

FOR: CIOs



Industry Contexts And Constraints Diversify Approaches To Bring-Your-Own- Technology

by Connie Moore and Jamie Warner, December 13, 2012

KEY TAKEAWAYS

BYOT Adoption Varies By Industry, Based On Security And Mobility Strategies

BYOT is a universal trend across company sizes, geographic regions, and most age groups; but adoption is not as even across industries. Strategic needs for a mobile workforce -- especially knowledge workers -- balanced by security concerns drive differences in adoption across sectors.

Employee Satisfaction Takes Lower Priority Unless Concerns Over Talent Increase BYOT Needs

Many CIOs cite job satisfaction as a major reason behind BYOT initiatives, especially if skilled employees or partners -- like nurses, physicians, or engineers -- are in the employment mix. But job satisfaction takes a clear back seat to real or perceived security concerns.

But Employee BYOT Demands Will Keep Up, No Matter What

Employee push for greater choice in smart mobile devices will continue as new gee-whiz features continue to roll out from Apple, Google, Microsoft, and even RIM. The BYOT parade will be led by senior execs, but it will be driven by the ever-expanding consumer market.

IT Must Bridge A Gap In Enterprise Security And What Vendors Can Deliver By 2017

Security is paramount, but vendors will focus squarely on lucrative consumers instead. IT will not get what it wants -- even in five years. IT cannot sustain a zero-trust mindset; a more nuanced view on security for which processes, job roles, and employee segments will be needed -- not a ban on everything for all employees.

Industry Contexts And Constraints Diversify Approaches To Bring-Your-Own-Technology

Pharmaceuticals, High-Tech, Professional Services, And Education Will Lead BYOT Adoption In The Coming Years

by [Connie Moore](#) and [Jamie Warner](#)

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WHY READ THIS REPORT

This report examines how and why bring-your-own-technology (BYOT) varies across 20 industries. BYOT will remain a thorny issue for CIOs in every industry, geographic region, and company size over the next five years, but adoption will vary by industry. We identify the BYOT adoption trends that CIOs must consider in the context of rapid tech evolution, a changing vendor landscape, and the entrance of new devices like tablets and frame computers onto the enterprise scene. Many employees are galloping toward a future in which they call the shots about which hardware, software, and services to use, while management remains concerned about security requirements. This creates tension between BYOT adoption and workforce mobility on the one hand and security issues on the other. Industries with many untethered workers will accelerate BYOT to address customer engagement and job satisfaction, while other industries will move slowly because of real and perceived security concerns. BYOT will not happen in a vacuum; instead, CIOs will align BYOT, mobility, and security with their engagement strategies and new business models.

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Notes & Resources

In developing this report, Forrester drew from a wealth of analyst experience, insight, and research across industry sectors. Forrester also conducted interviews with seven end users who have industry-specific knowledge.

Related Research Documents

[Charting The Rising Tide Of Bring-Your-Own Technology](#)

June 12, 2012

[Info Workers Using Mobile And Personal Devices For Work Will Transform Personal Tech Markets](#)

February 22, 2012



ENTERPRISE MOBILITY FUELS THE BRING-YOUR-OWN TREND

The proliferation of mobile applications and devices is evident across the entire business landscape. Supporting mobility among employees, customers, and partners is the top telecom priority for business, cited as a high or critical priority by 64% of respondents in Forrester's Forrsights Networks And Telecommunications Survey, Q1 2012 (see Figure 1).

The ubiquity of personally acquired smartphones and tablets in the workplace is also readily apparent. Of the respondents in Forrester's Forrsights Workforce Employee Survey, Q2 2012, who use a smartphone or tablet, 93% selected their own devices, embodying the trend known as bring-your-own-technology (BYOT) (see Figure 2). Their usage is greater than merely accessing personal and work productivity tools or engaging in the social world; 80% of those respondents also use their mobile devices to access corporate data or business applications while on the move.¹ The need for mobile access to corporate data and business applications, in addition to calendaring, email, and personal productivity apps, heightens the importance of developing a BYOT strategy.

The BYOT and mobility trends are changing the face of workforce computing:

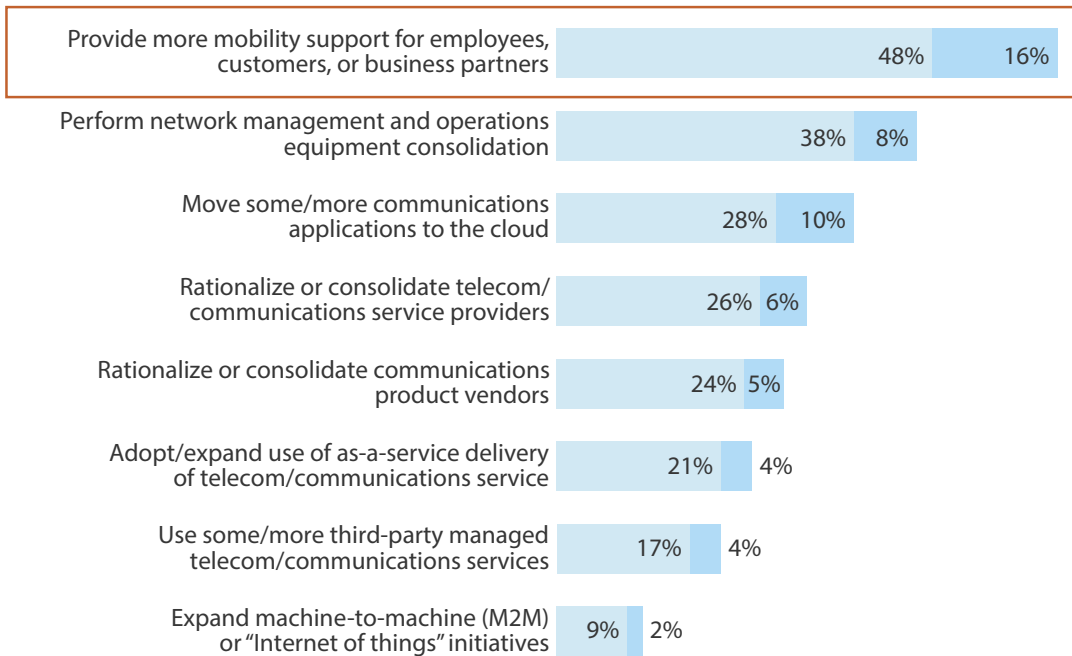
- **Inside firms, empowered employees now go mobile with BYOT and provisioned devices.**
All types of information workers are adopting tablets, phones, and mobile apps, whether they work in the back office, spend the majority of their time meeting customers, or travel frequently between multiple offices within the firm. For example, in Forrester's Forrsights Business Decision-Makers Survey, Q4 2011, 33% of 77 manufacturing and supply chain respondents and 27% of 341 back-office respondents said that investing in mobile or tablet app development was a high or critical priority over the next 12 months.² Such investments will result in increasing mobility for a wide range of business employees — like insurance agents, repairmen, or government inspectors — over the next three years. Clearly, enterprises are getting serious about deploying systems of engagement and empowering their mobile information workers.
- **Outside firms, new systems of engagement increase the focus on workforce mobility.**
Sales and marketing execs in particular will drive investments in systems of engagement that use smartphone and tablet apps — allowing employees to touch customers wherever either may happen to be. In our 2011 business decision-makers survey, 45% of 228 sales and marketing respondents see investing in mobile or tablet app development as a high or critical priority. In the business-to-consumer space, mobile systems of engagement will power apps that employees and customers use; while in industries like pharmaceuticals and insurance, enterprises will create interactive content for tablets so the sales force can get important information in front of customers.

