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Tablets and Productivity: Redefining The Enterprise Client Computing Landscape

As employees leverage tablets to stay connected and work more efficiently, they're also increasingly using the devices to create as well as consume content

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Executive summary

Tablet computers have become widely popular consumer devices in recent years, but enterprise buyers have been more measured in their adoption of these devices. Although many enterprises now allow their employees to use their personal tablets to access corporate data and perform other business tasks under bring-your-own-device (BYOD) programs, some corporations have been reluctant to fully embrace this new computing form factor. To gain broader enterprise adoption, tablets must meet a number of requirements, including:

- Tablets must come in a variety of form factors, price points and configurations suitable for different types of business users and tasks
- Tablets must support multitasking with multiple screen windows capabilities
- Tablets must provide the security, durability and manageability characteristics that businesses require
- Tablets must run the apps that businesses need, and must also integrate well with backend applications, databases and work processes
- Tablets must be supported by an ecosystem of hardware, software and services partners that, collectively, can provide complete business solutions and support

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Upon their mass-market arrival several years ago, tablet computers sought to fill a mobile computing niche between laptop PCs and smartphones The devices rapidly became popular among consumers, who primarily used them for web surfing, video watching and other forms of information consumption. After all, tablets were lighter and more portable than laptops and offered larger screen sizes compared with smartphones.

For a number of reasons, however, business adoption of tablets has been more measured. By definition, most tablets lacked physical keyboards, their performance was often suspect and—particularly problematic for many organizations—the most popular tablets could not perform more than one task at a time. Despite these constraints, many corporate employees are already using their personal tablets for business tasks as part of bring-your-own-device (BYOD) programs. But many companies have taken a wait-and-see attitude when it comes to fully embracing tablets as legitimate business devices.

This caution is starting to crumble thanks, in part, to the availability of a wide variety of business-capable tablets. Users can easily pair Bluetooth keyboards with most tablets, and a number offer integral physical keyboards in 2-in-1 configurations. The system capabilities of some tablets, including long battery life, high-end processors and large storage capacities, rival those of heavier laptop PCs. And, most importantly for many, a selection of tablets based on the hugely popular Android operating system can now support sophisticated multitasking.

Beyond the growing capabilities of the devices themselves, tablets are benefiting from a growing appreciation of the many ways in which they can help organizations be more efficient, productive and competitive. Until recently, the black mark against tablets in business environments has been the perception that, while they are good devices for content consumption, they are limited when it comes to content creation. In many people's minds, the notion of employee productivity has become all-but-inseparable from that of content creation, due to the "productivity application" label that has long been applied to word processors, spreadsheets, presentation packages and other content-creation software.

Of course, as noted, many tablet PCs can now more than hold their own when it comes to offering ways to create content. That said, it is important to understand that content creation is far from the only form of employee productivity. Businesspeople are also being productive when they communicate instantly with one another or with customers, when they display or print information stored on their mobile devices and, yes, when they consume business-relevant information from any location at any time. By this broader and more meaningful definition of productivity, tablets are already proven productivity-boosting devices.

A 2013 survey[1] sponsored by Samsung and conducted by IDG Research Services supports this contention. Of the nearly 150 IT leaders who responded to the survey, 61 percent said using a tablet at work has made them either much more productive or somewhat more productive.

PRODUCTIVITY FEATURES SUPPORTED BY TABLETS

INFORMATION ACCESS
Finding business-relevant information stored on the tablets themselves or residing on corporate or cloud-based servers

TEXT-BASED COMMUNICATIONS
Sending and receiving email, instant messages and texts

VIDEO-BASED COMMUNICATIONS
Using tablets for one-on-one video calls (e.g., Skype) and to participate in business videoconferences

PRESENTATION PLATFORMS
Displaying information on the tablets themselves, or linking them with projectors, in-store kiosks and other larger displays

TRACKING AND LOGISTICS
Leveraging the tablet's GPS and other on-board capabilities to make delivery drivers more efficient and to perform other logistics tasks

POINT OF SALE
Equipping tablets with integrated card readers so salespeople can handle customer transactions

