WHITE PAPER

Accelerate Business Benefits with BYOD Adoption

Despite security concerns, employee use of mobile devices is broadly seen as a positive trend by industry experts and enterprise IT teams around the world. Mobile technology leader Samsung aims to make Bring-Your-Own-Device programs even more successful for its customers.

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Businesses and other organizations have been treated to a wild, technology-fueled ride in recent decades. First they experienced the explosive growth of personal computers in the 1980s and 1990s, and then the tidal-wave inundation of the Internet during the past 15 years. Having managed to accommodate, and then exploit, these once disruptive trends, many business and IT leaders probably thought they were well prepared to manage rapid technological change going forward.

Then came the golden age of mobility. Still in its formative years, this age is making its precursor, the mobile era (characterized by voice-centric cellular phones and laptop PCs), seem quaint by comparison. And, while business and IT leaders must once again struggle to keep pace with technology's head-spinning evolution, the current confluence of mobile communications and mobile computing promises to ultimately deliver many more benefits than challenges.

The raw numbers give some sense of the mobile revolution now under way. The International Telecommunications Union (ITU) estimates there were 6.8 billion mobile cellular subscriptions (measured by the number of SIM cards in use) worldwide at the start of 2013. Market research firm IDC estimates there were 1.7 billion mobile phones shipped worldwide in 2012, and that 712.6 million of those devices were smartphones. The number of smartphones shipped will grow to 958.8 million in 2013, IDC estimates.

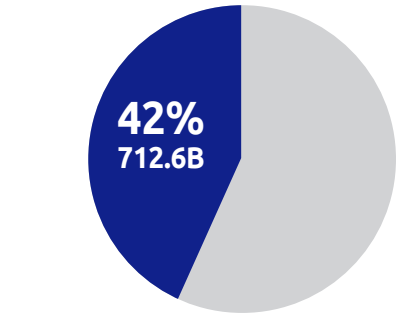
As for the new breed of tablet PCs, IDC estimates there were 144.5 million units shipped in 2012. This year, IDC expects shipment numbers to grow 58.7 percent, to 229.3 million units.

Supporting this avalanche of intelligent mobile devices is an increasingly capable and pervasive networking infrastructure. The ITU predicts there will be 2.1 billion mobile broadband subscriptions by the end of 2013, up from just 268 million in 2007.

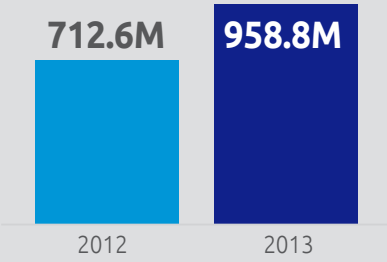
These staggering numbers are driving broad generational, cultural and business movements. Younger people are coming of age at a time when phrases such as "information at your fingertips" and "anywhere, anytime, any device computing" are everyday realities, not just visionary goals. Consumers of all ages have rapidly adopted cutting-edge mobile devices and networks, and this experience has colored their expectations about how business-based technologies and processes should function. The resulting consumerization of IT has organizations reacting to the expectations and desires of their employees, largely by adopting technologies that have already established themselves in the consumer market.

There is no more emblematic example of the consumerization of IT than the bring-your-own-device (BYOD) phenomenon. Organizations supporting BYOD allow employees to access corporate resources and work using personal mobile devices, and may offer to help finance and maintain these devices as well.

Smartphone shipments as percentage of 2012 mobile phone market

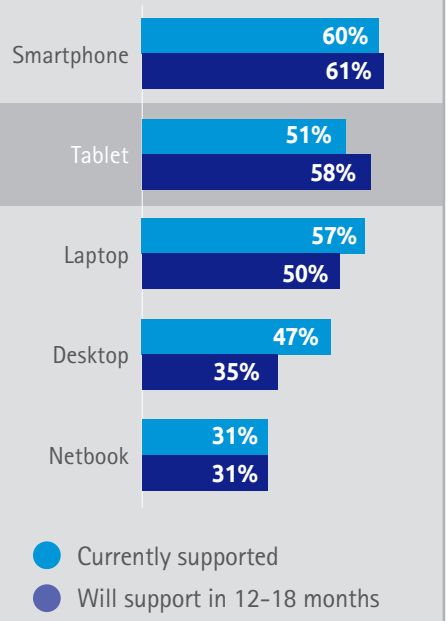


Projected growth of smartphone sales in 2013



+35%

Figure 1. **Which types of employee-owned devices does your organization support and service?**



