
Enterprise Mobility: Mobilizing A Multi-Device Workforce

An Overview of Enterprise Mobility: Putting it to the Test with Worksoft

If you've got a phone, you've got an office — and a shop floor, a warehouse, an HR department, a delivery fleet, a board room. Or at least you will soon. The race for enterprise mobility is on, and players big and small are jockeying for the pole position.

The smartphone and tablet revolution has passed the tipping point in the enterprise, driven from every side. Businesses want increased productivity, efficiency, and agility. Employees want flexibility to work anywhere using their preferred mobile device. And the major software providers and their partner ecosystems are scrambling to build the conduits and apps to connect enterprises with their workers, wherever those workers may be.

Apps for the enterprise

“Our goal is to be the Apple of enterprise mobility,” says Sanjay Poonen, SAP’s top Mobility Division executive.¹ That ambitious (some might say audacious) goal includes reaching one billion SAP users by 2015, and SAP sees mobile as the route to get there. SAP is not alone. Name any big enterprise player — IBM, Oracle, Red Hat, et al — they are all making mobile a cornerstone of their strategic futures.

As on the consumer side, the key to enterprise mobility is apps. Generic business productivity apps are one of the biggest app categories for iOS and Android. But the big push is to mobilize the existing software suites that companies already use to run their businesses — building the mobile front ends that will connect workers to the vital data and systems that live behind the company firewall. That means building enterprise apps, and testing them to make sure they securely deliver the functionality to empower the new mobile workforce. Given the diverse landscape of mobile OSs and devices, it’s an incredibly complicated task.

Tools for the always-on workforce

Today’s mobile email, document shuffling, and occasional presentation are small potatoes compared to what’s coming. Off-the-shelf productivity apps? Yesterday’s news. Businesses mobilizing their core enterprise systems will give workforces anytime, anywhere access to company data, systems, and infrastructure. It’s not unreasonable to think that ultimately, anything that can be done on a company-networked computer will be able to be done on a smartphone or tablet. (And a significant number of those devices will be personally owned by the workers.)

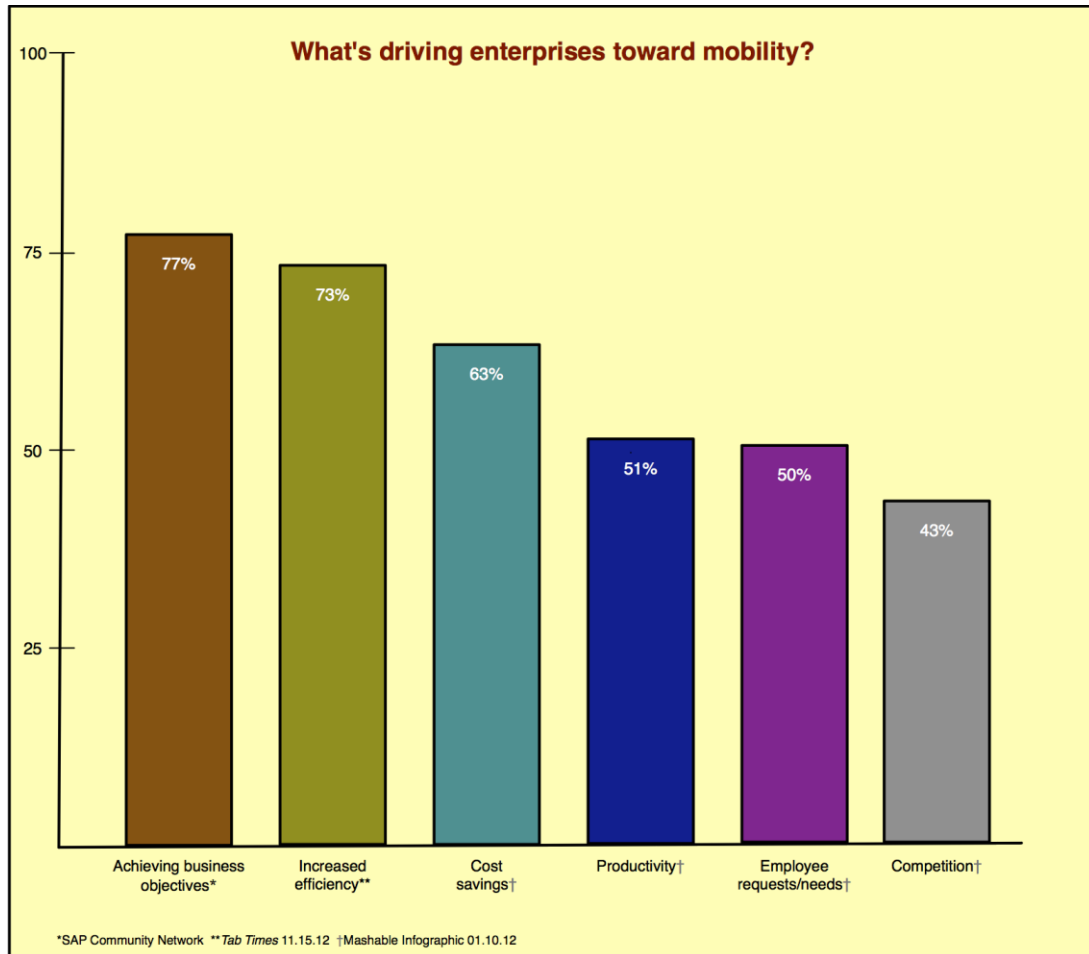
Plant supervisors will order parts for their assembly line from an iPad. Marketing managers will access corporate analytics on their phone while they’re in a meeting. Field service reps will check the warehouse for repair parts while they’re at a customer site. And of course, the emails will continue to flow back and forth while workers are at the opera, with their kids at the playground, or on the road.



