White Paper

Next-Generation Knowledge Workers

Accelerating the Disruption in Business Mobility

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Executive Summary

The revolution in mobility is transforming the ways in which we live, learn, play, and, in particular, work. Indeed, every dimension of our business lives stands to change: whom we work with and when, where, how, and why we work – all will be impacted.

This game-changing technology transition is driven by innovation and key global megatrends – including generational changes, urbanization, multifactor productivity, and a rising middle class in the developing world. And it continues to evolve rapidly. In short, the mobile revolution is still gathering momentum, and the near future promises exciting breakthroughs that will drive the creation of new business models across the value chain.

The ultimate goal of business mobility is to drive better productivity, heightened customer experience, and harmonious work/life balance. Business mobility offers freedom for knowledge workers beleaguered by accelerating demands on their time and talents; with it, they can take control of their success at work while protecting their personal lives. Indeed, workers themselves have taken much of the initiative toward business mobility. It is now up to enterprises to support and shape their further adoption of this key technology to capture its full benefits. Moreover, business mobility represents an opportunity for service providers (SPs) to generate new revenue and to deepen their enterprise customer relationships.

To gain a better perspective on the latest trends in business mobility, Cisco® Consulting Services (CCS) conducted an extensive survey in March 2013. Comprising 4,800 respondents across eight countries, it is one of the largest and most comprehensive studies of the needs, interests, and behaviors of end users of business mobility.

Several key themes emerge from this survey, all of which will be further explained in this paper. These insights about mobile workers have significant implications for enterprises and service providers:

In many ways, productivity is the cornerstone of the mobile business revolution.

1. **The transformation of business mobility is well under way.** And it will gather greater momentum as the "DNA" of mobile employees – their devices, networks, and applications – continues to evolve rapidly. Enterprise IT will need to provide new services to unleash the full benefits of business mobility as it continues its sweep into advanced stages of adoption.
2. **Business mobility has a lot of room to grow.** While a significant proportion of employees don't use business mobility, many perceive its distinct advantages. For example, among those who are not current users, approximately 30 percent feel that a mobile business device would help them stay in better touch with managers and colleagues. More than 20 percent believe it would help them access time-specific and specialized information. The challenge for enterprise IT is to educate those unconnected workers so that employees and employers alike can continue to gain the benefits of business mobility.
3. **There is pent-up demand for next-generation business mobility offerings.** Forty-three percent of business users are interested in "desktop in the cloud" services. Wi-Fi Voice, biorecognition, and dual-persona solutions are also generating interest. Though these services are not yet commercially available, enterprise IT should actively explore future deployment.
4. **Productivity is a key driver of adoption.** In many ways, productivity is the cornerstone of the mobile business revolution. It is what creates value and inspires the CIO to invest. But it also drives employees to take the initiative in purchasing their own devices and apps. Among our respondents, productivity – as defined by time savings – is the leading driver of mobile use in the workplace. If it is to realize the productivity benefits, enterprise IT will need to take the driver's seat in shaping and supporting business mobility in order to realize productivity.
5. **Security and privacy concerns continue to be a key issue.** More than 60 percent of all business users are either not comfortable with – or are undecided about – IT installing security software on their personally owned devices. Clearly, enterprise IT will need to educate employees on the importance of protecting company assets, while ensuring personal privacy.
6. **The business mobility marketplace is fragmented, providing a prime opportunity for consolidation.** Today, employees buy their devices and apps from a variety of sources, and access a wide range of after-sales support. The business mobility device market is similarly fragmented. This puts the onus on enterprise IT to become a more involved partner, and to play a more harmonizing role as the BYOD (bring your own device) and BYOA (bring your own application) trends continue to grow.

More specifically, there are implications for service providers, offering both risks and great rewards:

Service providers are well positioned to aid the CIO by delivering new business mobility solutions, thereby accelerating the CIO's time to market through managed offers.