SOURCE: 1,621 respondents, 2013 Consumerization of IT in the Enterprise, IDG Enterprise

Despite the rapid adoption of BYOD programs, much coverage of this trend focuses on the security and management challenges this bottom-up technology introduces. BYOD programs wouldn't be spreading so rapidly, however, if they didn't also offer real business benefits. Indeed, surveys of business and IT leaders show they expect a range of benefits from BYOD and the consumerization of IT. These include reduced costs, increased business agility and—most critically for some—improved employee productivity.

This paper explores the BYOD trend, as well as the productivity and other benefits it can deliver. It then describes what leading mobility provider Samsung is doing to help organizations implement successful enterprise mobility programs.

BYOD and IT consumerization on the fast track

The BYOD trend is occurring within the broader context of an explosion in enterprise mobility initiatives. More than 80 percent of IT leaders surveyed by Computerworld in late 2012 said their enterprises were either implementing or exploring mobility solutions. Fifty-five percent of survey respondents said mobility is critical or very important to their organizations, and another 30 percent said it is somewhat important.

The business value of a highly mobile workforce is sparking an increase in mobility program spending. In a recent IDG Research survey (sponsored by Citrix), nearly half of respondents said their mobility budgets would increase from 2012 to 2013. On average, mobility initiatives—including mobility hardware, software, services and training—already accounted for 14 percent of the respondents' IT budgets, and that percentage is growing.

Against this backdrop, BYOD has emerged as the most significant subset of the enterprise mobility revolution. In relatively short order, BYOD has taken the business world by storm. At the end of 2012, 55 percent of enterprise IT leaders surveyed by IDG Enterprise said their organizations already allowed employees to work on their personal devices.

Sixty percent of survey respondents said they currently support and service personally owned smartphones, but such phones aren't the only devices being used as part of BYOD programs. As illustrated in Figure 1, organizations also support and service other types of personal devices, with support for tablets likely to rival smartphones during the next 12 to 18 months.

BYOD introduces security and management challenges

Notwithstanding the widespread embrace of BYOD, these devices don't come worry-free. IT departments accustomed to selecting, purchasing, provisioning

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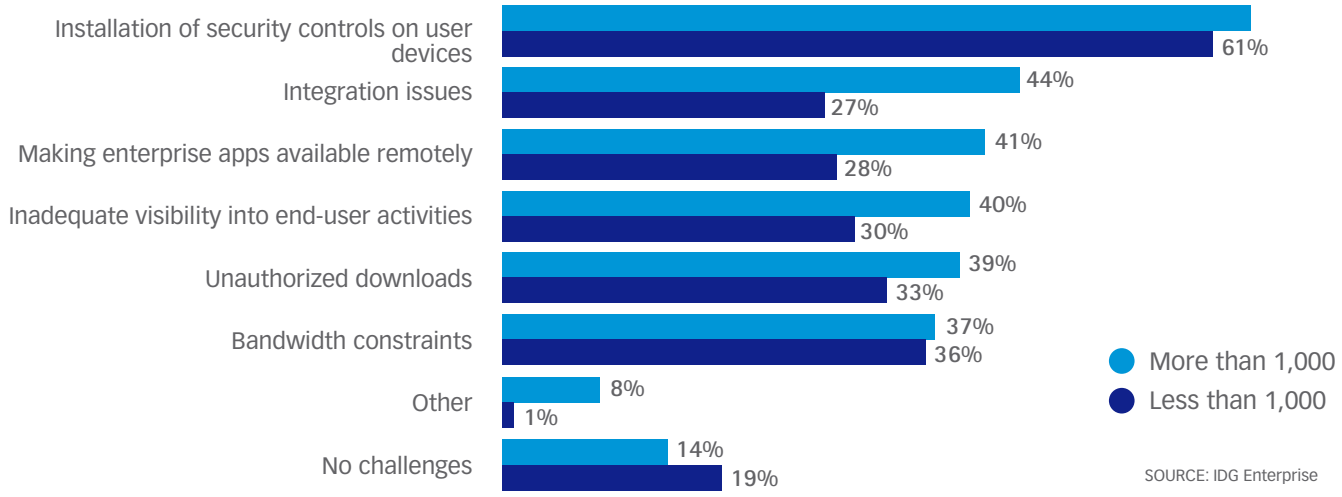
Figure 2. **Security challenges experienced as a result of the consumerization of IT**