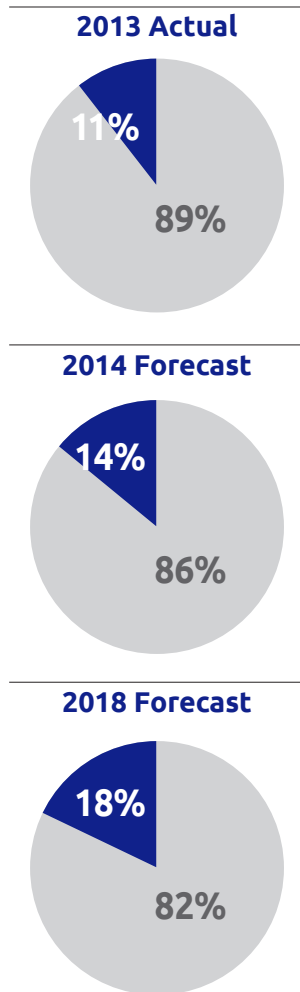[1] IDC Market Pulse survey: *Tablet Preferences at Organizations*, August 2013.

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Figure 1. **Total Tablet Market Forecast, 2013 – 2018**

● Commercial   ● Consumer

2013 Actual

11%
89%

2014 Forecast

14%
86%

2018 Forecast

18%
82%

Source: IDC Worldwide Quarterly Tablet Tracker, March 6, 2014

[2] IDC Press Release, January 29, 2014

[3] IDC *2013 Consumerization of IT in the Enterprise* survey

Business-grade functionality and productivity potential notwithstanding, tablets must also clear a number of additional hurdles before they become trusted business tools.

In this paper, we will first examine the rapid evolution and growth of business tablets. Next, we consider the variety of ways in which tablets can boost employee and business productivity. We then explore how some tablets are becoming powerful content-creation devices, and detail some of the additional factors that come into play when tablets move into business environments. The paper concludes with an overview of the tablet portfolio, programs and partnerships of one of the fastest-growing tablet providers, Samsung.

Business Tablets Come of Age

Tablet shipments of all types—for both consumers and businesspeople—have increased rapidly in recent years. Worldwide tablet shipments totaled 217.1 million during 2013, according to market research firm International Data Corp. That number represented a 50.6 percent growth rate over the 144.2 million tablets that shipped in 2012, according to IDC.[2]

In 2013, 89 percent of the tablets shipped went to consumer buyers, IDC estimates. As shown in Figure 1, however, commercial tablet sales will constitute an increasing share of the growing tablet market, with IDC predicting that commercial tablet sales will account for 18 percent of all those sold during 2018.

Despite the continued dominance of consumer tablet sales compared with business tablet sales, it is important to remember that growing numbers of individually purchased tablets are already serving double duty as both consumer and business devices. This trend was illustrated by a survey IDG Research conducted[3] in early 2013 of more than 1,600 IT and business executives and managers. Even at that time, slightly more than half (51 percent) of the survey respondents indicated that their organizations were already supporting and servicing some of their employees' personally owned tablets. Fifty-eight percent of the respondents expected their organizations would be supporting and servicing employee-owned tablets by mid-2014, just below the 61 percent who expected their organizations to be doing the same for their employees' personally owned smartphones.

The first tablet to become widely popular was Apple's iPad, running the company's iOS operating system. Although iPads continue to hold a sizeable share of the overall market, Android-based tablets and, to a lesser degree, Windows-based tablets, have experienced significant growth. According to IDC, for example, roughly two-thirds of the tablets shipped in the first quarter of 2014 were Android-based tablets.[4] In particular, the availability of split-screen multitasking capabilities in some Android tablets and in all Windows tablets have helped raise their profile as useful business devices.

Beyond their operating system differences, tablets of all sizes, configurations and capa-

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bilities have proliferated in recent years. Tablet size has become one of the main differen-tiators, with a variety of small-screen (7 inches to 8 inches), medium-screen (9 inches to 10 inches) and large-screen (larger than 10 inches) tablets now on the market. An increas-ingly popular configuration are hybrid/convertible tablets (sometimes called 2-in-1s) that come with physical keyboards that can be slid away, twisted behind or removed when the user wants to access the tablet's touch screen for input.

