



White Paper

Next-Generation Productivity: The Rise of the 3-in-1 Device

Sponsored by: HP Inc.

Tom Mainelli
October 2016

IDC OPINION

The rise of mobility has fundamentally changed the way people get work done. Notebook computers first untethered workers from the desktop, and then tablets and smartphones created additional freedoms that increased worker productivity and satisfaction. But the shift toward a mobile workforce hasn't been without its issues. Chief among them are the inherent challenges of weaving together and managing multiple devices in the enterprise environment. This management is made more complicated by the fact that most employees use a combination of IT and self-purchased devices, utilizing different operating systems (OSs), different applications, and distinctly different levels of security. The result is that companies are spending an increasing amount of money to buy and manage an ever-widening range of devices, IT organizations are fighting an uphill battle to secure company data on all those devices, and employees are struggling to remain productive with files scattered across multiple devices and haphazard security measures creating friction at every turn. This IDC white paper examines these challenges and then discusses an exciting potential solution.

IN THIS WHITE PAPER

This white paper provides IDC's opinion about the increasingly complex challenge of managing end-user IT. First, we carry out a situation analysis on the impact of multidevice adoption in the workplace led by the bring-your-own-device (BYOD) trend and its IT follow-on choose your own device (CYOD). Second, we do a deep dive on the business pain points that the shift has caused. Specifically, we examine the challenges of supporting multiple device brands and OSs, the productivity issues that multidevice scenarios cause, the high associated cost of buying all these devices, and the cross-platform app problems that result. Then, we explore the concept of the 3-in-1 solution, brought about by rapid improvements in smartphone processing power, screen size, and app development, and how it could both address the aforementioned pain points and drive increased productivity through new use cases.

SITUATION OVERVIEW

Mobility, in the form of powerful smartphones, tablets, and mobile apps, has driven clear productivity gains, allowing people to work where and when they want. But as companies rushed to embrace the mobility trend, some unintended consequences in the form of increased IT complexity and a new set of device management challenges arose. It has become increasingly clear that the productivity gains of mobility have come at a cost beyond the simple price of the hardware and software.

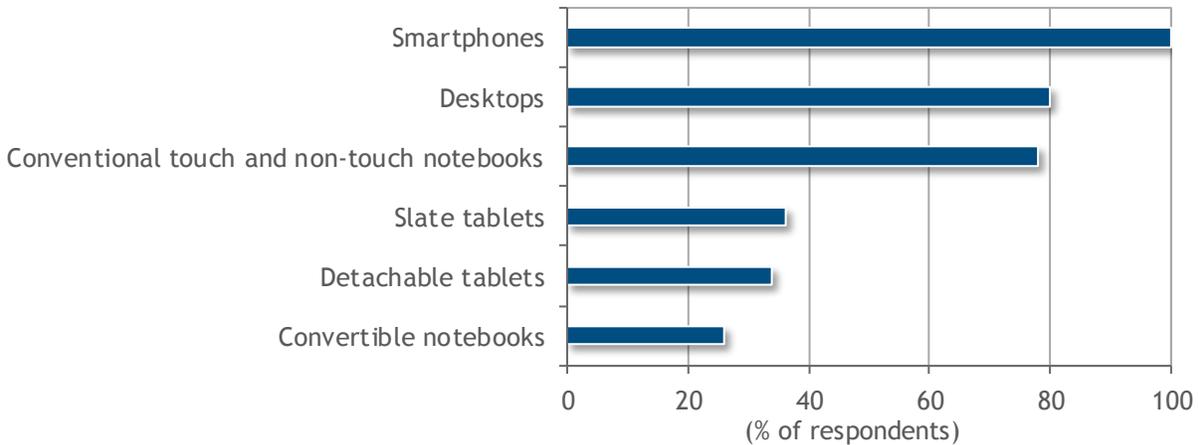
The Impact of Multidevice Adoption

IDC asked U.S. IT respondents which devices they are supporting in their organization; the results are eye opening (see Figure 1).