SOURCE: IDG Enterprise

and supporting mobile devices for employees are now asked to support a diverse mixture of employee-owned smartphones, tablets and laptops. Simply expanding the universe of supported devices can add greatly to the complexity and cost of device management.

Most worrisome from both an IT and a business perspective is the potential for poorly managed devices to expose corporate information and networks to various security risks. Indeed, 82 percent of IT professionals surveyed by IDG Enterprise at organizations with 1,000 or more employees said IT consumerization raises security concerns. (For many people, "the consumerization of IT" and "BYOD" are one and the same. When asked what they consider to be an example of the consumerization of IT in the enterprise, 82 percent of the survey respondents selected "using personal smartphones/tablets for business purposes.")

Of all the security challenges posed by IT consumerization, the single biggest concern is the difficulty installing security controls on user devices, according to the survey. As shown in Figure 2, not all consumerization concerns relate specifically to personally owned mobile devices, but BYOD initiatives can potentially exacerbate all of the cited challenges.

In smartphones, Samsung has emerged as by-far the leading supplier of Android-based devices, widening the gap with other Android vendors.

BYOD business benefits outweigh management and security concerns

Clearly, securing BYOD mobile devices and protecting corporate information and resources are critically important—and sometimes daunting—tasks. But many business and IT leaders have determined that tackling these BYOD demands is

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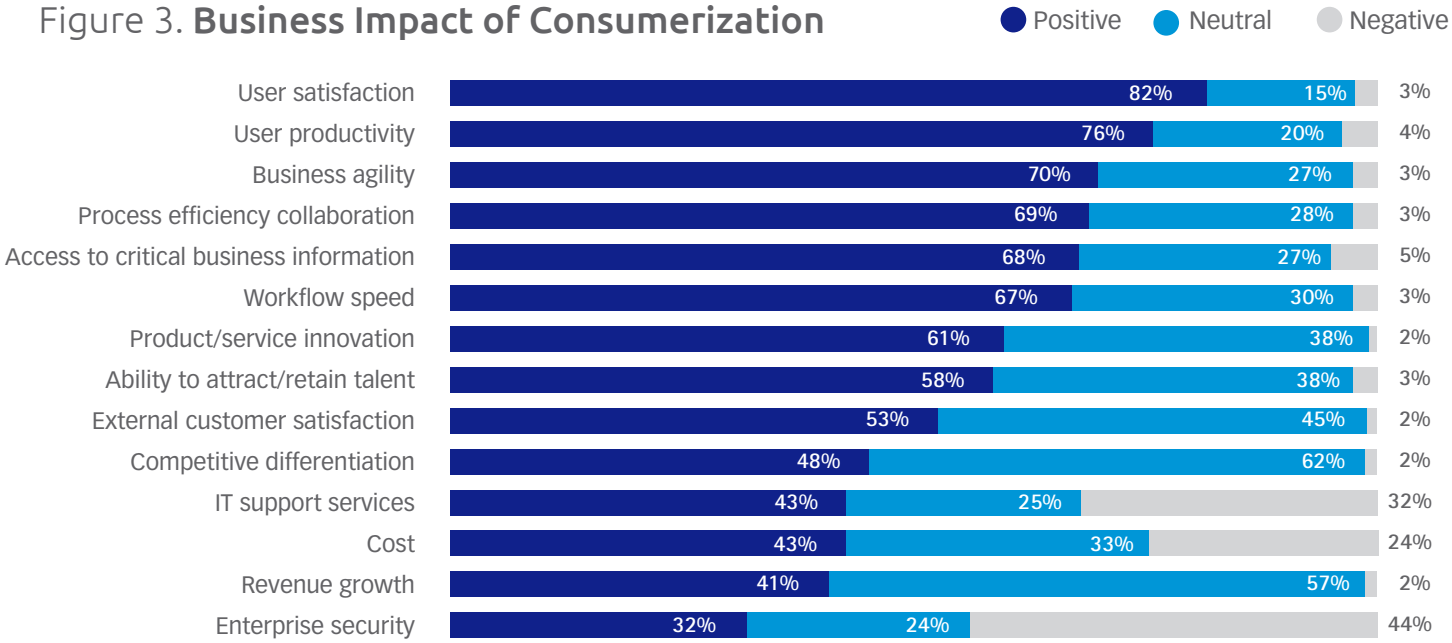
Figure 3. **Business Impact of Consumerization**