BYOT is a force to be reckoned with by CIOs and their suppliers. In this report, we delve deeper into the trend, looking at variations in the pace of adoption of BYOT across different industries. We characterize industries by the intensity of their BYOT and mobility activity and develop a segmentation that categorizes industries by current and future intensity of BYOT activity.³

Figure 1 Mobility Is A Top Telecom Priority For Firms This Year

“Which of the following initiatives are likely to be your firm’s top strategic telecom/mobility priorities over the next 12 months?”

■ High priority ■ Critical priority



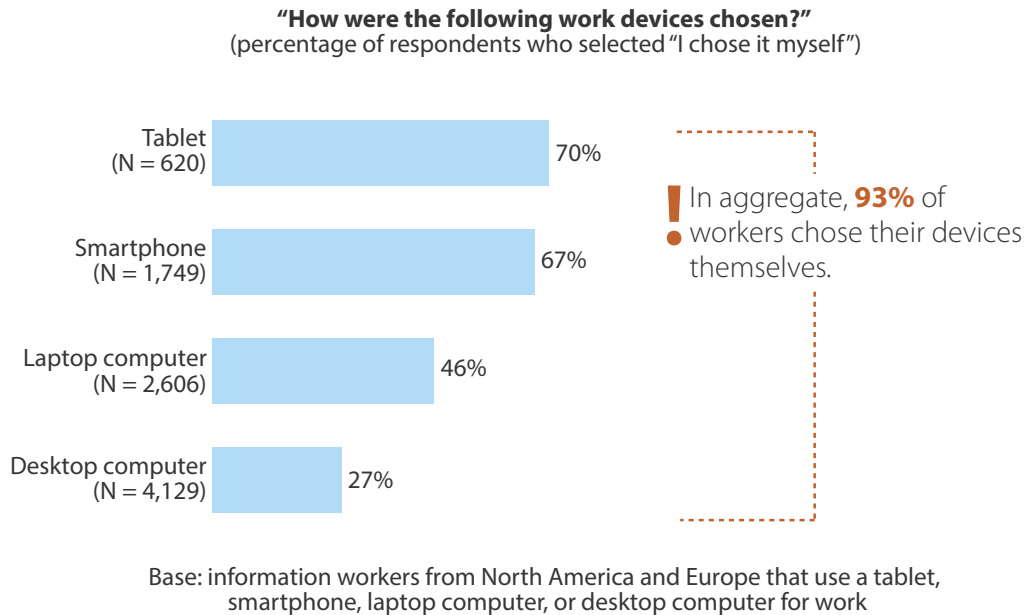
Base: 2,347 North American and European networks and telecom decision-makers

Source: Forrsights Networks And Telecommunications Survey, Q1 2012

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Source: Forrester Research, Inc.

Figure 2 Mobile Devices Are More Likely To Be Chosen And Bought By Employees



Source: Forrsights Workforce Employee Survey, Q2 2012

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Source: Forrester Research, Inc.

MEASURING INDUSTRY VARIATION IN BYOT AND MOBILITY

To characterize the current and future intensity of BYOT adoption in a range of industries, we measured two interrelated dimensions that influence how quickly organizations adopt BYOT policies and how open those policies will be:

- 1. Organizational focus on mobility.** The strategic need to support a mobile workforce is paramount in many industries where workers engage with customers, such as transportation, professional services, and high-tech, or where professionals are in the field making repairs, like manufacturing, oil and gas, and utilities. Some firms in these sectors jumped ahead several years ago with company-provisioned mobile devices (e.g., UPS) and will now consider whether employees should choose their own devices and apps.
- 2. Employee bring-your-own behavior.** Companies in some industries that are concerned about finding and keeping great talent adopt BYOT policies that empower employees by giving them freedom of choice. Industries that exhibit this pattern include pharmaceuticals and healthcare providers.


Our BYOT Index Captures Variation In Employee Behavior And Policies

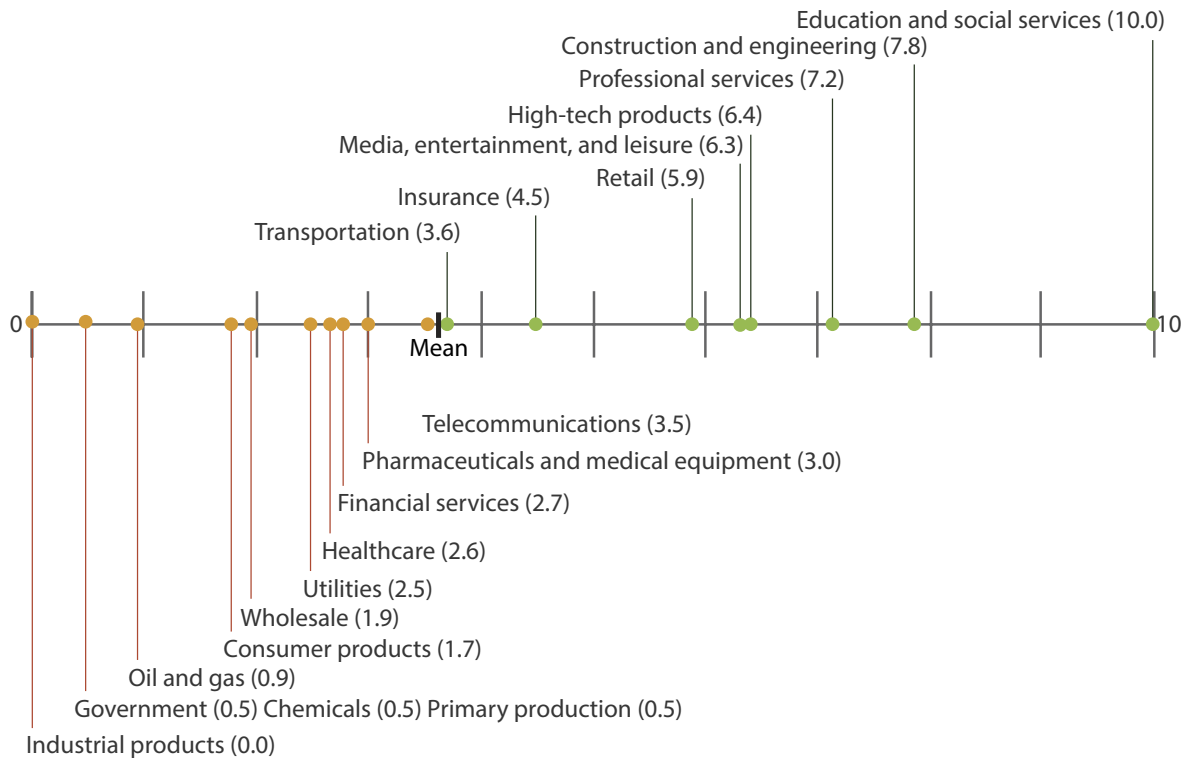
The BYOT trend shows pronounced variation when compared across industry sectors. This variation prompted us to look more deeply at similarities and differences across 20 industries by creating a BYOT index to measure adoption based on IT spending and policies.⁴ Specifically, we created the BYOT index by examining survey responses to two questions: 1) who (IT, business units, or employees) purchases mobile technology like smartphones, tablets, and applications and 2) the level of support that IT reported for employees that bring their own computers, smartphones, tablets, peripherals, software, and online services. Industries with higher-than-average percentages with individual purchasing, and with higher-than-average support for BYOT, end up on the right-hand side of our index (see Figure 3).⁵

Looking at the industries plotted by BYOT intensity, we see:

- **High BYOT behavior in high-tech, professional services, engineering, and education.** Companies in these industries typically have a higher-than-average fraction of technology spending directly done by employees and policies that allow or encourage BYOT behavior. These industries have a high proportion of information workers with knowledge-intensive jobs requiring frequent collaboration with peers and customers, significant amounts of unstructured content creation and consumption, and interpretive/analytical tasks involving data analysis and dashboards.⁶
- **Low BYOT activity in government, energy, and industrial sectors.** These industries have a lower percentage of employee-led technology spending, and, in some cases, they have policies that do not support or may even prohibit BYOT activities. While companies and organizations in these industries certainly employ information workers who collaborate with peers, create and consume content, and analyze data, many of these workers are desk-bound — making the need for smart devices less urgent. Or, these industries may have security concerns that restrict mobile device choices and limit BYOT policies.