FIGURE 1

Devices Supported by IT

Q. Which of the following devices does your company currently buy, deploy, and manage for some percentage of its employees?



n = 500

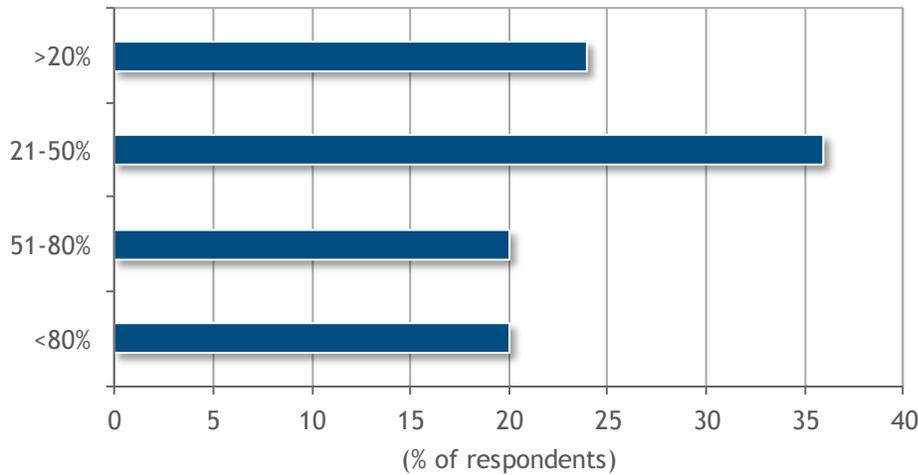
Source: IDC's *U.S. Commercial Smartphone Survey*, 2016

A 2016 IDC survey of United States-based IT decision makers showed that an average of almost half of all employees are using a personally purchased smartphone for work purposes. For one-fifth of respondents, 80%+ of their employees are using a personally purchased smartphone (see Figure 2). That same survey showed that only about 40% of those employees are doing so under an official BYOD plan, indicating that a sizable percentage of people are still using their personal smartphones outside of a formal policy. And even among those operating under an official BYOD policy, the level of IT support and security can vary wildly.

FIGURE 2

Employees Using Their Own Smartphones for Work Purposes

Q. *What percentage of your employees do you believe use their personally purchased smartphone for work purposes?*



n = 500

Source: IDC's *U.S. Commercial Smartphone Survey*, 2016

A good BYOD policy attempts to support the desire of employees to work on devices of their choosing while maintaining a basic level of security, primarily around a company's data, which is no easy task. The same survey showed that among IT professionals, device security continues to be a primary area of spending.

While BYOD was a hot trend for years, the associated challenges have caused many IT organizations and employees to cool on the idea. For many, the concept of CYOD – where employees are allowed to choose from a short list of IT-supported devices – provides many of the same benefits of BYOD while mitigating some of the hassles. According to IDC's 2016 *Mobile Enterprise Device, Security, Services, and Solutions Survey*, 74% of enterprise organizations in the United States now offer or plan to offer a CYOD program in the coming year. Among IT organizations that have elected to deploy a CYOD program, 53% said the reason for doing so is that BYOD programs are too difficult to manage. An even higher 59% said they opted for CYOD because BYOD devices are too difficult to secure.

Pain Point 1: Supporting Multiple Device Brands and OSs

One of the key challenges is the hardware itself, especially with regard to smartphones. Consumer demand drove the rapid growth of the smartphone market, and as a result, there are relatively few commercial-focused devices in the market. Former leaders in the space failed to anticipate the market's evolution, and the result is that with very few exceptions the vast majority of smartphones shipped into the market today are distinctly consumer grade versus commercial grade.

Companies that provide employees with a company-purchased smartphone often struggle to find devices that measure up to the standards IT sets for its PCs.

As a result, companies that are interested in providing their employees with a company-purchased smartphone often struggle to find devices that measure up to the standards IT sets for its PCs. That means IT-friendly features such as water, dust and drop resistance, dual-sim support, and wireless charging are in short supply. From durability to manageability and from ease of deployment to ease of repair, the simple fact is that hardware designed for consumers often isn't ideal for commercial use.

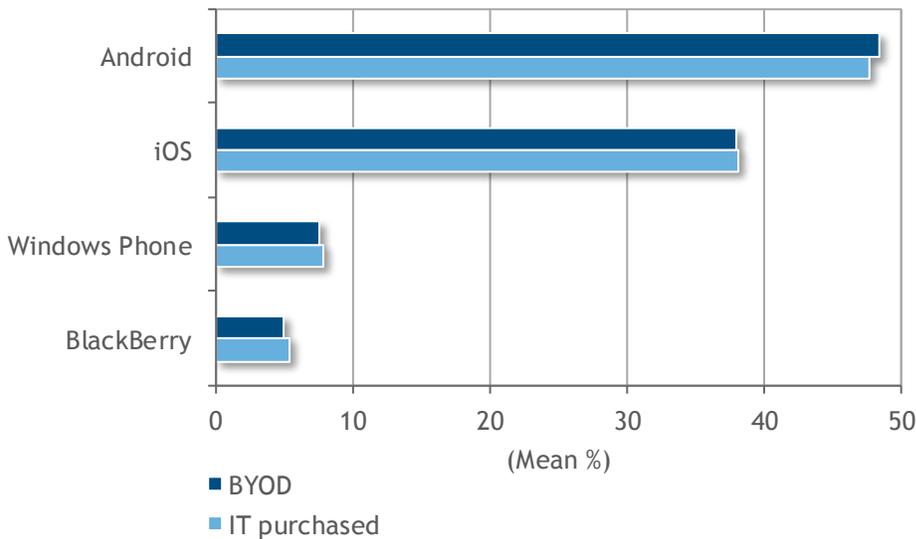
In addition to this fundamental hardware issue, IT must also deal with the problems associated with supporting a wide variety of different vendors. With each additional vendor comes the requisite challenge of keeping up with the need for the correct accessories such as chargers, cables, and cases.