SOURCE: IDG Enterprise

more than worth their time and effort. The reason: allowing employees to use personal devices for work can result in significant business benefits.

Figure 3 depicts what those benefits are, based on responses to the IDG Enterprise survey about the consumerization of IT. Not surprisingly, the top benefit cited was a net positive impact on user satisfaction, to be expected when employees are permitted to work with their own familiar mobile devices. But other benefits—particularly increased user productivity—were also seen as major BYOD drivers.

A survey conducted in 2012 by networking equipment vendor Cisco[1] lends support to those expecting multiple BYOD benefits. To determine the financial impact of BYOD, Cisco surveyed 4,900 business and IT executives in nine different countries. Among the survey's key results:

- On average, BYOD employees were gaining 37 minutes of productive time per week (81 minutes per week for U.S. employees)
- "Basic BYOD" implementations—those comprising "an incomplete patchwork of capabilities and policies"—were generating $350 of value each year per mobile employee ($950 for U.S. employees)
- "Comprehensive BYOD" implementations—representing "a more strategic

[1] www.cisco.com/web/about/ac79/re/horizons.html. Cisco IBSG Horizons is a multimodal research and analysis program designed to identify business transformation opportunities fueled by technology innovation.

approach to BYOD"—were generating $1,650 of value each year per mobile employee ($3,150 for U.S. employees)

Cisco reports great success with its own comprehensive BYOD program, and it's not alone. Intel, for example, reported that by the end of 2011, 17,000 of its employees were using personally owned smartphones (up from 3,000 at the beginning of 2010). Intel calculated that each employee gained an average of 57 minutes of productivity per day, for an annual total productivity gain for Intel of 1.6 million hours.

To achieve these positive BYOD results, organizations can use all the help they can get. Fortunately, one of the leading mobile device vendors, Samsung, has launched a number of initiatives to help organizations successfully navigate the still-unfamiliar waters of BYOD.

Samsung's leadership position makes it a key BYOD player

Although it is probably most associated with the boom in consumer smartphone sales, Samsung has become an important player in corporate mobility programs. The company sells a range of mobile devices—tablets, Ultrabooks and laptop PCs in addition to smartphones—as well as market solutions designed to meet the needs of different business users and different industry sectors. Most notably, however, BYOD is rapidly introducing huge numbers of Samsung devices into business environments.

In smartphones, Samsung has emerged as by-far the leading supplier of Android-based devices, widening the gap with other Android vendors. That's important, because Android devices account for a 75 percent share of smartphone shipments in the first quarter of 2013, according to IDC. That shipment volume was up 79.5 percent from the 59.1 percent share Android phones held in the first quarter of 2012.

Long the dominant vendor of Android-based smartphones, Samsung shipped 72.4 million in the second quarter of 2013 alone, IDC estimates. That unit volume accounted for more than 30 percent of the total smartphone market, including Android as well as non-Android phones. As IDC characterized it: "By the end of the second quarter of 2013, Samsung more than doubled the total volumes of the next largest vendor, and shipped more units than the next four vendors combined."