Figure 3 BYOT Index Illustrates The Intensity Of BYOT Behavior By Industry

 The spreadsheet associated with this figure contains additional sample size data.



Base: North American and European IT budget decision-makers

Source: Forrsights Budgets And Priorities Tracker Survey, Q2 2012

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Source: Forrester Research, Inc.

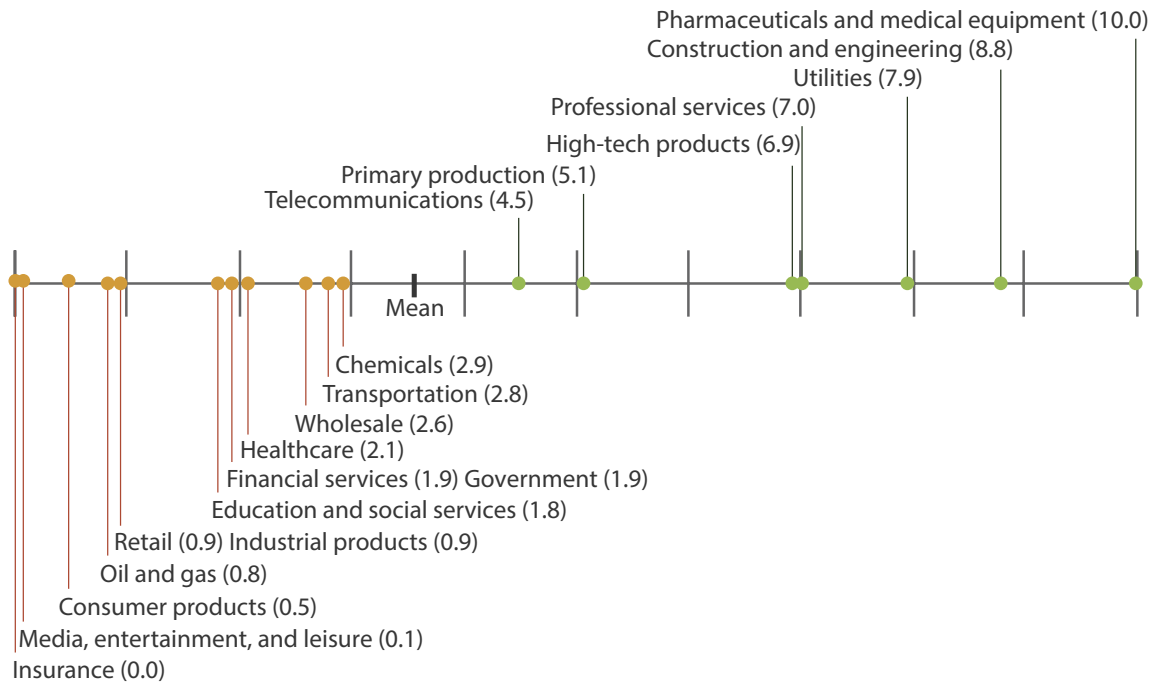
The Mobility Index Captures Variation In Industries' Mobility Investments And Intensity

Globally, one in four computing devices used for work is mobile.⁷ To analyze how mobile device adoption varies across industries, we created a mobility index.⁸ We chose and weighted responses to three questions from the survey that we feel best represent the importance of mobility initiatives in a firm: 1) the amount of planned spending on mobility initiatives (10% weight); 2) the provision of mobility support for employees (50% weight); and 3) the regular use of tablets, smartphones, and laptops among a firm's employees (40% weight). We plotted the average of these numbers across all industries and then rescaled them on a 0 to 10 scale (see Figure 4).⁹ We found:

- **High mobility intensity in pharma, construction, utilities, and professional services.** Industries most aggressive in using mobile technologies include pharmaceuticals (usually with a large sales force), construction and engineering (with many workers going to/from construction sites), and utilities (with linemen and repairmen in the field), followed by professional services (like attorneys and consultants who are often with clients), high-tech, primary production, and telecommunications. Companies in these industries often have a greater percentage of mobile workers who often work away from the office at client sites, in meetings outside the office, or shuttling between locations within the company itself.
- **Low mobility in insurance, media/entertainment, and consumer products.** Industries that lag in adopting mobility based on our index include insurance (with large back offices) and media, entertainment, and leisure, followed by consumer products, oil and gas, retail (with employees assigned to a store), and industrial products. Education and social services, financial services (with large back-office operations), government (often centralized), healthcare, wholesale, and transportation are also below average in our mobility index.

Figure 4 Mobility Index Illustrates The Intensity Of Mobility By Industry

 The spreadsheet associated with this figure contains additional sample size data.



Base: North American and European networks and telecom decision-makers

Source: Forrsights Networks And Telecommunications Survey, Q1 2012

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Source: Forrester Research, Inc.

Combining The Indices Shows Where Industry Priority And Employee Activity Intersect

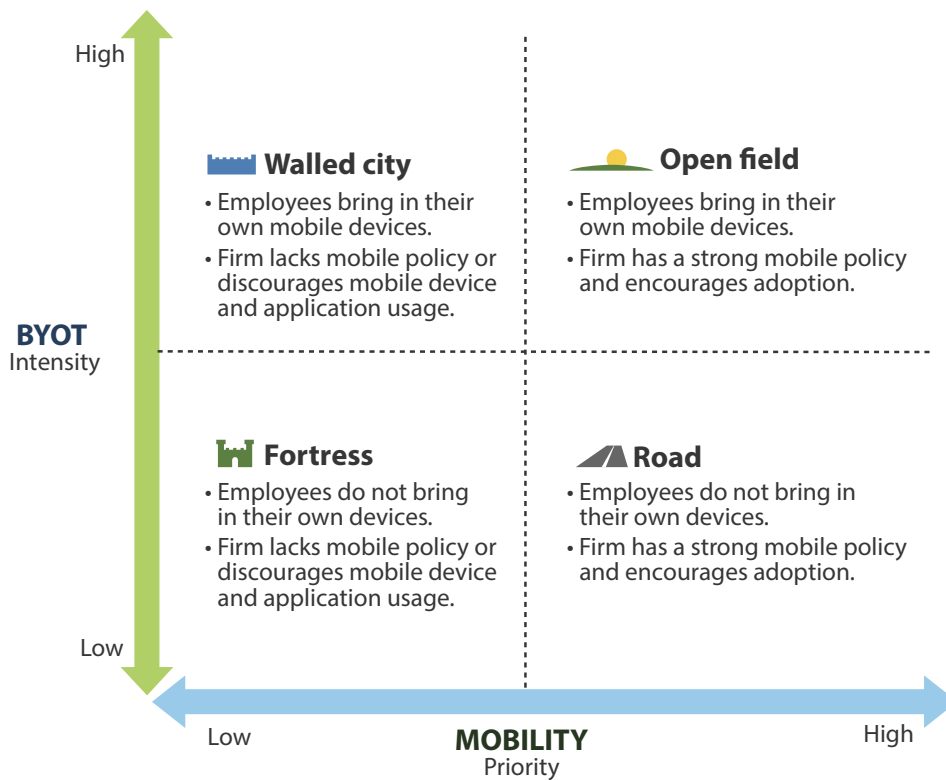
Putting together the BYOT index (a measure of employee activity) and the mobility index (a measure of industry priority) creates a segmented picture of how different industries are approaching the crucial initiatives of employee choice vis-à-vis mobility need. This combination allows us to see which industries are high on both mobility and BYOT or, conversely, which industries have low BYOT and mobility needs, as well as industries that have a combination of high and low patterns.