1. **Service providers need to step up to business mobility before losing out to device and over-the-top (OTT) players.** Apple, for example, is leveraging its positive standing with consumers to pave its entrance into enterprise technology. Indeed, the trend toward BYOD began when senior executives brought their iPhones and iPads into the enterprise. This compelled IT to formally support the devices and encouraged the rank-and-file to follow and drive further adoption. SPs should answer this new challenge.
2. **Service providers should drive the consumerization of IT in business mobility.** Consumers are starting to use cloud-based mobility applications that are available on different devices. For example, online services such as Dropbox, Carbonite, Evernote, and Box are migrating their consumer offerings to businesses. The convergence of next-generation cloud services and business mobility is a game changer that will provide SPs with unique opportunities to offer cloud-delivered mobility services at lower cost-to-serve; reinvent service delivery; and address the IT needs of enterprises, small and medium-sized businesses (SMBs), and small and medium-sized enterprises (SMEs) in unprecedented ways.
3. **New emerging and monetizable business models.** Our research shows employee interest in unique offerings such as virtual desktop as a service and ubiquitous collaboration. This illustrates the desire for mobility services that offer a distinct and clear value proposition. Even a service such as dual persona, which is not readily available, generated interest among 31 percent of users. In short, SPs can explore a plethora of advanced, managed mobility offerings that already intrigue customers. In light of the continued erosion of voice and data prices in the consumer segment, these business models provide new growth opportunities for service providers.
4. **Consolidation of business mobility value chain.** SPs have a tremendous opportunity to consolidate the business mobility market and provide a more integrated, end-to-end value proposition. This has the potential to increase the average revenue per user from enterprise business mobility customers. It could also reduce churn and increase customer satisfaction. SPs currently offer devices and some after-sale service support, but have a limited play in software-as-a-service (SaaS) applications. If SPs were to bring all aspects of devices, applications, and managed services under one roof, they would create strong competitive differentiation.

To maximize the business value of mobility, the remaining pain points will need to be understood and addressed by CIOs and service providers alike. CIOs are not sufficiently aware of these forthcoming trends, and in many organizations, business mobility solutions are already lagging. Service providers are well positioned to aid the CIO by delivering new business mobility solutions, thereby accelerating the CIO's time to market through managed offers. But they must take action to ensure that these solutions are available.

Looking ahead, our survey respondents see mobile technology becoming increasingly important as they continue the everyday battle to achieve work/life harmony.

Business Mobility – an Ongoing Transformation

The revolution in business mobility is ongoing and constantly changing, and we are in the middle of what we see as a four-stage process ("Forming," "Storming," "Norming," and "Performing"). Each phase has been driven forward by changes in "DNA," all of which are driving us toward the next phase.

An indication of business mobility's importance in the current "Storming" phase can be seen in the following: 40 percent of our respondents believe that without their devices, they could not function more than one hour without their jobs being impacted. And approximately 50 percent of mobile-enabled workers have seen productivity gains in the past two years.

As work responsibilities become ever more demanding and time consuming, many people fear an encroachment on their home lives and free time. Looking ahead, our survey respondents see mobile technology becoming increasingly important as they continue the everyday battle to achieve work/life harmony. More than 50 percent see mobile devices as a way to improve their work/life balance.

As for increased freedom and mobility, more than 30 percent of our respondents currently work from home regularly. Another 30 percent expect to be working more from home in the future.

A key element in the juggling of work and life is time. More than 30 percent of our respondents believe that they have been working longer hours; yet more than 40 percent feel they have more control over how, when, and where they work.

Figure 1. Changes in "DNA" and Workplace Are Driving the Third Phase of Business Mobility Evolution

	Phase 1 Forming	Phase 2 Storming	Phase 3 Norming	Phase 4 Performing
Devices	Laptops	Smartphones	Tablets	Interchangeable
Networks	2G	3G	Wi-Fi	Small cells
Applications	Email	Corporate / IT	BYOA	Dual persona
Workplace	Productive	Global	Collaborative	Flexible
		WE ARE HERE		

Source: Cisco Consulting Services, 2013

Meanwhile, many employers are limited by their own knowledge gap; they fail to recognize the productivity gains that will result from investments in business apps.