Using Tablets to Increase Employee Productivity

Tablets, as with any mobile computing and communications device, can enhance employees' productivity simply by allowing them to work any time and from any loca-tion. In its 2013 survey of 144 CIOs and other IT executives, IDG found that the top two reasons for providing tablets to employees were improving employee productivity and improving business productivity. The IT leaders surveyed also cited a range of additional benefits they hoped to achieve by giving their employees tablets, as shown in Figure 2.

As tablets have evolved and become more capable, they have started to fill roles that laptop PCs or smartphones have held. Often, tablets do not entirely displace the other devices, but rather serve as complements to them. Indeed, as Figure 3 shows, IDG Research found that 58 percent of the organizations responding to its 2013 re-search study were purchasing tablets as a supplement to another device.

Often, tablets are paired with laptop PCs and other larger computers, which still function as the primary devices for content creation. Still, for a number of employees, tablets are taking the place of other devices, including laptop PCs and smartphones.

As noted earlier, however, employee productivity is by no means tied solely to con-tent creation.

Tablets as Content-Creation Platforms

Even as they boost employee and business productivity in the many ways discussed above, tablets are also coming into their own as content-creation devices. In this context, it is good to remember that "content" can consist of much more than emails, documents and spreadsheets.

Still-picture and video content, for example, constitutes an increasing portion of the business information that organizations generate and share. Tablets, with their increas-ingly sophisticated integral cameras and photo/video editing capabilities, are naturals when it comes to this type of content creation, dissemination and display.

At the same time, relatively new forms of data input are helping tablets serve in content-creation roles. As voice-recognition and voice-to-text technologies have ma-tured, for example, these once-marginal forms of content creation have become much more reliable and business friendly.

Of course, if tablets are known for any single feature, it is for their touch screens. As with voice entry, touch-screen technology has grown increasingly sophisticated and appreciated. A growing number of tablets offer pens/styluses to support more precise

Figure 2.
Productivity Tops List of Tablet Benefits

Key motivators for providing tablets to employees

Improved employee productivity	**72%**
Improved business productivity	**58%**
Access anytime to critical business info	**56%**
Improve business agility	**50%**
Improve customer service	**47%**
Improve employee satisfaction	**45%**
Improve collaboration	**42%**
Cost-effectiveness	**31%**

Source: IDC Research Services Market Pulse Survey: Tablet Preferences at Organizations, August 2013
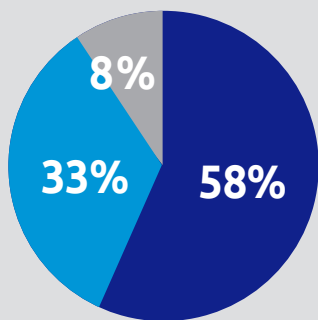
[4] IDC Press Release, May 1, 2014

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Figure 3.
Corporate Tablets Often Supplement Other Devices

- ● Tablets purchased by organization are supplemental, supplied to employees in addition to other device(s)

- ● Tablets purchased by organization are either replacement devices or supplement other devices

- ● Tablets purchased by organization are intended to replace other devices (smartphone, laptop)

Source: IDC Research Services Market Pulse Survey: Tablet Preferences at Organizations, August 2013

content creation than finger-based touch-screen entry. As illustrated in Figure 5, 51 percent of the IT executives surveyed by IDG Research agreed that tablets featuring styluses with handwriting-recognition capabilities would help improve productivity at their organizations.

Still, many traditional productivity applications work best when employees can use physical keyboards and touchpads. To address this need, tablet vendors are fielding a broad array of convertible 2-in-1 devices that pair touch-screen tablets with integral physical keyboards. These hybrid devices offer weight, size and portability advantages over traditional laptop PCs, but often offer greater functionality and flexibility by giving users the option to enter data using a touch screen or keyboard. (Even tablets lacking integral physical keyboards can usually be paired with keyboards via physical or wireless connections.)

The end result is that tablets are fast shedding their reputations as being largely limited to content-consumption tasks. With their laptop-grade processing power, memory and (in some cases) screen sizes, tablets now exist that can handle all but the most challenging content-creation demands.