This analysis illuminates four distinct industry segments (see Figure 5):

- **Fortress industries are tightly controlled.** Companies in the fortress industry sectors believe the damage from a security breach is so high, the risk so tangible, and the employee productivity gains so unimportant that they restrict all but the most minimal support for provisioned or BYOT mobile devices by prohibiting data downloads, information stored on PC disk drives, the use of flash drives, and business content resident in cloud services. These industries have often built their mobility strategy around Research in Motion (RIM) because they believe BlackBerry devices are the only truly secure device, and even then they put restrictions on its usage.
- **Walled city industries explore BYOT with constraints.** These companies may seek to keep BYOT use down by limiting mobile access for most workers to email, calendaring, and productivity tools, while allowing BYOT access to data and apps for a subset of mobile workers. Workers bring their own devices, software, and cloud services even though companies in these industries often lack clear policies or guidelines to govern their behaviors. Yet, BYOT defenses are beginning to crumble as more firms consider mobile systems of engagement for customer-facing workers. Some insurers permit agents, underwriters, claims adjusters, and examiners to use their own devices for core business processes, and retail clerks are closing sales by using their own devices to find product information for shoppers. Still, these industries are largely walled off from mobile processes.
- **Road industries understand mobility well, having been early adopters of smart devices.** This segment is counterintuitive: These companies have low BYOT adoption — but that's because they were among the first to go mobile. Instead of workers clamoring for BYOT, these companies jumped on the smart devices bandwagon quickly and strategically. Take UPS with its purpose-built device that drivers use when engaging with customers; this was groundbreaking when first rolled out in 1991, and UPS will roll out the fifth generation of the device in 2013.¹⁰ Or the many pharmaceuticals that bought thousands of corporate iPads for global deployments. Pharma realized the benefits of arming sales with tablets and mitigating BYOT by staying current with the latest devices and software. Companies in these industries approach BYOT and mobility the same way that one travels down a road. The road (mobility) allows freedom when traveling, but also restricts where and how it takes you there (via company-provisioned devices).

- Open field industries are bullish on BYOT.** Sales members and highly compensated knowledge workers in these firms are constantly on the move, in front of clients, making high stakes pitches with impressive iPad apps. Architects might use a tablet to show video to clients, or a consultant might stay in touch with C-suite clients using a smartphone. Many workers in professional services are true road warriors — allowed to choose their preferred devices because employers value their talent and don't want them to leave. Many firms see a distinct advantage in putting graphics, reports, and consulting tools in the cloud for workers to access at a moment's notice. Or perhaps the employees are electrical, software, or systems engineers working on next-generation software — making it next to impossible for high-tech employers to prohibit BYOT.

Figure 5 BYOT Policies Range From The Fortress To An Open Field — Driven By Security Needs



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Source: Forrester Research, Inc.

HOW INDUSTRIES' BYOT POSTURES WILL EVOLVE

Using our mobility and BYOT indices, we populated the four segments with industry positions. And we make some predictions about which industries will move from one segment to another and why.

Industry BYOT Positioning In 2012

Today, industries including transportation, financials, healthcare, and government are still in the fortress segment, hunkered down on both mobility and BYOT. Education, media, insurance, and retail are in the walled city (higher BYOT, lower mobility), while others like pharma, utilities, and telecom are in the road segment (low BYOT, high mobility). And some industries — professional services, high-tech, and construction, dominated by highly paid road warriors who constantly engage with customers — already operate from the open field (see Figure 6).

A deeper look at current adoption patterns within selected industries reveals some of the cross-currents that CIOs and their partners in the business grapple with:

- **In the fortress: Government agencies where security is paramount stay here.** Because security is so important, some agencies (like defense, intelligence, and taxation) don't plan to give an inch on BYOT or mobility, while others will cautiously experiment with mobility and BYOT. For example, federal government agencies that provide information to business and consumers or issue permits and licenses (like the US Environmental Protection Agency [EPA], the US Department of the Interior, or US Department of Commerce) may function as walled cities, while the taxation agencies (the US Internal Revenue Service [IRS] or US Social Security Administration) remain tightly closed to prevent leaking vital information — like Social Security numbers.

The lack of technical advances in security will continue to dampen BYOT adoption, stranding many agencies in the fortress. For example, the US federal government requires personal identity verification (PIV) cards, mandated by the Department of Homeland Security for all government employees to access physical and logical locations. These cards are only available for BlackBerry devices. Over time, new security capabilities like card readers or biometrics devices that scan fingerprints or eyes for smart devices will enable at least some government agencies to open up sanctioned and provisioned BYOT. But CIOs we interviewed at the security-obsessed agencies believe that today's hyper-vigilance toward BYOT and mobility will remain unchanged five or even 10 years from now.

One US federal agency we talked to works with highly sensitive data and takes all steps to ensure that no data ever leaves its systems and networks. Sanctioned laptops can access applications, but these are agency-supplied standard configurations. Once authenticated, workers can access everything via laptops but cannot store reports or presentations locally. The agency is piloting Google Apps, email, and collaboration, but all information stays in a private cloud and requires authentication plus more security layers. The agency also provisions BlackBerry devices to employees, who cannot use their own devices to access data or apps. The CIO admitted “our tools are not nearly as easy to use on mobile devices.” Employees complain all the time about antiquated technology, but the agency refuses to let employee preferences drive its strategy.

- **In the walled city: Insurance also craves security, but BYOT creeps in.** Security needs and litigation risk make it hard for BYOT to advance in the insurance industry. Gradually, however, execs will support mobility as a way to increase productivity, lower costs, and differentiate from the competition. Already, field workers are shifting from laptops to tablets. Certain job roles and types of insurance are ripe for change, particularly commoditized processes like claims adjusting. Using mobile location services, headquarters can standardize the process so the adjuster finishes the claims estimate before leaving the claimant’s property. Underwriting is another area for leveraging BYOT. Life insurance agents already use mobile apps to shorten the sales cycle and property and casualty insurers are racing ahead with mobility to deliver instant quotes and links to online enrollment. As mobility picks up steam, BYOT will also surface for executives, brokers, body shops, doctors’ offices, repair shops, and third parties.