A sample screen of SAP BusinessObjects Mobile on an iPad. For a host of processes and job functions, mobile access to behind-the-firewall data gives workers a tremendous advantage in the field, whether they're managing an oil rig or sitting across the desk from a customer.

“It’s transformed our own business, and now we’re seeing a number of other customers with similar types of use cases,” SAP’s Poonen says, “Going from the sales rep to field service people, to people on the oil rig, to people in the mine fields — the use cases are fascinating.”

Some companies are well on their way towards such uber-connectedness. And many more are taking their first steps in that direction.



The march towards mobilization

In 2012, nearly 150 million people worldwide brought their smartphones or tablets to work to use on the job — that’s nearly a quarter of all consumer-owned smart devices. Juniper Research projects that that number will more than double to 350 million personally owned, used-for-work devices by 2014.²

Over half of businesses today are supporting workers’ mobile preferences by making line-of-business apps available on their devices. And 90 percent of *Fortune* 500 companies are deploying or testing iPads.³ SAP itself has put 20,000 iPads and 40,000 iPhones into the hands of its own workers.

Worksoft recently surveyed 500 SAP clients about their plans for mobile. “One question we asked is if they expected their business to use more mobile technology in the next 12 months,” says Reiner Musier, Worksoft’s Chief Marketing Officer. “Seventy percent said yes, they would be growing their investment in mobile technology.”

It's predicted that by 2013, 1.2 billion workers will use mobile technology — personally or company-owned — on their jobs, and that enterprise mobile data traffic will double in each of the next two years.⁴ From 2011 to 2016, mobile data traffic is projected to grow 18-fold.⁵

“There are certain areas where they are jumping on faster than others,” says Chief Technology Officer Shoeb Javed of Worksoft, a leading supplier of testing solutions for SAP clients and other mid- and large-size enterprises. “In the SAP BusinessObjects solutions and other analytics solutions, a lot of customers have adopted mobile versions. They use them from their iPad as well as phones and so on.”