The majority of Samsung's phones are sold to individual consumers, but more and more Samsung users are using the devices to work in BYOD environments. To support these users and the organizations employing them, Samsung has introduced a variety of technologies, programs and partnerships designed to smooth the transition to BYOD-based work environments.

The Samsung portfolio

ANDROID-BASED

Galaxy Smartphones
- Galaxy S4
- Galaxy S4 Active
- Galaxy S4 Mini

Galaxy Note Smartphones & Tablets
(handheld and tablets):
- Galaxy Note2
- Galaxy Note 8.0
- Galaxy Note 10.1

Galaxy Tab Tablets
- Galaxy Tab3 7.0
- Galaxy Tab3 8.0
- Galaxy Tab3 10.1

WINDOWS-BASED

ATIV Tablets
(tablets, some with docking keyboards):
- ATIV Tab3
- ATIV Tab5
- ATIV Tab 7

Laptop PCs
- ATIV Book 9 Lite
- ATIV Book 9 Plus

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Key management and security capabilities offerd by Samsung:

- Mobile device management
- Virtual private network
- On-device encryption
- Exchange ActiveSync

Moving to BYOD with Samsung's help

Samsung's strength as a mobile device vendor and its broad product portfolio gives it a seat at the BYOD table. The company offers a wide collection of mobile devices in different form factors to meet the specific business and industry needs of individual companies and individual users.

Samsung, however, has decided to do more to support BYOD—and enterprise mobility in general—than to just field its extensive and popular device portfolio. The following are several examples of how Samsung is working to ensure companies can increase the productivity of their mobile employees and achieve a number of other BYOD benefits.

Samsung's enterprise management and security technologies

Part of Samsung's strategy is to build more enterprise-grade features into its mobile devices. Of particular importance to organizations launching BYOD programs are features that support the need to manage and secure these devices. Among the key management and security capabilities Samsung offers:

- **Mobile device management (MDM):** Samsung Mobile Security delivers 474+ IT policies through 1034+ application programming interfaces (APIs). These policies enable companies to remotely control software and hardware components to help prevent mobile security failures. Samsung GALAXY mobile devices provide ultimate flexibility for IT administrators by allowing them to remotely manage mobile applications and overall device functionality. With Samsung Galaxy mobile devices, IT administrators can:
  - Remotely control devices using help desk-like functionality
  - Configure and update settings over the air
  - Monitor and enforce compliance with corporate IT policies
  - Remotely wipe or lock managed devices
  - Enable or disable specific capabilities, such as the camera, Wi-Fi, Bluetooth, microphone and data roaming
- **Virtual private network (VPN):** Samsung's support of VPN connectivity provides mobile professionals with behind-the-firewall access for a secure connection from anywhere. Samsung was the first company to provide SSL (Secure Sockets Layer) VPN with major ISVs for the Android platform. Alternatively, companies can employ the IPsec security protocol if that better meets their needs.

- **On-device encryption (ODE):** Samsung's ODE solution provides a high level of device encryption and helps to prevent unauthorized access to all data. Part of this solution is the microSD memory with a fast and efficient file-level encryption and selectable option. Samsung Galaxy mobile devices that use Samsung ODE have been granted FIPS 140-2 Security Certification from the U.S. government, making Samsung ODE the first FIPS 140-2 certified solution for Android-enabled devices.
- **Exchange ActiveSync (EAS) for corporate email, calendar and contacts:** Microsoft EAS is a communication protocol designed for synchronization of email, contacts, and calendars between a messaging server and mobile devices. Most Android devices support EAS protocol, but Samsung Android devices have enhanced this capability to offer a comprehensive EAS implementation with extensive support for email, contacts and calendar, along with other advanced features and synchronization functionality. With Microsoft Exchange 2010's new features, enterprise users can take advantage of the following functionality without any supplementary software:
  - Free/busy lookup
  - Read/delivery notification
  - Draft folder sync
  - Out-of-office notification
  - Partial download
  - Reply/forward status
  - Conversation view
  - Set high importance status