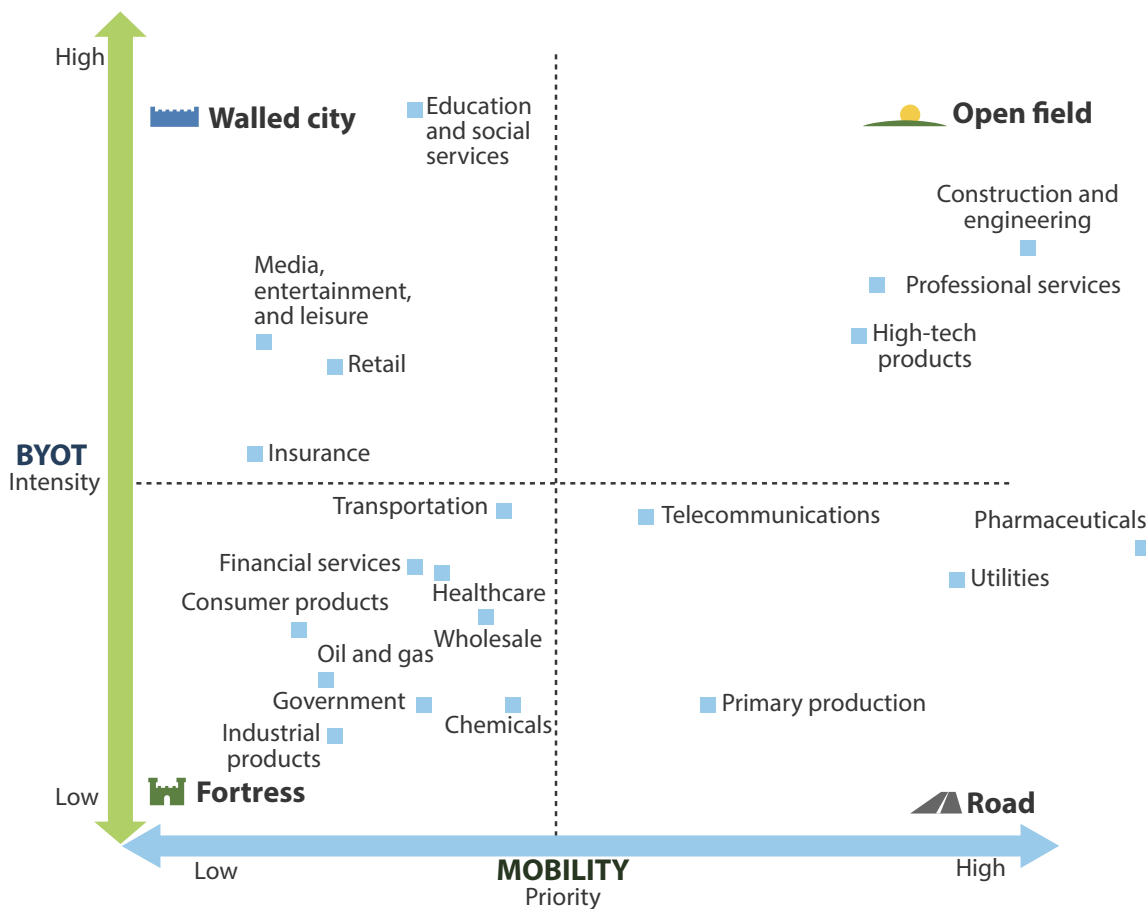
One insurer we interviewed began a BYOT program two years ago by deploying BlackBerry devices for more than 20,000 workers. IT now can’t find a satisfactory replacement for RIM and worries that tablets are not quite secure enough for sales. But to accommodate employee-owned devices, IT deployed Good Technology to secure a BlackBerry-like service through a downloadable, cloud-based tablet app. Sales prefers tablets over laptops for access to sales tools, calendaring, and desktop apps, so IT is adding an online sales tool for tablets. The firm plans more tools for the entire workforce, but it will lead with laptop-based adjusters and other field workers.

Security is still a big concern. The company worries about sales downloading an app and then storing content in the cloud with an unapproved software product. To diminish that risk, it has locked everything down to prevent information from leaking to the cloud. Although not convinced that Apple and Google devices are secure enough, they think Apple is making progress and understands business usage. But the company believes Apple's focus on consumers gives Microsoft time to hone its mobile device strategy. IT is also feeling pent-up demand from business units for a Microsoft solution. The business exec for digital commerce believes "Microsoft is moving very fast, dominates the enterprise, and may open up a space in the BYOT market."

- **In the fortress: Banks fear the nightmare of a major security breach.** If anything, banking is more hunkered down in the fortress than either insurance or government. That's because no banker wants to live through the trauma and compliance violations of a security breach. This risk aversion has kept banking largely in the fortress even though there are opportunities for mobility within banking. For example, providing loan officers in branches with mobile devices and arming branch managers with mobile community outreach and marketing apps could provide an important customer experience improvement and help bankers reach their business development goals. Also bank foreclosure inspectors who inspect foreclosed property are prime candidates for mobility if they are employees and prime candidates for BYOT if they are independent contractors — both of whom need to interact with the bank's foreclosed asset systems. While banks will continue to focus largely on risk avoidance and high security, they will begin to experiment with mobility and BYOT on a limited, case-by-case basis.
- **In the open field: Professional services firms let their employees roam free.** Companies employing highly trained, deeply credentialed, and handsomely paid employees are a natural fit for mobility and BYOT, particularly if those individuals are self-paced and work from client sites. This diverse industry comprises many job roles that are also mobile, including accountants, management consultants, financial/tax advisors, systems integrators, speech coaches, executive search advisors — the list goes on. Take law firms as an example, which are dominated in the US by small and midsize firms that lack large IT staffs.¹¹ Attorneys are under constant pressure for greater billable hours, plus they often need fast access to information while in high-stakes court cases. Lawyers typically use their own devices without too much concern over security risks. They believe that exercising reasonable precautions — like passwords, encryption, and cloud storage for case matters and eDiscovery — is sufficient, particularly for the iPhones and BlackBerry devices that dominate the legal field.

One systems integrator we spoke with that works closely with government and financial services has fully embraced BYOT. It sees a compelling business case for mobility in the front office, while requiring greater security in accounting and production planning. Employees get an allowance to buy whatever device they want in addition to desktops. Because mobile device improvements are moving so fluidly, the company reports that it can be hard to build policies around specific products; it witnessed firsthand Yammer spiral out of control, leading it to conclude that BYOT policies that flow from the CIO are crucial. The company’s five-year mobility plan puts more emphasis on policies than devices, such as determining where employees store information. One senior business exec noted, “the CIO is no longer the CIO — he or she is the chief *everything* officer — innovation, integration, intelligence.” He added: “CIOs must find ways to secure the data. One way is to make virtualization and cloud a core part of your BYOT strategy.”

Figure 6 A 2012 View Of How Industries Fit Into BYOT Adoption Patterns



Many Industries Will Move Over Time To A New BYOT Segment

The degree and pace at which different industries embrace BYOT will continue to vary over the next five years. The internal debate within organizations continues to rage over device and information security concerns versus the growing demand for employee preferences and business needs for mobile engagement with customers. In some industry sectors, the scale tilts heavily in favor of security, while companies in other sectors will seek a better balance between those competing needs. Many industries will move from one BYOT pattern to another as:

- **C-suite executives push for new systems of engagement.** In company after company, senior execs are prodding their IT and mid-level business managers to find security solutions for new systems of engagement that employees can take to customers. Senior execs may not see BYOT as a strategic issue, but they certainly understand the importance of interacting directly with customers and arming the sales force with impressive mobile apps that engage them.¹²
- **IT confronts the fall of RIM.** For years IT has depended on the mobile security provided by BlackBerry devices. But now that RIM's business has faltered, IT has been forced to take a new look at non-RIM devices. So far, most IT organizations have been unable to find products that enforce security on other devices with the same rigor as BlackBerry devices. As they move off of RIM, companies will find themselves giving employees more device choices.
- **IT segments the workforce.** As IT gets more BYOT experience, many shops have identified a more nuanced approach for segmenting the workforce's mobility, security, and BYOT needs. They now look at job roles and workers' participation in mobile business processes as leading factors for determining which type of mobile device(s) employees need — whether BYOT or company-provisioned. Admittedly, they are mainly focused on security by job role, but this segmentation informs their BYOT strategy as well.
- **Consumerization continues to drive employee expectations and behavior.** Every time Apple or Samsung or another device maker introduces the next big thing, workers will become even more enthusiastic about acquiring the latest devices and using them for work and personal needs. Tablet sales, for example, will zoom from 70 million in 2011 to 375 million in 2016, and one-third of those will be sold directly to businesses.¹³ Such enterprise adoption of consumer devices is an unstoppable force and will drive BYOT and mobile usage over the next five years.