Mobile is where the money is

Mobilizing the world's enterprises is an expensive proposition, a fact that's not lost on the mass of mobile software and services suppliers, from the giants down to new startups, as well as wireless carriers. Enterprise mobility revenues are expected to outpace the consumer market by 100 percent over the next five years, to \$340 billion, as smartphone penetration passes 90 percent in North American and Western European enterprises.⁶ Developers are expected to take in \$40 billion of that revenue.⁷

But as always, once they've got the razor, the big money is in the blades — a big chunk of that enterprise spend will be for carrier data charges. Today, companies pay an average of \$31.25 monthly per employee for mobile data transmission, adding up to an average total bill of \$851,880 per year. By 2015, that bill is expected to go up to nearly \$101 monthly per employee, or close to a \$2 million average annual company bill.⁸

BYOD is a big deal

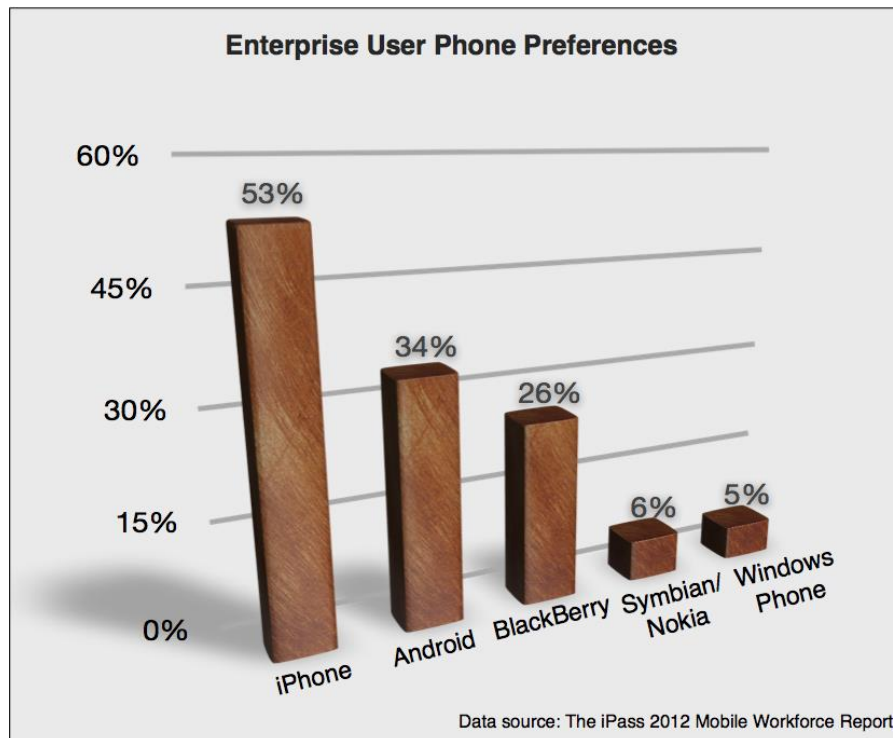
While companies have many good reasons to mobilize their workforces — greater productivity, efficiency, cost savings, and agility — one of the biggest drivers of enterprise mobility is the workforce itself. Employees wowed by the convenience and functionality of their smartphones want those same advantages on the job, and the corporate Blackberry, even in its latest iterations, does not cut it for them.

Consequently, there's been a virtual flip-flop in the ownership of mobile devices employees are using on the job. Almost half of workers are bringing their own phones to work — 46 percent worldwide, 48 percent in North America — according to a 2012 survey. (The only things these workers considered more important than their smartphones were their wallet and keys.) On the flip side, there's been a swift and radical drop in the number of companies providing phones to employees. In 2012, only one-third of companies provided phones; in 2011, it was 58 percent.⁹

Challenges to making the enterprise road-ready

There's a lot more to enterprise mobility than building apps and distributing them to the workforce. Security, functionality, performance, and connectivity are among the major challenges IT departments face.

Since the early days of mobility, IT departments kept their mobile workers locked down with closed systems and standardized, company-issued phones. It was largely a Blackberry world, with only authorized apps allowed on the phone. This simplified the security challenge, with IT maintaining reasonable access control, as well as the ability to remotely wipe phones if these were compromised.



Enterprise users prefer the iPhone by a significant margin; BlackBerry's share continues to decline. The numbers add up to more than 100 percent because some users are still carrying two phones.

The smartphone revolution, though, first saw workers double-clutching — the company Blackberry in one hand, their own iPhone in the other — and then demanding that IT enable their personal phones to access company data so they could ditch the Blackberry entirely. It was the beginning of the new, Bring Your Own Device phenomenon. But mixing up company and personal data and apps on phones that aren't in IT's control, on unsecured networks, has opened up Pandora's box for corporate data security. This remains one of the biggest challenges for enterprise mobilization.