Corporate Tablet Needs—Looking Beyond Device Specifications

Clearly, it is becoming much easier for companies to find tablets with the right form factors and system specifications needed to perform a range of business tasks. Bringing any new computing device into an organization, however, requires IT and business decision makers to evaluate and prioritize a range of related variables.

As is often the case with any new IT technology, the need to provide application and data security is among the top objectives and concerns. That priority is certainly true in the tablet marketplace, as indicated by Figure 5. When asked by IDG Research to identify the importance of different tablet features and capabilities, 93 percent of the IT leaders surveyed said security was either very important or somewhat important.

Securing tablets and the information they can hold and access is just one of many IT requirements. A related need that ranks nearly as high is that of device management. Ideally, securing and managing tablets and their content fits smoothly into an organization's existing management infrastructure and includes not just management of the devices themselves (e.g., mobile device management), but also management of the mobile apps and data that they run (e.g., mobile application management).

In many instances, tablets will need to run suites of office productivity applications directly—another top-rated purchasing requirement. At the same time, most tablets operating in business environments will also be able to integrate easily and well with existing corporate applications and systems. Traditionally, the main integration requirement has been to interoperate with corporate email systems, but tablet users must increasingly connect with CRM, HR, finance and other central applications.

Regardless of the applications that tablets run or access, corporate employees will be significantly constrained if their devices can perform and display just one task at a time. This need is reflected in Figure 4, with 64 percent of the IT leaders surveyed
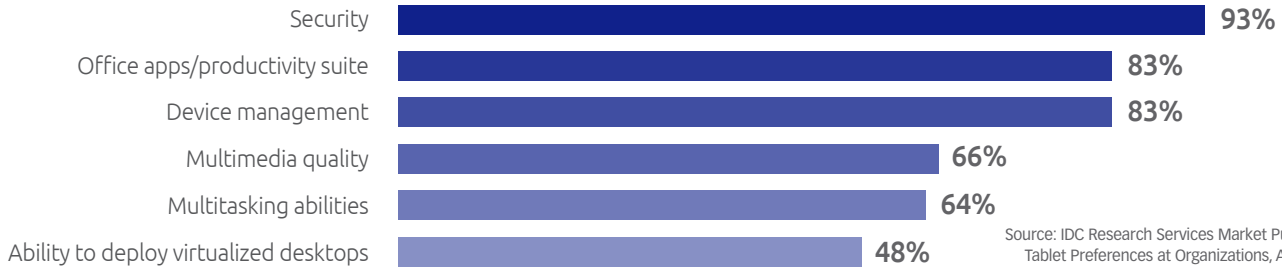
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Figure 4. **Importance of Different Features in Tablet Purchasing Decisions**
(Respondents who agree completely or somewhat with each statement)

Feature	%
Security	93%
Office apps/productivity suite	83%
Device management	83%
Multimedia quality	66%
Multitasking abilities	64%
Ability to deploy virtualized desktops	48%

Source: IDC Research Services Market Pulse Survey:
Tablet Preferences at Organizations, August 2013

indicating that tablet multitasking is either very or somewhat important.

Beyond their lists of tablet requirements, most corporations also require a variety of support and consulting services to ensure the success of their tablet deployments. One critical need is the availability of rapid repair and replacement services, since tablets that are damaged, lost or stolen cannot do much to help employee productivity.

Growing numbers of businesses will also require custom solutions and other tablet-related consulting services. Tablet providers that want to participate in the corporate tablet marketplace will need to build extensive ecosystems of systems integration, consulting and application partners.