In interviews with CIOs, we found some companies that are shifting from one BYOT pattern to another. By understanding their rationale and approach, it's possible to map how some industries will follow these leaders and move to more progressive BYOT policies (see Figure 7). Importantly, we have not come across a company or industry that is moving in the other direction — with future plans to constrain further current BYOT usage. Among the companies that we spoke with:

- **A US bank is leaving the fortress to keep pace with employees.** While “protecting corporate/customer data is paramount,” the CIO said, “we had an epiphany a year ago that if IT didn’t find a way to embrace employee devices, they would go around us. We decided to lead.” The bank now supports tiers: corporate mobile services are available to 30% to 35% of the workforce, and about 50% use their own devices for business. Once employees choose hardware and software, IT provisions it, restricts functionality, requires passwords, and prohibits backups to services like iCloud.

IT is also segmenting the workforce to match products with roles but focuses mainly on risks. IT thinks one product will be better for loan officers, another for bankers’ pitch books, and marketing may need a third device for presentations — and that all employees may need two to three devices. They believe BYOT makes employees happy by allowing them to become tech-literate and improving their productivity. The CIO says, “it’s the right thing — to support the employee — even if they have a device that isn’t mainstream.”

- **Some healthcare providers want happy doctors — and will leave the fortress.** Unlike sectors with large sales forces, healthcare companies don’t see BYOT as an advantage. One CIO says, “BYO is more about employee happiness and getting to the point that I don’t have to manage it. Mobility is more about implementing the corporate business strategy. We need to give employees guardrails for both.” Over time, staff will push healthcare providers to the walled city or open field.

One provider we interviewed is moving to the open field to satisfy self-employed doctors and give nurses smart devices. It’s particularly important to provide BYOT for physicians, who typically are not employees, because they can move to another practice or hospital if they are unhappy. Even so, mobility and BYOT policies are heavily influenced by supply chain and clinical/biomedical engineering processes, with current BYOT usage less than 1% of the workforce. Although the firm encourages BYOT, it does not reimburse most workers below director level.¹⁴ The Health Insurance Portability and Accountability Act (HIPAA) drives basic security precautions. A four-digit passcode created a huge backlash that surprised IT by its intensity. After reminding employees that personal data stored on phones needs protecting, resistance finally died down. BYOT devices can connect to corporate email and systems; however, no data can reside locally, and patient information gets encrypted in email. The provider’s biggest fear is not an electronic medical record (EMR) security breach, but that someone will email a spreadsheet with confidential data. That’s why it requires workers to download a security tool and mandates virtual private network (VPN) usage.

- **A global pharma company races to the open field.** It does so by championing BYOT while also pursuing the open road by buying tablets for workers. This firm has set a blistering pace in allowing employees to BYOT smart phones since 2010 — while also provisioning almost 15,000 company owned iPads (at a rate of 500 to 600 per month) worldwide for specific apps, email, and presentations. End users are also allowed to bring in their own iPads and other tablets, as long as they comply with security standards, to access their email and calendaring systems. They expect the number of provisioned and BYOT mobile devices accessing company data to reach 55,000 by 2014. The company has a multifaceted mobility strategy — employees can bring their own phones, IT procures large numbers of tablets, and the business functions that have direct purchasing authority to procure can also buy their own smart devices, if required. For example, in Turkey, the business bought iPads by tapping their stationary budget, without having to wait for IT. Most usage is in sales, with some reps using their own smartphones while others are provisioned with iPads and/or one of 17,000 company-issued mobile phones. Workers can use their own device as long as it complies with corporate security policies.

There's more. The company is driving towards being device agnostic. For example, an employee using case books would log on to backend systems from any device, access rich information and use corporate apps; but only access a subset of authorized corporate data. The case book app would not care which device the worker uses, but the app would take advantage of the device's form factor.¹⁵ This requires IT to design or buy apps that are device- and platform-independent and ensure the app and data have sufficient security and integrity controls built into them instead of relying on the device end-point or IT infrastructure. IT believes device independence will not happen soon — with some security features at least two to three years away — and are developing design principles for device independence.

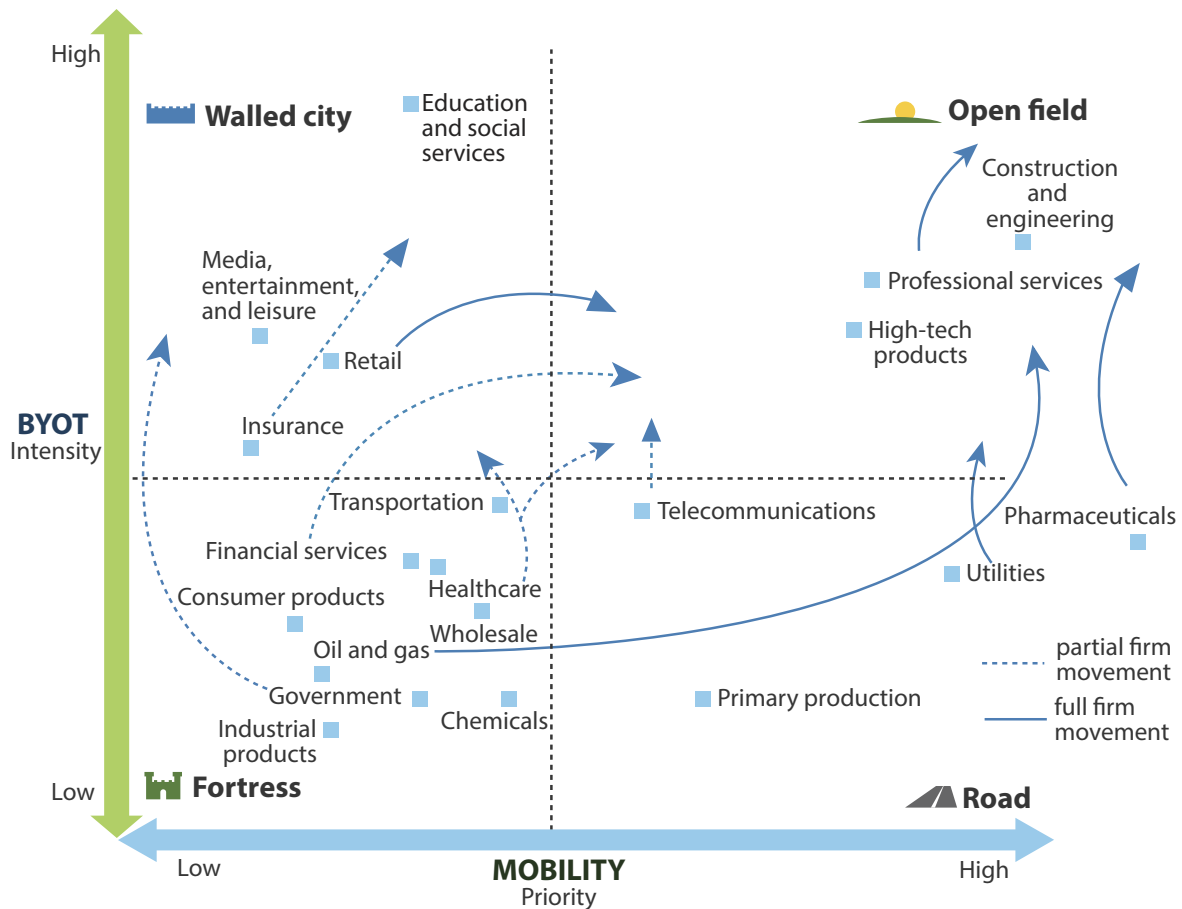
- **Another biopharmaceutical company moves to the open field with BYOT.** This large organization adopted its global BYOT policy all at once by flipping the switch for all employees. Now, every employee can bring his or her own iPads, iPhones, and laptops. Employees can do what they want, but they need to discuss it with their managers first to agree on the reimbursement level after determining whether the job requires mobility. In Europe, the company chooses mobile device types based on the employee's country. For example, in France employees have a "pick your own" approach and can choose from company provisioned Apple, Samsung, or BlackBerry devices. A primary driver for device selection is the extent to which the telecom market in that country is deregulated and economical.¹⁶

Many employees are based in the field rather than in offices; of 27,000 workers, 10,000 are in sales — who primarily use iPads for working while on the road and presenting information to customers. The company makes BYOT decisions based on the employee's job type — categories that IT developed based on business inputs. Going forward, the CIO says “we feel like our BYOT policy, and where we are going, is the right way. We don't see anything different in the future.” The company strives to give field-based employees their own devices, making sure sales can access customer relationship management (CRM) solutions. But this philosophy goes beyond empowering mobile workers; everyone can bring their own devices, even if they work in the back office. Not all back-office workers will be reimbursed, but, if the job requires it, a manager will authorize paying for BYOT out of department budgets. The general trend is that dollars are moving out of the IT budget and into the business departments.

