percentage of companies that are in process of implementing it (see figure 14)

**Figure 14.** Degree to Which Companies Have Implemented a Desktop Virtualization Strategy.



Source: Cisco IBSG, 2012

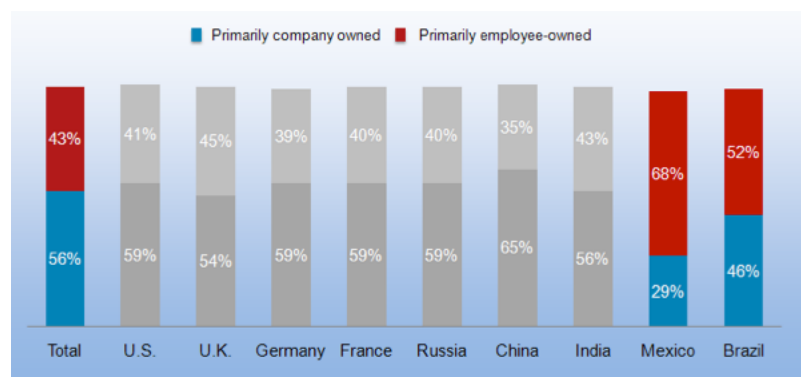
N = 4,892

Brazil: will have 3.1 connected devices per knowledge worker by 2014, nearly as high as the United States.

## Appendix 2: Regional Summary – Latin America

The survey included two large Latin American countries: Mexico and Brazil. As with the Asian countries, IT leaders in Mexico and Brazil are highly supportive of BYOD. In fact, their companies have the highest rates of current BYOD adoption on a per-company basis. When we asked IT leaders to describe whether devices were primarily owned by the company or by the employee, Mexico and Brazil had the highest percentage of employee device ownership (see figure 15).

**Figure 15.** Percentage of Companies Where Devices Are Primarily Owned by Company vs. Employee.



Source: Cisco IBSG, 2012

N = 4,892

Mexico: 88 percent of IT leaders are “positive” about the effect BYOD is having on their departments, tied with China for the highest rating among countries in the study.

### Brazil

- Will have 3.1 connected devices per knowledge worker by 2014, nearly as high as the United States
- Third-highest percentage of companies that support all employee-owned devices (25 percent)
- IT leaders do not feel BYOD is a major security threat, with only 17 percent saying security is the top challenge

### Mexico

- The top benefit of BYOD is cost savings, which is not surprising given the high percentage of employee-owned devices in Mexican firms
- 88 percent of IT leaders are “positive” about the effect BYOD is having on their departments, tied with China for the highest rating among countries in the study
- High device growth per knowledge worker, from 2.3 devices in 2012 to 3.0 in 2014
- Midsize firms have more mature, comprehensive mobile policies overall than enterprises, whereas the opposite is true of all other countries

European companies could suffer in comparison to those in competing countries that are using BYOD to harness employee-driven improvements in productivity, collaboration, and execution.

## Appendix 3: Regional Summary – Europe

Europe has the most consistent regional trends in our study. To varying degrees, European IT leaders are the most reluctant to support BYOD among their employees, and view it in the least optimistic light. Consequently, they are seeing fewer employee-owned devices and nonapproved applications. In short, they appear to be reacting to BYOD in order to minimize its impact on how business is currently done, rather than embracing it to improve the freedom of their employees to work the way they prefer. While there are some potential downsides to BYOD, such as security risks and increased complexity of managing multiple device platforms, Cisco IBSG believes that these risks pale in comparison to the benefits that can be reaped with a well-conceived BYOD strategy. European companies could suffer in comparison to those in competing countries that are using BYOD to harness employee-driven improvements in productivity, collaboration, and execution.