DNA innovations, however, are having an uneven impact in the workplace. Approximately 40 percent of our respondents plan on using more, not fewer, devices. This may reflect a lag in awareness – despite past trends, future innovation should lessen the number of devices needed. And approximately 30 percent are paying for their own applications. Meanwhile, many employers are limited by their own knowledge gap; they fail to recognize the productivity gains that will result from investments in business apps.

Which gadget will make the most of those mobile business apps? There is a clear preference for the tablet (66 percent) over the smartphone (57 percent) as the preferred device for balancing work and life concerns. Employers are also more likely to pay for tablets over smartphones. This can create complications when users wish to import the work tablet into their personal lives.

Room To Grow

According to our survey, there is no shortage of unconnected workers. Yet a sizable percentage of them aspire to be better connected.

Among our respondents, 40 percent use their mobile devices only for personal use. Yet among that group, 38 percent are interested in using their mobile devices for work.

We believe that with the continuing DNA evolution, that number will rise as more workers are exposed to the clear benefits of business mobility. Indeed, one-third of those not currently using a mobile device for work believe that they will be using one for work within two years.

When survey participants were asked to identify the key motivators for connecting the unconnected, the top three responses were staying in touch with colleagues and managers (30 percent); accessing time-sensitive or specialized information (21 percent); and improving customer experiences (20 percent). In a separate but related question, nearly half (42 percent) of employees not currently using mobile devices for work felt that such devices would save them more than an extra hour per week (a key productivity driver). For a worker earning $50,000 per year, that translates to an additional $1,250 or more annually.

Interestingly, among those not using mobile devices for business, key challenges were not receiving a device from their employer (20 percent); no service plan from the employer (12 percent); and no official policies governing the use of the devices from their employer. Clearly, enterprise IT has an ongoing role in removing these pain points.

Workers are becoming more comfortable with the value of constant collaboration. Currently, 24 percent use mobile collaboration, and an additional 31 percent are interested in adopting it.

Pent-up Demand for Next-Generation Mobility

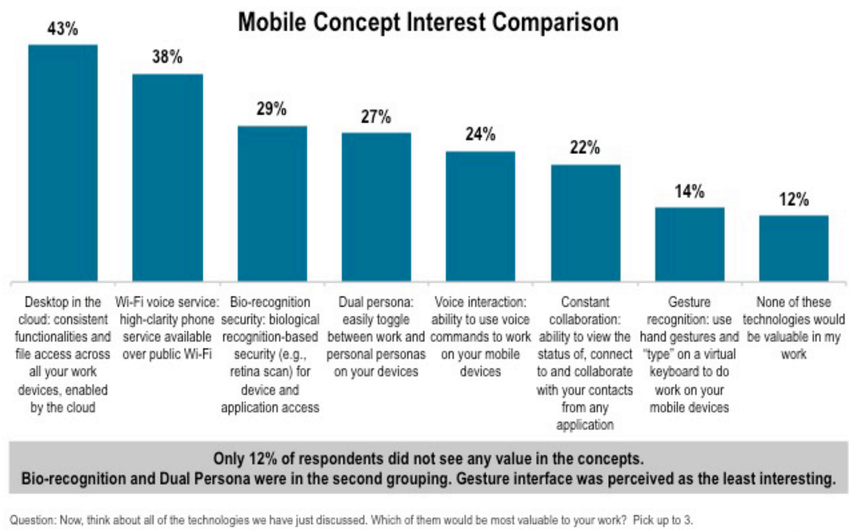
As we move into the upcoming phases of business mobility, it is crucial to determine which next-generation concepts will drive future interest. Here are some concepts that captured the imaginations of our respondents:

- The virtual desktop, or **"desktop in the cloud,"** is already being used by 28 percent of survey respondents. Another 31 percent don't use it but are interested. Sixty-one percent cited "ability to access files from any of my devices" as a clear motivator. "Secure storage of my docs/information in the cloud" enticed another 41 percent, and 40 percent favored "real-time syncing of devices and files."
- Workers are becoming more comfortable with the value of **constant collaboration.** Currently, 24 percent use mobile collaboration, and an additional 31 percent are interested in adopting it. Some forthcoming mobile enhancements could drive further interest in constant collaboration. These include touching mobile devices to share information (51 percent were interested); finding and connecting relevant subject-matter experts (48 percent); and wirelessly sharing a presentation via a virtual whiteboard (48 percent). In addition, there is interest in location/recognition-based enhancements, such as GPS navigation and maps for indoor locations (53 percent); having a device provide relevant location-based information (49 percent); and having a device notify a user when an important person enters a location (48 percent).
- **Mobile VoIP as a service,** a service based on voice over Internet Protocol, was another key innovation. This service is particularly relevant for tablet or smartphone users who do not have a mobile voice plan. Twenty-seven percent of our respondents would be interested in such a service if it were available over Wi-Fi. Looking forward, the prospect of nearly ubiquitous indoor Wi-Fi blanketing a city or community drives interest up to 39 percent.
- Devices still appear to be increasing in number, which can create additional complexity and aggravation for the business user. **Dual-persona** enhancements enable a user to separate his or her work and life personas within the same device. In short, a smartphone or tablet can hold critical business apps or work databases – along with personal contacts and phone numbers. Having a common device for one's personal and work lives is a compelling concept for many respondents; only 18 percent are using this feature today, but 31 percent who are not using it are "very" interested. By incrementally offering separate billing between work and personal charges, the interest rises to 38 percent.

Figure 2 illustrates the overall levels of interest in these next-generation concepts.

By paying for apps and devices that can be used for work, knowledge workers are taking control.

Figure 2. Desktop in the Cloud and Wi-Fi Voice Were Perceived as the Most Interesting Concepts Tested.



Source: Cisco Consulting Services, 2013

Productivity – a Key Driver of Adoption

In many ways, productivity is the cornerstone of the mobile business revolution. It is what creates value and inspires the CIO to invest. But it also drives employees to take the initiative in purchasing their own devices and apps. As much as any CIO, they see productivity as a burning issue. Indeed, anything that enables productivity and efficiency will be welcomed as a gateway to freedom. This is especially true since the global downturn; many workers continue to be asked to do more – with less support.

So it is not surprising that knowledge workers themselves are initiating many of the productivity gains from business mobility. By paying for apps and devices that can be used for work, knowledge workers are taking control.

Among our respondents, productivity – as defined by time savings – is the leading driver of mobile use in the workplace. Here are some more specific findings pertaining to productivity:

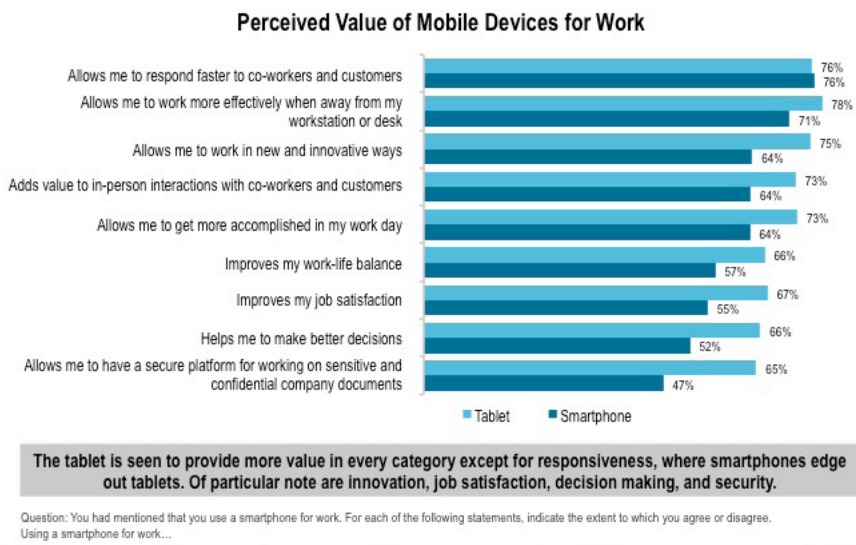
- The No. 1 motivation for using a mobile device for work is to stay in touch with co-workers.
- The No. 1 frustration of using Wi-Fi is the perceived slowness of connection and implications on productivity.
- Approximately 50 percent of mobile-enabled workers have seen productivity gains over the past two years.
- Forty percent of mobile workers can go only one hour without their devices before their jobs are impacted.