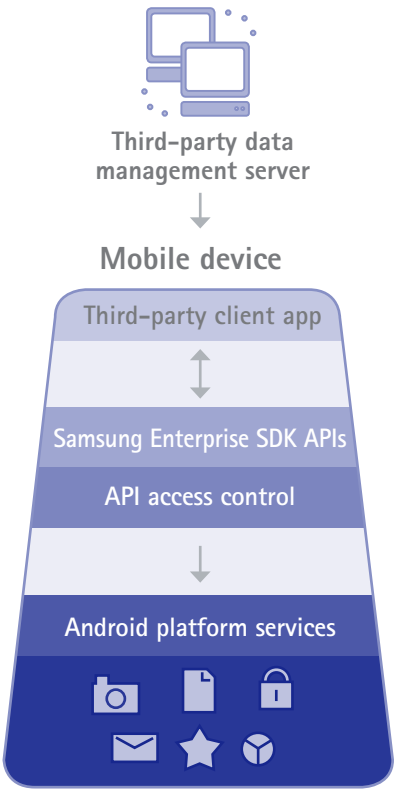
Samsung devices are now equipped with the highest security standards. Currently many countries are considering Samsung Android devices for government agencies and military use.

Support for custom application development with Samsung Enterprise SDK

To get the maximum productivity and cost effectiveness out of their mobile solutions, many corporate and third-party developers will choose to create custom mobile applications that leverage the specific capabilities of the mobile devices being used. Such custom development can ensure that BYOD and other mobility initiatives are as profitable and effective as possible.

To support these developers, Samsung offers Samsung's Enterprise Software

Figure 4. **Samsung Enterprise SDK**



The Samsung Enterprise SDK consists of:

- On-device encryprion application programming interfaces (APIs) that manage security functions, including encryption and decryption
- APIs for LDAP configuration, Exchange ActiveSync configuration and Cisco AnyConnect configuration
- Mobile device management APIs that manage the functions of mobile devices by enforcing policies.

Samsung's SI and VAR partners offer services ranging from mobility program development and implementation to custom solution development to ongoing management and security support services.

Development Kit (SDK). Provided as an Android add-on, the Enterprise SDK's major components include:

- ODE APIs for managing security functions including encryption and decryption
- APIs for LDAP configuration, Microsoft EAS and Cisco AnyConnect configurations
- MDM APIs to manage the functions of mobile devices by enforcing policies.

As illustrated in Figure 4, the Samsung Enterprise SDK allows for the creation of custom applications that communicate directly with the SDK's APIs, which interact with the Android platform's services via API access control. With the Enterprise SDK, developers can enforce whitelisting and blacklisting app policies, monitor and control SMS usage and other costs, monitor, enable and disable on-device cameras, Wi-Fi and other device capabilities, and perform a variety of other enterprise-driven functions.

Samsung's partner ecosystem

To address the full range of requirements and capabilities involved in BYOD and other enterprise mobility initiatives, Samsung has built an extensive ecosystem of independent software vendors (ISVs), system integrators (SIs), value-added re-sellers (VARS), distributors, consultants and other partners. The Samsung Enterprise Alliance Program (SEAP) partner ecosystem aims to help generate revenue using Samsung mobile devices and solutions,

At present, the SEAP program is experiencing tremendous growth as they focus on partner acquisition and growing the eco-system. Partners include major software firms (SAP, Citrix, VMware, SAS), networking specialists (Cisco, Juniper Networks, Fiberlink Communications), security providers (Kaspersky, Symantec, Check Point Software Technologies), mobility management vendors (Citrix, MobileIron), vertical industry experts (Claris Healthcare, EF Education First) and many other ISVs around the world.

In collaboration with its ISV partners, Samsung offers more than 250 software-based solutions for general mobility needs as well as those specific to BYOD and various vertical industry sectors.

Samsung's SI and VAR partners offer services ranging from mobility program development and implementation to custom solution development to ongoing management and security support services.