Samsung Meets Corporate Tablet Needs

In addition to its position as a leading supplier of smartphones and notebook/ultrabook PCs, Samsung has become a major force in the tablet marketplace. The company has a diverse portfolio of Android-based tablets and, as importantly, has committed itself to meeting the wide range of requirements that enterprise customers bring to the table. Building on its varied product offerings, that commitment also encompasses the full scope of programs and partnerships that enterprise tablet initiatives entail.
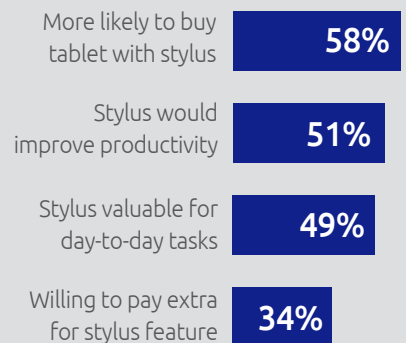
Samsung's Android Tablet Portfolio

Such initiatives will not get far without access to a wide selection of business-grade tablets. As noted earlier, "business grade" encompasses a variety of requirements, ranging from tablet security and management features to multitasking capabilities. Among Samsung's Android-based tablets are the:

• **GALAXY Note 10.1**, which features a 10.1-inch high-resolution WQXGA (Wide Quad Extended Graphics Array) display, Samsung's S-Pen stylus for direct pen input and Multi Window, which lets users run two apps on screen at the same time. This feature also allows users to drag and drop text between apps.

Figure 5. **Stylus-Equipped Tablets Viewed Favorably by IT**

View of organizations of the value to business of stylus-equipped tablets

(Respondents who agree completely or somewhat with each statement)

More likely to buy tablet with stylus	58%
Stylus would improve productivity	51%
Stylus valuable for day-to-day tasks	49%
Willing to pay extra for stylus feature	34%

Source: IDC Research Services Market Pulse Survey: Tablet Preferences at Organizations, August 2013

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- **GALAXY Note Pro 12.2**, which provides Enhanced Multi Window to deliver twice the multitasking power of the Note 10.1. Users can run up to four apps on screen at once—one in each quadrant of the screen—and can reposition and resize the app windows as they like. This tablet provides a 12.2-inch WQXGA display and also supports S-Pen functionality.
- **GALAXY Tab Pro 10.1**, which pairs a 10.1-inch WQXGA display and powerful multitasking capabilities with a variety of productivity functions. Those functions include Remote PC, Samsung e-Meeting and WebEx support.
- **GALAXY Tab Pro 8.4**, which delivers much of the same functionality as the Galaxy Tab Pro 10.1 but with a more compact 8.4-inch display and form factor.

Samsung has recently expanded its Android-based tablet portfolio with two new models designed specifically to meet the full range of corporate customer demands. Those business-ready tablets are the:

- **GALAXY Tab S 10.5**, which includes a 10.5-inch Super AMOLED WQXGA screen with two windows, split-screen multitasking. The Super AMOLED displays reproduce 94 percent of nature's true color palette, compared with the 73 percent color reproduction rate of conventional tablets. These displays also provide a 100,000-to-1 contrast ratio, which is 100 times greater than conventional displays. The tablet supports a fingerprint scanner for biometric authentication, and integrated Samsung KNOX for hardware and software platform security. With the two-window, Super AMOLED display, a retail salesperson, for example, could present product images in realistic colors in one window and product specifictions in the second window. The GALAXY Tab S 10.5 also provides a variety of mobile productivity features, including Side Sync 3.0 for forwarding and multitasking with voice calls; the Hancom optimized office suite for Android; and built-in documenting tools for Microsoft Word, Excel and PowerPoint files.
- **GALAXY Tab S 8.4**, which offers all of the functionality of the GALAXY Tab S 10.5, but with a more compact 8.4-inch display.

Samsung Security and Management Capabilities

Understanding that corporate buyers need more than a selection of multitasking tablets, Samsung has worked to address the full range of enterprise IT requirements. The company is particularly well-known for its efforts to bring security and manageability features to Android-based devices. It provides Samsung KNOX Workspace, a comprehensive portfolio of mobile security products, capabilities and services. Samsung KNOX Workspace is designed to satisfy enterprise security requirements without compromising corporate security or employee privacy. In doing so, KNOX offers security for both platform and application.