Ensuring the performance of new mobile apps is another huge challenge. Building mobile apps is more complicated than desktop apps, typically involving up to four operating systems and various form factors. iOS and Android are musts. Some enterprises still feel compelled to develop for Blackberry, though it is an ever-diminishing factor. Windows Phone is still a bit player, languishing with single-digit market share, but some anticipate that the rollout of Windows 8 may give it a boost.

Testing enterprise mobile apps is an even more complicated issue. Even if development is restricted to the two leading operating systems, there are scores of screen sizes, resolutions, UI nuances and other variations to deal with, particularly on the Android side. Proving an app on one device (or even several) for an OS does not guarantee it will function properly on most or all devices running that OS. It's a complex and critical development challenge.

The mobile strategy void

Even though nearly half of their workforces are using personal mobile devices, many enterprises don't yet have an established strategy for dealing with the new BYOD world.

“People feel like they don’t have an overarching adoption strategy for mobile at their company,” Worksoft’s Javed says. “They have high ad hoc usage but not an enterprise-wide strategy. So building that strategy and putting it in place seem to be the biggest challenges for them.”

If an enterprise doesn’t have an overall adoption strategy, odds are they don’t have a robust testing program, either. Unless they are putting strict limitations on the devices workers can use — which is anathema to the current BYOD mindset — it’s not realistic to think that effective, on-device app testing can be done internally. But that’s how many companies are doing their testing.

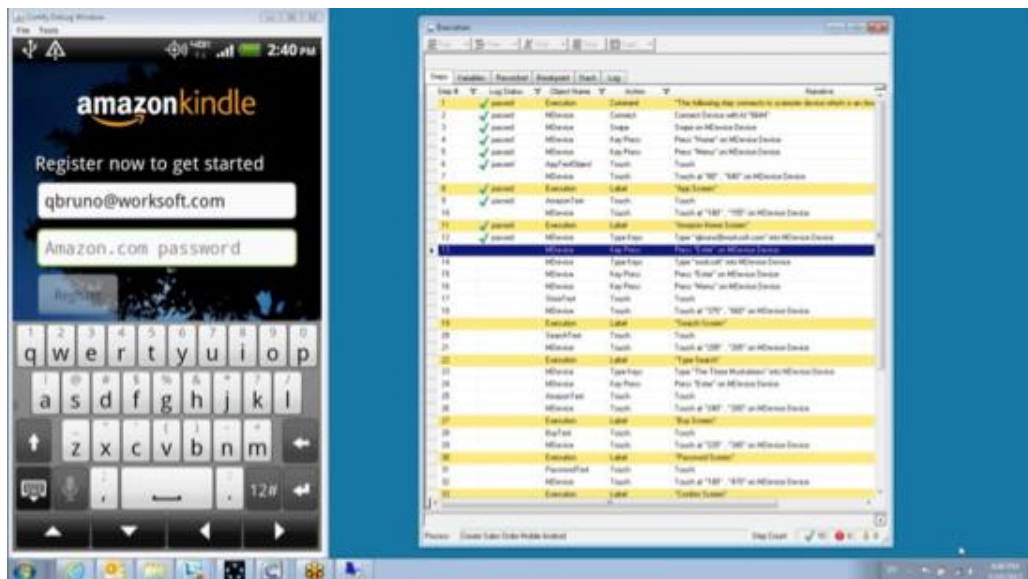
“A surprisingly high percentage of our survey respondents believe that most of their testing process can be automated,” Musier says. “But a surprisingly low percentage said they were using automation. Many companies — most of the ones we surveyed, actually — are still using manual testing to ensure quality.”

The reality is that there are simply too many permutations in mobile to test manually. For example, if a business process has ten variations, which is not atypical, and the plan is to test it on just five OS/device combinations, that’s 50 tests to run. Add more processes and more devices, and the problem grows exponentially and quickly becomes unmanageable. The only workable solution is finding a mobile test automation solution.

Making mobile testing manageable

“Test automation now becomes a must-have rather than a nice-to-have solution,” Javed says. “Because without automation, you can’t cover all these variations. That’s the most significant aspect — can I have a single, uniform, automated test that will cover multiple devices and multiple variations of my business process at the same time?”