And, of course, there's the related issue of operating systems. IDC's 2016 *U.S. Commercial Smartphone Survey* showed that most companies are currently supporting as many as four operating systems, regardless of whether the smartphone was employee or IT purchased (see Figure 3).

FIGURE 3

IT Smartphone OS Support

Q. Please estimate the current smartphone operating system splits within your company in 2016.



n = 500

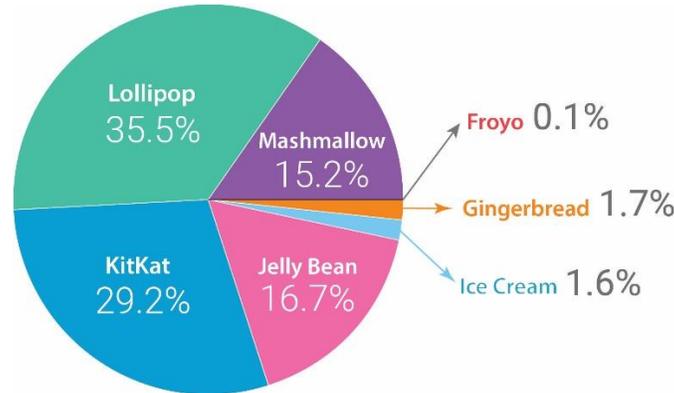
Source: IDC's *U.S. Commercial Smartphone Survey*, 2016

It has become all too common for an IT organization at a large company to be faced with supporting as many as seven different operating systems: Microsoft Windows and Windows Phone, Apple iOS and MacOS, Google Android and Chrome, and BlackBerry. Regardless of whether a smartphone is BYOD or CYOD, if end users don't apply updates in a consistent manner, data on that device is at risk. Consider

this: Apple's iOS 9 alone has seen 11 updates since its launch in September 2015. That said, Apple has a strong track record of getting the majority of its users to update to the latest version of the OS. Android is another story altogether, as a larger percentage of old hardware simply won't run the latest version of the operating system. This results in a heavily fragmented installed base (see Figure 4). For example, Android Marshmallow – available for nearly a year – is on just 15% of current Android devices.

FIGURE 4

Android Version Distribution



Source: Google, 2016

Pain Point 2: Productivity Challenges

Mobility has driven profound improvements in worker productivity. But it has resulted in its own series of challenges, too. Obviously, different device types lend themselves to different work tasks better than others. According to IDC's 2015 *Workforce Transformation Survey*, when respondents were asked to group the top tasks for each device, the top 3 for the smartphone were social networking, accessing calendar, and checking email. For tablets, the top 3 tasks were personal productivity (taking notes), checking emails, and participating in online communities. And the top 3 for the PC were creating documents, editing documents, and file sync and share. This shows that the smartphone has traditionally been viewed as a lightweight, content consumption device and a complement to the workhorse PC.

Mobility is great until the file needed is on a device that is not accessible.

File sync and share is particularly important because it also points to a key productivity challenge that results when employees do work on multiple devices. Namely, it can be tough for a person to keep track of files that he/she creates on different devices. Mobility is great until you realize that the file you need is on a device you don't have and can't access.

Beneath this issue of files stored on different devices lies another challenge: data security. Not all devices offer the same level of security. An employee's corporate notebook may be locked down tightly if the employee is accessing

that same information on an unsecured smartphone, but the employee is putting the data at risk should he/she lose the device.

Pain Point 3: High Device Purchase and Support Cost

Any IT organization currently supporting multiple devices per employee knows it is paying a high price.