### United Kingdom

- Highest percentage of IT leaders in Europe (51 percent) who believe employee-owned devices are growing as a share of total devices connecting to network
- Top benefit of BYOD is lower costs
- Much higher percentage of enterprises (29 percent) than midsize firms (7 percent) have completed, or are implementing, desktop virtualization

### France

- Next to Germany (50 percent), lowest percentage of employees who use a mobile device for work (52 percent)
- Lowest percentage of IT leaders who believe BYOD is positive for their organizations (40 percent)
- Highest combined percentage of companies that prohibit employee-owned devices, or offer network access with no other support (51 percent)

### Germany

- Lowest percentage of smartphones, laptops, and tablets owned by employees in the study
- Highest percentage of companies that provide no support for employee-owned devices (22 percent)
- Only country where the percentage of IT leaders seeing “no benefit” to BYOD was higher than any other benefit, including higher employee productivity, which was the top choice, on average

### Russia

- Highest percentage of IT leaders who say security is top BYOD challenge (38 percent)
- Lowest level of desktop virtualization implementation (48 percent have no desktop virtualization strategy); see virtualization as least applicable to employees

## Endnotes

1. In this paper, we refer to “employees” and “knowledge workers” interchangeably. We define “knowledge worker” broadly: white-collar workers, managers, and professionals who work in a corporate setting.
2. An increasing number of consumers across the world are purchasing mobile devices. Below are recent figures for smartphone and tablet penetration in the countries we studied. Smartphone penetration: U.S. 44%, Canada 33%, U.K. 51%, France 38%, Germany 29%, Russia 25% (2011), China 33%, India 23% (2011), Mexico 20%, Brazil 14%. Figures are for 2012 unless otherwise noted (source: Google/IPSOS). Tablet penetration in 2012 is as follows: U.S. 42%, Canada 22%, U.K. 28%, Germany 12%, France 19%, Russia 3%, China 3%, India 2%, Mexico 3%, Brazil 4% (source: Strategy Analytics).
3. “BYOD and Virtualization: Top 10 Insights from Cisco IBSG Horizons Study,” Cisco IBSG, 2012, <http://www.cisco.com/web/about/ac79/docs/BYOD.pdf>
4. The U.S. results in this study differ slightly from the results of the original U.S. study because of the addition of 312 respondents from midsize companies.
5. Mobile devices include, but are not limited to, laptops, smartphones, and tablets.
6. Source: Cisco IT
7. In fall 2012, Cisco IBSG will release the next wave of its BYOD Horizons program, which will feature the quantified benefits of BYOD to companies.
8. Desktop virtualization is often called virtual desktop infrastructure (VDI), hosted virtual desktop (HVD), desktop as a service (DaaS), and server-based computing.

### About Cisco IBSG Horizons

Horizons is a multimodal research and analysis program designed to identify business transformation opportunities fueled by technology innovation. Horizons' multimodal approach focuses on three core areas: (1) primary research such as customer surveys, focus groups, and subject-matter-expert interviews; (2) in-depth secondary research from market leaders and influencers; and (3) the application of predictive analytics to garner insights about technology innovations and quantify their impacts.

For more information about the Cisco IBSG "BYOD and Virtualization" Horizons study, please contact:

**Joseph Bradley**

Cisco IBSG Research & Economics Practice  
josbradl@cisco.com

**Jeff Loucks**

Cisco IBSG Research & Economics Practice  
jeloucks@cisco.com

**James Macaulay**

Cisco IBSG Research & Economics Practice  
jmacaula@cisco.com

**Richard Medcalf**

Cisco IBSG Research & Economics Practice  
rmedcalf@cisco.com

**Lauren Buckalew**

Cisco IBSG Research & Economics Practice  
labuckal@cisco.com

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#### More Information

Cisco IBSG (Internet Business Solutions Group) drives market value creation for our customers by delivering industry-shaping thought leadership, CXO-level consulting services, and innovative solution design and incubation. By connecting strategy, process, and technology, Cisco IBSG acts as a trusted adviser to help customers make transformative decisions that turn great ideas into value realized.

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