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KNOX platform and application security features include:

- **Trusted Boot**, the first line of defense against malicious attacks on KNOX-equipped devices, which ensures that only verified, authorized software can run on devices.
- **TrustZone-based Integrity Measurement Architecture (TIMA)**, which runs in the secure world and monitors the Linux kernel in real time to detect and notify when the integrity of the kernel or the boot loader is violated.
- **Security Enhancements for Android**, an enhanced mechanism that isolates applications and data in different domains to reduce threats from tampering with or bypassing application security, as well as from malicious or flawed applications.
- **Samsung KNOX Container**, a powerful solution for data leakage problems associated with the BYOD model. This KNOX application security feature safeguards enterprise data by creating a secure zone in the employee's device for corporate applications and encrypting enterprise data both at rest and in motion. As noted earlier, the GALAXY Tab S tablets leverage the KNOX capabilities to provide two-factor biometric authentication by adding a fingerprint scanner to the standard passcode authentication.

Samsung KNOX also includes a recently launched cloud-based service called KNOX EMM. KNOX EMM provides IT administrators with a cross-platform, cloud-based enterprise mobile management solution for managing employees' devices. This solution provides the optimal balance between security and user productivity. It also helps businesses resolve common mobility adoption issues, such as IT skill limitations and diverse device integration. KNOX container policies allow IT administrators to easily implement company guidelines and control the flow of information between the container and the rest of the device.

KNOX EMM provides employees with single sign-on (SSO) for easier, more convenient access to authorized business applications. KNOX EMM SSO eliminates the need for an additional login with simplified single-click access to mobile and Web apps, greatly simplifying security, manageability and accessibility. And, with identity and access management, IT managers can grant employees convenient, role-based app authorization, allowing them to enroll devices and activate KNOX SSO, thereby eliminating the need to log in.

Samsung Support, Service and Business-Continuity Programs

Samsung realized early on that the limited product warranties and support services available to individual mobile device consumers would not cut it in the world of enterprise mobility. Corporations may require device support for several years, and they need support services to ensure the availability of these devices and the continuity of the business operations running across them.

In response to this need, the company packaged a variety of service offerings and options in the Samsung Mobile Care Pack. This program allows companies to mix and match a variety of warranty extension and servicing options across the entire portfolio of Samsung mobile devices. Corporate customers, for example, can get three years of extended coverage for their Samsung tablets. The Mobile Care Pack also offers an accidental-

KNOX EMM provides IT administrators with a cross-platform, cloud-based enterprise mobile management solution for managing employees' devices.

damage-from-handling option that expands the limited warranty to include accidental damage from, for example, water, device drops or electrical surges.

Mobile Care Pack customers can also take advantage of Advanced Exchange Services that provide replacement devices from a buffer stock to help employees stay productive rather than be idled while waiting for device repairs. They can also tap Remote Care Services, in which Samsung service representatives diagnose and repair problems remotely, eliminating the need for customers to go to a service center or wait for a service engineer to visit their site.

Samsung's Partner Ecosystem

Understanding that it could not meet all of the needs of enterprise mobility customers on its own, Samsung has established a partner initiative called the Samsung Enterprise Alliance Program. The program is administered by a Samsung enterprise business team made up of sales, marketing and R&D specialists. The program includes ISVs, systems integrators, value-added resellers and distributors.

Among the services that Samsung offers its system-integrator partners is a KNOX Customization SDK. With the powerful configuration tools this software development kit provides, system integrators can create and deploy purpose-built solutions that leverage Samsung's tablets as well as its other mobile device products.

Conclusion

As suggested both by the stated needs of IT leaders and by the breadth of Samsung's product, service and partnership offerings, meeting the tablet requirements and objectives of enterprise customers is no trivial task. Not only must tablets deliver security, multitasking and other business-grade features, they must also be able to run and access the applications that businesses need, all while being backed up by service and support offerings from the tablet vendors and their partners.

Although many organizations have had doubts about the role of tablets in business environments, those doubts are quickly fading. Current-generation tablets are already boosting employee and business productivity in a multitude of ways. These flexible and portable devices are also coming into their own as platforms for content creation and content consumption.

Samsung is proving that it understands the demanding requirements of corporate tablet buyers and users. The company offers an unrivaled portfolio of tablet configurations and capabilities, combined with programs, policies and partnerships designed to support the needs of enterprise customer. For further information about Samsung's tablet offerings and programs, see **www.samsung.com/enterprise.**

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