- **Oil and gas is ripe to cleave away from the fortress all the way to the open field.** Currently oil and gas is firmly entrenched in the fortress, as it protects secure information about strategic deals, keeps its finances under wraps, and locks down seismic or geological data. The need to lock down sensitive information while sharing other data becomes even more critical to business and IT executives, especially given the increased number and greater complexity of joint ventures with arch rivals. Despite this securely held information, the industry's mobile and highly trained workforce will force it to embrace more mobility and more BYOT in the coming years. One strategic process is permitting, such as submitting applications for new exploration in the Gulf of Mexico, which has major revenue implications. Another complex process, negotiating trading agreements, would also benefit from employee mobility and BYOT. And a third use case, field asset management, has a high requirement for mobility, social networking, collaboration, instant communications, and location expertise. Disruptive technologies that help to reinvent core business processes will push oil and gas more deeply into the open field over the next three years.
- **Retailers will move to the open field.** Most retailers allow BYOT for personal productivity but restrict mobility. Yet this behavior is changing as retailers slowly recognize how employees can better advise shoppers. A sophisticated retail BYOT strategy goes far beyond making employees happy; for example, Nordstrom and Patagonia encourage workers to bring their own devices and software so they can provide better advice to customers. Smollan, a South African merchandiser, goes further by allowing employees to use software on any device to look up product information to make sure merchandise is properly displayed.

The main reasons retailers are holding back from BYOT implementations is that they are concerned that mobile employees will get into corporate data and that additional network traffic will slow customer transactions. Some retailers provide a separate wireless network for employees, so that additional network traffic doesn't impede customer-facing systems, like slowing down credit card approvals.

Figure 7 New BYOT Patterns Will Emerge For Some Industries



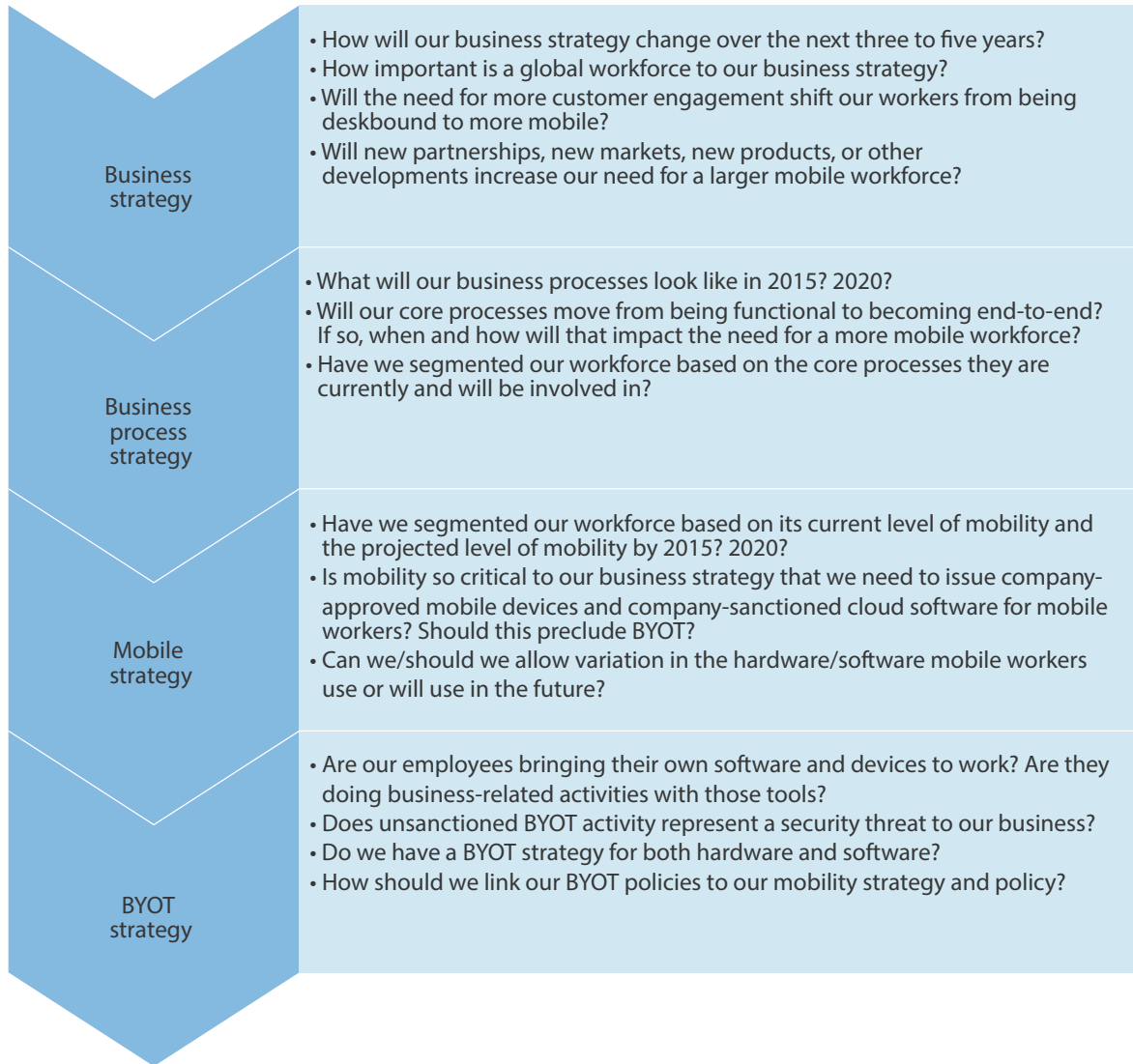
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Source: Forrester Research, Inc.

BUSINESS STRATEGY AND WORKFORCE WILL DRIVE BYOT DIRECTION

It's important for CIOs to put BYOT into perspective, even if employees are banging at the fortress or driving off the road seeking more freedom. BYOT policy should not be established without seeing its connection to other strategic directions, and certainly should not be guided by IT's security perceptions alone. Instead, mobility will provide the linchpin for new business models and new systems of engagement that not only reach customers but also bring more employees into the customer engagement process. While all employees (who are also consumers and influenced by what they experience as consumers) will increasingly move to BYOT on their own initiative, a greater corporate push into systems of engagement will drive BYOT awareness in the C-suite. Begin with the business strategy for customer engagement and new business models, and evaluate customer and workforce mobility needs (by segmentation) to derive BYOT policies, guidelines, and guardrails (see Figure 8).¹⁷

Figure 8 Link Your BYOT Plans With Your Business And Mobile Workforce Strategies



WHAT IT MEANS

CIOS' APPROACH TO PEOPLE AND PROCESS MATTERS MORE THAN TECHNOLOGY

The BYOT conundrum ultimately boils down to a societal and corporate debate about freedom versus control, just as it did when the PC first emerged and again when the Web arrived. The trend toward empowerment and freedom of choice of devices and services will be irresistible, but it will unfold in different industries at different rates. As it does, CIOs will have more success relying on people and processes adapting to a new technology landscape, rather than on technology solutions to address the real and perceived risks of BYOT. We expect successful CIOs will:

- **Adopt workforce segmentation strategies . . .** BYOT is most cost-effective and beneficial to the business if managers adopt a nuanced view and segmentation about how their workforce breaks down across a number of dimensions: by job roles, responsibilities, seniority levels, mobility needs, information security, and the types of business processes employees support. For 25 years, a one-size-fits-all approach to workforce technology worked just fine, but those days are fading fast. With employee groups racing ahead to bring consumer technologies to work, it's time for IT to give up on one-size-fits-all and instead look at the workforce in a more segmented way. Forrester introduced an approach based on workforce personas in 2009; it has proved effective in helping IT organizations identify distinct types and profiles of workers and the level of technology needed to support their work patterns.¹⁸
- **. . . including contract employees.** Some industries rely heavily on contract employees, and the percentage of contractors in the workforce will increase the demand for BYOT. For example, professional services companies may hire self-employed workers as subcontractors, healthcare companies typically work with independent physicians, and bank foreclosure examiners may be contractors instead of employees. In each of these examples, independent workers will expect to use their own devices to access the corporate systems they need.
- **Vary BYOT approaches by business process too.** Some industries, like government or insurance, will adapt BYOT to support specific types of business processes. Some applications like corporate finance will stay in the fortress, while others like field maintenance and inspections will move into the walled city or open field.
- **Balance security risks against BYOT benefits.** A retailer we interviewed was considering BYOT for store employees, but midlevel managers were concerned about the risk of data security being compromised. Senior executives listened to these concerns but pointed out that the data "at risk" was not strategically important and the benefits to employees of greater mobility and technology choice outweighed competitive concerns should the information escape the company.

- **Be skeptical about technology silver bullets.** Bottom line: BYOT is going to introduce complexity and risk. And technology developments in device and application security are not going to make those go away. Dual-OS smartphones, one for personal and one for business, are clunky at best. Dual-SIM card phones likewise (though they are more accepted in Asian markets). Microsoft may win some adherents from fortress industries with an enterprise-friendly Windows-based approach, and RIM will continue to have a niche, but the mainstream Android and Apple iOS mobile devices will continue to be first and foremost for individuals — enterprise customers will have to adapt their policies and data to limit exposure.
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ENDNOTES

- ¹ Source: Forrsights Workforce Employee Survey, Q2 2012.
- ² For more information on the data on business/IT spending priorities and alignment for mobility investments, see the May 16, 2012, “[Forrsights: Business Execs Increase Direct IT Spend To Support Systems Of Engagement](#)” report.
- ³ We interviewed three Forrester analysts with expertise in banking, financial services, insurance, government, oil and gas, and retail.
- ⁴ We leveraged the North American and European responses from Forrester’s Forrsights Budgets And Priorities Tracker Survey, Q2 2012. This online semi-annual survey from Forrester focuses on IT decision-makers with budget and how they leverage that budget.
- ⁵ The BYOT index uses questions GOV.1_3 (Employee purchase, but reimbursed by the company — Thinking about all of your firm’s technology spending, please estimate how it breaks down across the following types of purchasers?) and GOV.3 (What is the IT level of support for employees that bring or buy their own technology to work for the following technologies?) from Forrester’s Forrsights Budgets And Priorities Tracker Survey, Q2 2012. All data is filtered for North American and European companies only for consistency with Forrsights Networks And Telecommunications Survey, Q2 2012, and Forrsights Workforce Employee Survey, Q2 2012. For question GOV.3, all parts are weighted equally for computer, smartphone, tablet, computer peripherals, computer software, smartphone or tablet software, and online services or website subscriptions. We include the percentage of respondents that selected “IT prefers employees bring/buy their own” and “IT supports employees bring their own” for each option. For question GOV.1_3, we include the percentage of technology spend that is “employee purchase, but reimbursed by the company.” We then give both questions a 50% weight and calculate an index that we scale relative to all other industries on a 1 to 10 ranking.
- ⁶ Forrester defines information workers as employees that use Internet-connected computing devices for work an hour or more a day. Based on this definition, back-office workers who use desktops all day are classified as information workers. BYOT, while happening across the entire workforce in some companies,

primarily applies to highly educated professionals — often with advanced degrees and professional certifications — who often work from home, travel for business purposes, and meet customers, partners, and suppliers outside and inside the office. These individuals are also sometimes called knowledge workers.

- ⁷ For more information on enterprise mobility, see the February 22, 2012, “[Info Workers Using Mobile And Personal Devices For Work Will Transform Personal Tech Markets](#)” report.
- ⁸ Our mobility index comes from Forrester’s Forrsights Networks and Telecommunications Survey, Q2 2012. This annual online survey of North American and European network and telecommunications decision-makers focuses on mobile devices, services, and applications.
- ⁹ The mobility index uses questions GEN.3 (How will the increasing diversity of end user devices and apps [smartphones and tablets] affect your telecom and network spending between now and the end of 2012?); GEN.4_4 (Provide more mobility support for employees, customers, or business partners — Which of the following initiatives are likely to be your firm’s top strategic telecom/mobility priorities over the next 12 months?); and GEN.12 (Using your best estimate, what percentage of your firm’s employees regularly uses the following for work?) for tablets, laptops, and smartphones. To calculate our index, we gave GEN.3 a 10% weight, GEN.4_4 a 50% weight, and GEN.12 a 40% weight. We then scaled that number relative to all other industries on a 1 to 10 ranking.
- ¹⁰ Source: Mark B. Solomon, “UPS launches mass rollout of driver handheld device,” *DC Velocity*, February 29, 2012 (<http://www.dcvelocity.com/articles/20120229-ups-launches-mass-rollout-of-driver-handheld-device/>).
- ¹¹ According to the US Census Bureau, 95% of US law firms in 2010 had fewer than 20 employees and only 0.06% of US law firms had more than 100 employees.
- ¹² For more information about business and IT planning for systems of engagement, see the May 16, 2012, “[Forrsights: Business Execs Increase Direct IT Spend To Support Systems Of Engagement](#)” report.
- ¹³ For additional tablet forecasts, see the April 23, 2012, “[Tablets Will Rule The Future Personal Computing Landscape](#)” report.
- ¹⁴ The company does not reimburse BYOT for most employees below director level. Vice presidents and above receive a monthly stipend for a hefty data plan plus cell coverage and enough money to refresh their devices periodically. An associate can expense specific phone calls, or receive \$20 to \$150 per month, depending on their job role and VP approval. The company considered buying a pool of minutes, but soon realized that administration would be a nightmare to administer.
- ¹⁵ The Head of Mobile Strategy uses Facebook as an approximate example of achieving device independence. For example, he notes that if you look at the Facebook model, the person would log on to a backend system that doesn’t need to download any data to the device while still providing the full rich experience Facebook wants its customers to have. Specifically, the Facebook user accesses information and when she logs off, everything remains in Facebook, not on the device. He notes that Facebook doesn’t care what device its customers are using; it is just concerned about developing an application with a set of standard application interfaces that allow developers to design apps that can be used by every device. That’s the direction this

company's IT organization wants to go with its systems and solutions.

¹⁶ In Europe, it makes more sense for the company to purchase the phone than the consumer. In the US, the consumer market is much cheaper than corporate deals, so having the employee buy it is cheaper. The expectation in Europe is that the company will buy the devices. In the US, the culture is more oriented toward BYO. Gradually they have been moving everyone to the US model.

¹⁷ For guidance on how to develop a BYOT program, see the June 4, 2012, "[Five Steps To A Successful BYOC Program](#)" report.

¹⁸ For more information on Forrester's workforce personas, see the December 9, 2012, "[Harness The Power Of Workforce Personas](#)" report.

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« CAROL ITO, client persona representing CIOs