The mobile revolution is gaining momentum, but one inhibitor still looms largest: security.

- There was also interest in emerging time-saving interfaces, including voice, gesture, and biorecognition.

Significantly, the tablet scored higher than the smartphone in many categories. In a related survey question regarding the extent to which mobile devices enable more efficient and effective workers, the tablet scored higher than the smartphone (see Figure 3).

Figure 3. Mobile Devices Enable Efficiency, but Tablets Edge Smartphones.



Source: Cisco Consulting Services, 2013

Security and Privacy Concerns Loom

The mobile revolution is gaining momentum, but one inhibitor still looms largest: security. Indeed, changing mobile behavior has created security challenges that will need to be addressed. Thirty-one percent of our respondents are spending more time away from the office, and nearly 60 percent prefer online over offline communications. On the commerce side, approximately 30 percent of our respondents are using digital transactions for work purposes, and another 30 percent are making purchases via online mobile devices.

All of these behaviors can compromise key company data. Thus, 35 percent of our respondents would not use a cloud desktop app, owing to security concerns. Fourteen percent are concerned about the security of Wi-Fi in work situations.

The employee response to current company security solutions, however, was mixed. Thirty percent are uncomfortable with having IT security software installed on their personal devices; a similar percentage are undecided.

Nevertheless, 37 percent would welcome biorecognition software as an efficient, added layer of security. Eleven percent of respondents still use a specialized device, in many cases for security purposes.

A more standardized approach for procuring and managing apps and devices would be of benefit to employees and employers alike.

On security issues, the survey shows, once again, a clear preference for tablets. When asked which device “allows me to have a secure platform for working on sensitive and confidential company documents,” 65 percent preferred tablets; 47 percent preferred smartphones.

Overall, these numbers spell out the increased need for better mobile security solutions to ensure that the drivers of mobile business technology outweigh the inhibitors. IT departments will need to be especially proactive in managing the added security threats brought about by BYOD and BYOA, especially as external solutions, beyond the company firewall, become more prevalent. But to allay the privacy concerns of employees, employers will also need to offer further education on the importance of downloading IT departments’ security software on personal devices.

A Fragmented Marketplace

Who pays for business apps? Where should devices be purchased? And who troubleshoots when problems arise? Along with security concerns, fragmentation in the procurement and management of apps and devices is a key inhibitor.

Many business users invest their own money in mobile apps for business; those who don’t use them have low interest in adopting them in the future. Getting less-connected workers to try some relevant apps would be an important first step, as many would then see their value and obvious advantages. Our survey found that while more than 36 percent of respondents said that their companies paid for business apps, more than 30 percent stated that they themselves paid; 10 percent said that they shared the costs with the company. Of those not using business apps already, 57 percent said that they were not much interested in using them in the future. Thirty percent were somewhat interested.

Typically, employees don’t quite know where to go for apps, citing disparate sources such as company tech support (approximately 35 percent), mobile-app stores (34 percent), device manufacturers (20 percent), and general Internet searches (32 percent) as their main sources of apps for business purposes.

Similar fragmentation surrounds technical support. Approximately 55 percent of our respondents turn to their company’s tech support, but again, device manufacturers, general Internet searches, and co-workers also featured prominently as sources of help.

As for devices, a high percentage preferred purchasing at physical retail outlets (30 percent from consumer electronics stores, followed closely by mobile SP stores, device manufacturers’ stores, and big-box retailers). Web outlets scored considerably lower.