Any IT organization that is currently supporting multiple devices per employee knows it is paying a high price to do so – whether it's an executive with an IT-provided notebook, tablet, and smartphone or a rank-and-file knowledge worker with a company desktop and a BYOD-supported smartphone. IDC closely tracks the selling prices of commercial devices. In 2015, the average cost of a company-purchased desktop in the United States was \$563, a notebook was \$661, a tablet was \$443, and a smartphone was \$563. These costs are just the up-front expense of the hardware. Next, you have to layer in the hundreds of additional dollars, per device, for OS and software licenses as well as device management over the device's lifetime. On average, that company-purchased laptop will cost \$1,000 to deploy, support, and manage over three years and \$2,465 over five years. One must also consider the

eventual cost associated with decommissioning an old device when it's time to replace it with a new one, starting the entire process again.

Pain Point 4: The Apps Challenge

Finally, there is the significant challenge of traditional business application support and the related issue of file fidelity across different devices and operating systems. In short: Many of the business-focused applications that companies use on their Windows PCs don't have direct descendants available on iOS and Android. Sometimes this issue is insurmountable, particularly if a company has built critical business processes upon a legacy app, which means a smartphone can never do the full

Many business-focused applications on Windows PCs don't have direct descendants available on iOS and Android.

job of a PC. In other cases, the company may find a different app (or commission one) to do the same job on different devices. However, this can drive significant problems with regard to syncing files across different platforms and can lead to subsequent issues where files work on only some systems. According to IDC's 2016 *Mobile Enterprise Device Survey*, approximately 18% of respondents said that problems related to linking mobile platforms with existing systems and applications was a hurdle.

In the past, some companies have attempted to use virtualization on mobile devices to address this challenge, effectively running a second operating system on their mobile devices. Unfortunately, early versions of these solutions have typically proven unwieldy at best and unusable at worst.

One Device, Three Ways to Work

It's become increasingly clear to many IT organizations that continuing to support such a wide range of devices is untenable. Many IT organizations are faced with shrinking budgets and increased demands around digital transformation, the shift to the cloud, everything as a service, and a perpetual state of high anxiety around security. As a result, these organizations are looking for ways to rationalize and optimize their IT product portfolio. The fast march of technology has given forward-thinking IT organizations the ability to move beyond "business as usual" with regard to their devices. The rapid proliferation of dual- and now quad-core mobile processors means today's smartphones offer processing power on par with some notebooks. And with LTE connectivity, those phones offer robust, high-speed connectivity to the network. Today's mobile operating systems are more powerful than ever before, and with Windows 10, Microsoft has brought to market an OS that brings a level of consistency

across form factors that the industry has never seen. Combined with the latest generation of cloud-based apps, the potential of the smartphone as a work tool continues to grow.

This evolution of processor technology has brought about the ability to radically rethink smartphone hardware and accessories, ushering in an era of merged form factors that may well solve some of the ongoing issues IT faces. Specifically, it's now possible for IT to consider using a Windows smartphone as an employee's central compute device. Using Microsoft's Windows 10 Continuum feature and the right accessories, IT can transform the smartphone from a powerful mobile productivity device into a powerful desktop or notebook. Instead of managing three separate devices, IT is now managing one device.

HP Inc. recently launched such a product: the Elite x3. A high-powered phablet with accessories for notebook and desktop docking, it's the first 3-in-1 device to reach the market that credibly checks all of IT's boxes. It runs Microsoft's Windows 10 Mobile operating system and thereby can leverage the Continuum capabilities to let a user transition from smartphone to laptop and desktop interfaces and back. Combine this with a robust native security model, enterprise-class durability, accessories optimized for work, and you have a potent end-user device, all backed by a company known for its support of commercial users.

As a smartphone, the Elite x3 utilizes the Qualcomm Snapdragon 820 processor and comes with 64GB of onboard storage, 4GB of RAM, LTE connectivity, a 16MP camera with optical image stabilization, a front-facing camera for videoconference calls, and support for authentication via a fingerprint reader or a camera-based iris scanner.

The Elite x3 enables end users to dock their device and transition to desktop mode in two ways: The first is the Desktop dock, which allows the use of a standard keyboard, mouse, and display to turn the Elite x3 into a full-fledged desktop system. The second is the optional HP Lap Dock, a notebook form factor with a 12.5in. screen and high-capacity battery that connects to the Elite x3 wired or wirelessly. Both docking solutions are designed to boost productivity through the use of a 3-in-1 device that offers compute power akin to a small form factor desktop or a mainstream notebook.