Complicating matters further is the fact that enterprise mobile applications do not exist independently of end-to-end business processes. To the contrary, they are fully entwined. So mobile testing, to be maximally effective, needs to be approached holistically in terms of entire end-to-end processes.



With the Worksoft Certify Mobile Interface Extension, a tester can initiate testing on real mobile devices from a PC anywhere in the world, remotely and automatically operating the devices as if they were in users’ hands.

“Enterprises that have SAP deployed need secure, end-to-end testing of their back-end and front-end clients and applications, including mobile apps,” explains Javier Bastante, Director of Business Development for Keynote DeviceAnywhere. “They require for this testing to also be seamless, keeping their test automation frameworks and tools. The ideal scenario is that they leverage their current test automation tools and add a ‘mobile testing module.’ This is exactly what the Keynote DeviceAnywhere and Worksoft integration delivers.”

Worksoft has partnered with Keynote DeviceAnywhere to address the heterogeneous device environment and SAP’s multifaceted platform. The Worksoft Certify Mobile Interface Extension offers access to a comprehensive pool of real mobile devices operating on real carrier networks. Using a PC at any location, testers can create tests (no scripting required) that will run their applications on the actual devices, operate all the controls, use gestures, access remote data, etc., as if the device is in a user’s hand. And the tests adapt as changes are made to the application (with a very low level of maintenance required).

“You want to make sure that the principles of automation still apply, even to mobile applications,” Javed adds, “Which is, you want your tests to be resilient to changes in the application, so if you do an automated test and your application changes, you want to make sure that your test doesn’t break and you don’t have to start from scratch again.

“The other thing, too, is you want to try to make the test as uniform as possible across different device types, so you are able to achieve the concept where one test covers multiple devices as much as is practical. Because if you load a different test for every single device, then you have to maintain all those tests across your entire device spectrum.”

Get moving toward enterprise mobility

A device adoption strategy, security policy, app development process, and automated testing programs are the obvious overall steps toward enterprise mobility. Not so obvious are the myriad infrastructure and management requirements behind the scenes, such as readying the back-end for mobile, building the data conduits, and managing a large and heterogeneous device pool. It’s a complicated and multifaceted process, but one that can pay big rewards in terms of increased productivity and efficiency, cost savings, responsiveness, and employee satisfaction.

¹ SAP SapphireNow, “SAP mobile with Sanjay Poonen, [video interview](#).”

² Juniper Research, “Mobile Security — Safe and Secure Devices,” August 2012

³ *Tab Times*, “Enterprise developer says 2013 will be the year mobile apps for business really take off,” by Doug Drinkwater, 11/15/12

⁴ SAP Community Network, “This is Not your Grandparents Cloud/Mobility Under Siege,” by Alison Welch, 11/29/12

⁵ Mashable, “The Rising Cost of Mobile Data For Enterprises [Infographic],” by Dan Rowinski, 9/5/12

⁶ ABI Research, “Smartphones, BYOD, and Mobile Data Plans to Drive \$340 Billion Enterprise Mobile Data Services Market,” 10/9/12

⁷ Mashable, “Infographic: The Growth of Enterprise Mobility,” by Dan Rowinski, 1/10/12

⁸ Mashable, “The Rising Cost of Mobile Data For Enterprises [Infographic],” by Dan Rowinski, 9/5/12

⁹ iPass, Inc., “The iPass Global Mobile Workforce Report, Q4 2012: Understanding Enterprise Mobility Trends and Mobile Usage,” 11/12

About Keynote DeviceAnywhere®

Keynote DeviceAnywhere®, a subsidiary of Keynote® Systems, Inc. (NASDAQ: KEYN), provides the industry’s only true enterprise-class, cloud-based platform for testing and monitoring the functionality, usability, performance and availability of mobile applications and websites. The company’s suite of mobile application lifecycle management (mALM) solutions assures the quality of enterprise mobile applications and services, helping to extend businesses and brands to the mobile channel. To learn more about Keynote DeviceAnywhere and to sign up for a free trial, visit www.keynotedeviceanywhere.com.

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