A more standardized approach for procuring and managing apps and devices would be of benefit to employees and employers alike. Companies that wish to support the productivity and efficiency gains of mobile business technology may need to rethink some of their polices.

CIOs must be the catalysts for change by ensuring access to business solutions, alleviating security concerns, and encouraging the less connected to adopt mobile technology.

For Enterprise CIOs: The Case for Business Mobility Investments

As we have seen, enterprises will need to develop consistent, standardized mobile business strategies across departments and business units. Mobiles have become the go-to device for employees when they are on the move. But mobile devices, particularly tablets, are increasingly preferred when employees are at their desks as well. This trend will push CIOs to adopt a more expansive role.

Forward-thinking CIOs will embrace BYOD while ensuring the most up-to-date security solutions. As their overall strategy evolves, CIOs will shift IT spending away from devices to applications and data connectivity. They will invest in the future and drive a new phase of productivity. In the process, they will support the next generation of the knowledge-driven workforce, one that enables innovation, efficiency, and a harmonious work/life balance.

A key point is that while many mobile business employees are taking their own initiatives – often driven by a need to balance their own work and personal lives – the resulting benefits will touch everyone, at all levels. Ultimately, all CIOs seek greater productivity and efficiency, not to mention overall happiness, for their workers.

In short, business mobility makes better employees. But while workers themselves may be subsidizing its evolution, CIOs must be the catalysts for change by ensuring access to business solutions, alleviating security concerns, and encouraging the less connected to adopt mobile technology. After all, corporate IT is still the first place many employees will go when problems arise with mobile devices or business applications. But CIOs must ensure that the right solutions are available.

If they are not proactive, they will risk falling behind in overall competitiveness.

For SPs: The Case for Accelerating Business Mobility Initiatives

What matters to CIOs should matter to service providers. SPs must focus on solutions and access for knowledge workers while providing an easier way of acquiring, using, and paying for those services. Service providers that succeed in the next phase of business mobility will infuse their offerings with a combination of quality, reliability, and seamlessness of experience. Following are some initial steps SPs may want to consider:

Service providers have an opportunity to provide new business services and monetize/capture enterprise-spend share across all three DNA dimensions.

1. A well-bundled device management offer from SPs would help CIOs consolidate the current fragmented distribution channel, while improving the employee business-mobility experience in a cost-effective manner. Given the added complexity that mobile solutions can create, it is crucial for SPs to simplify the user experience with managed services and hosted options. In fact, SPs can offer device management services independent of the SP that provides the mobile service; this can prove valuable for enterprises with a global footprint that rely on different mobile SPs.
2. In addition, service providers have an opportunity to provide new business services and monetize / capture enterprise-spend share across all three DNA dimensions:

   Devices

   - With nearly 40 percent of employees expecting to use more devices in the future, SPs should aggressively pursue device-management offers.
   - Mobile SPs should enhance both the retail and online channels for device and application purchases, as well as general employee support issues.

   Networks

   - Develop solutions to separate personal and business usage for the employee.
   - Offer additional security options to reduce the fears of CIOs (and employees) concerning mobility. (As we have seen, in many categories, security ranked as a key inhibitor for a high percentage of respondents.)

   Applications

   - Offer applications that improve the basic mobile experience, including private branch exchange integration and VoIP services over Wi-Fi. Integrating VoIP offerings with existing corporate phone systems could drive further interest.
   - Offer applications that improve employee productivity, including desktop in the cloud and enhanced collaboration tools. Consider developing an app store to help business users manage the complexity.

Conclusion – and a Call to Action

For enterprise CIOs and service providers alike, it is crucial to facilitate the next phase of business mobility. There are clearly great advantages in harnessing the benefits of collaboration and mobility. The key is to find synergies between the two. Those that bridge these technology areas with proactive strategies will realize great business value; those that don't will miss an important opportunity. For while the initiatives of individual employees may be driving this evolution in important ways, these forward-thinking knowledge workers will need to be supported and encouraged if they are to further accelerate the journey.

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