Representative examples of Samsung partner-led solutions include:

- **American Airlines:** SOTI Inc.'s MobiControl solution manages more than 4,000 Samsung Galaxy tablets used by employees within the airline's Airport Services Division and Cargo Division. Among other benefits, MobiControl provides a multiplatform Web console, device lock-down and security, battery management and location tracking.
- **SuperShuttle:** Amtel created a secure solution for van drivers using Samsung Galaxy tablets, ensuring drivers could only access whitelisted applications and reducing the risk of data loss from lost or stolen devices.
- **JW Pharmaceutical:** Unidocs Inc. equipped Samsung Galaxy tablets with its ezPDF Reader to allow pharmaceutical salespeople to display brochures as well as videos when visiting customers at hospitals, pharmacies and other medical facilities. Salespeople can also take notes on the tablets and communicate immediately with their home office to ensure rapid response to customer questions and needs.

After the initial BYOD stimulus many companies have come to realize that BYOD isn't just good for their employees; it can be very beneficial in supporting a range of business goals.

Samsung Vertical Business Solutions

Samsung is developing a number of industry-specific solutions—often in collaboration with partners—to address general business requirements as well as specific vertical sector demands. At present, the company has created mobile solutions for four vertical sectors:

- **Education:** Solutions in this sector range from broad-based programs to support mobile-based teacher-student interactions to targeted solutions such as language learning and worker training.
- **Healthcare:** Solutions for supporting residential care nurses, medical image viewing, secure data collection and communications and many other applications, including an interactive anatomical atlas and a medical dictionary.
- **Government/public sector:** Solutions include those built to meet FIPS 140-2 certified security requirements, mobile tax inspector software, law-enforcement applications, local government management and many others.
- **Retail:** Among the many solutions in this sector are a push-notification application that uses location-based information, a skin and hair diagnosis system for cosmetics shops, a system to collect and analyze distributed sales data and technology to allow mobile devices to function as payment terminals.

Samsung Mobile Enterprise Care Pack

The Samsung Mobile Care Pack gives companies a variety of warranty extension and servicing options that can greatly enhance their mobile business operations. Mobile Care Pack service modules can be mixed and matched across the entire

portfolio of Samsung mobile devices: smartphones, tablets and laptops. Organizations can obtain Samsung Mobile Care Pack coverage for devices with extended warranties and service plans for personal devices that employees use as part of corporate BYOD programs.

The Samsung Mobile Care Pack includes four major components: service period (an extended warranty that can go from one to five years), service type, service level and model group. Companies can create custom warranty and service profiles for each type of Samsung device they're managing based on the flexible and simple module-based offering.

Extending the service period enables customers to prolong the lifecycle of their Samsung devices at a fixed cost. As a result, customers can increase their ROI because they won't incur unexpected service costs for items covered in the (now extended) basic warranty. By extending the warranty by up to five years, organizations can protect their mobile device investments throughout their full lifecycle.

Samsung and BYOD: Comprehensive Solutions for Today's Business Needs

Enterprise mobility and BYOD may be among the most transformative technological trends to ever sweep across the industry landscape. But, like any technology-driven shift, enterprise mobility can be handled poorly or wisely. BYOD, in particular, can expose organizations to significant costs and operational risks if not well designed and executed.

As shown by the surveys cited in the paper, the majority of companies are already well down the road to adopting BYOD programs of some type. The initial catalyst for this adoption was one of companies reacting to the demands and desires of their employees (especially executives) to use personal mobile devices for business purposes. After this initial BYOD stimulus, however, many companies have come to realize that BYOD isn't just good for their employees; it can be very beneficial in supporting a range of business goals.

Increased employee productivity is one of the most important benefits, but so is the potential to reduce costs, improve business agility and raise customer satisfaction. As BYOD programs become the norm and move from patchwork initiatives to comprehensive and strategic solutions, the payback from these programs is certain to grow.

Given its dominant position as a smartphone provider, combined with the breadth of its total mobility device portfolio, Samsung would be a key BYOD player even if it did little more than continue to sell tens of millions of its products. By expanding its role to provide security and development technologies, along with partner alliances, industry solutions and extended warranties, Samsung is making clear strides toward becoming more than just a BYOD device vendor. The company is doing what it takes to become a valuable partner to organizations traveling the BYOD road.

For more information

For more information about Samsung Enterprise Mobility, visit **www.samsung.com/enterprise**.

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