One of the inherent limitations of Windows 10 Mobile is that it doesn't include native support for legacy Windows x64/x86 desktop applications. This is an issue even though Windows 10 Mobile runs next-generation applications created for Microsoft's Windows Universal Platform. To address this shortcoming, the Elite x3 includes the HP Workspace application virtualization service that enables IT to virtualize legacy apps. In addition, the Elite x3 is also compatible with existing enterprise-class virtualization clients from vendors such as Citrix, VMware, and Microsoft.

It should be noted that Windows 10 Mobile has a small market share compared with iOS and Android, and as a result, many consumer-centric apps found on those OSs aren't available on Windows phones. However, many commercial users should be able to see past this limitation because the device does offer a long list of productivity-focused apps, including Microsoft Office and Skype, as well as a long and growing list of apps devoted to business travel, mapping, and news.

New Use Case Scenarios

The new 3-in-1 category has relevance for most traditional mobile workers with the transition from the laptop as the central compute device to the smartphone. In addition, brand-new use cases that have traditionally been impossible with current IT can be explored. Examples include:

- Warehouse personnel, who can dock the Elite x3 on their forklift when on the floor and in the standard dock when they're at their desk

- Police and government agencies that rely on the Windows platform and need to give mobile forces a light device that they can manage and dock when required
- Healthcare environments where professionals want to manage patients on the ward and dock for more in-depth tasks when required
- Field technicians, who can take photos to share with headquarters or even video Skype with senior techs before making a tricky repair
- Retail managers, who can use a barcode scanner accessory to manage inventory, check pricing, and even shorten lines by utilizing paired mobile payment terminals

CHALLENGES/OPPORTUNITIES

HP Inc.'s Elite x3, with its robust hardware, purpose-built accessories, and powerful application virtualization, package, is the most compelling 3-in-1 device to date.

The 3-in-1 clearly represents an exciting new platform for businesses. HP Inc.'s Elite x3, with its robust hardware, purpose-built accessories, and powerful application virtualization package, is the most compelling to date. It has the potential to allow IT to transition from the high-cost, high-complexity multiple-device scenario to a more economical, easier-to-manage system of a single converged device. But like any major technology transition, the move to a 3-in-1 device faces some fundamental challenges.

One major hurdle will be convincing employees to carry the Elite x3 as their only smartphone, fully replacing their current Android or iOS device. Addressing this will be difficult and will likely require pilot programs where employees add the Elite x3 to their existing device arsenal, deciding over time if the productivity gains outweigh the sacrifice of some iOS and Android apps. For many, it will.

Another challenge for HP Inc. is proving that the Elite x3's virtualization solution can cope with mobile demands. All such technologies require a strong network connection to work well, but the nature of mobile devices means there will likely be times when a poor connection results in a poor experience. In this situation, it's up to IT to educate end users on the limitations around mobile virtualization. HP Inc.'s own solution helpfully notes when a user is on a spotty connection, and this will help drive a better understanding among end users.

CONCLUSION

The shift toward mobility has been both a blessing and a curse for IT and end users. New technological developments allow IT to rethink the old solutions and overcome the inherent pain points, but mobility has caused some pain points, too. There are the challenges of supporting multiple types of devices and OSs and the productivity issues that often appear as a result. Other challenges include the high cost of buying, deploying, and managing all those devices and the ever-present issue of supporting legacy apps.

The 3-in-1 puts the mobile device at the heart of the compute experience.

The 3-in-1 is brand new but exciting in that it puts the mobile device at the heart of the compute experience. Technology advances mean that, for the first time, this is a credible new category that is likely to grow into a mainstream category over time.

HP Inc. is launching the Elite x3 as a new solution to improve productivity. This 3-in-1 device runs a single OS and is designed for ease of management. In addition, the Elite x3 is designed to work as a smartphone, a notebook, or a desktop, allowing employees to work when and where they want without having to buy all three devices. HP Inc.'s Elite x3 can also help organizations that are dealing with the challenge of legacy apps by offering a customized app virtualization solution as part of the package. While the 3-in-1 device clearly won't be a perfect fit for every employee within an organization, HP Inc.'s Elite x3 is a prime example of how a new class of device can enable exciting new forms of productivity.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-community.com
www.idc.com

Copyright Notice

External Publication of IDC Information and Data – Any IDC information that is to be used in advertising, press releases, or promotional materials requires prior written approval from the appropriate IDC Vice President or Country Manager. A draft of the proposed document should accompany any such request. IDC reserves the right to deny approval of external usage for any reason.

Copyright 2016 IDC. Reproduction without written permission is completely forbidden.

