To keep pace with innovation in an increasingly mobile work environment, enterprises are shifting toward a web-centric model. Is your business ready?

EXECUTIVE SUMMARY
More and more business is now being accomplished on the go, using mobile applications and during nontraditional business hours—a trend that will most certainly continue to grow. To succeed in today’s marketplace, organizations need to move toward a web-centric business model and embrace new ways of thinking about the very notion of work.

A truly web-centric enterprise (WCE) combines current, lean technology with intelligent and agile management methods. It embraces flexibility and less stringent organizational policy. With it comes an amorphous and extremely dynamic classification of users and their information needs. It involves getting information to the right people at the right time and in the right context—all of which may change in days or weeks, not years. It requires a more progressive approach to control.

The impact of moving to a web-centric environment can be significant, enabling businesses to accelerate the pace of business and meet the increased need for constant innovation in order to outpace the competition. Moreover, it can help organizations reach new customers and obtain new levels of efficiency.

INTRODUCTION AND BACKGROUND
In the early and mid-1990s, IT found itself at a crossroads. CIOs spent years and millions of dollars purchasing, implementing, customizing, and maintaining enterprise resource planning (ERP) and customer relationship management (CRM) applications. Challenges related to e-mail, the Internet, laptops, and security kept many IT departments extremely busy.

Although exceptions certainly exist, the challenges that a typical IT department faces today are significantly different than those of a decade ago. As a result, IT has changed significantly within that time frame. Large enterprises have had to navigate increasingly challenging waters amidst changes of unprecedented scope and speed. These tectonic shifts included:

- The continued globalization of business
- The acceleration of “network orchestrator” models—intermediaries who leverage information platforms to establish themselves as value brokers at the heart of business ecosystems
- The explosion of mobile, open-source, and device-independent information access and use
- Exponentially larger amounts of data from various sources, including social media, videos, audio, reviews, and more
- The decreased price of storage and the availability of virtual storage to consumers and enterprises alike

Today, IT must grapple with more challenges than ever. At the same time, project timelines for major initiatives are more likely to be accelerated into months, rather than years.
• The consumerization of IT and the introduction of tools and apps into the enterprise workplace and workflow
• The rise of cloud computing and different ways of applying pay-as-you-go pricing models, including software as a service (SaaS) and business process as a service (BPaaS)
• The evolution of the web into an increasingly social ecosystem, where social interactions spawn business exchanges
• An exponential increase in the availability of high-speed broadband connections

**Understanding the New Normal**

From an IT standpoint, these trends have been game-changing for nearly every organization, and are impacting how and where IT focuses its time and scarce resources. With business models changing so rapidly, planning has become increasingly complex and long-term strategies are challenging to implement. At the same time, IT is being asked to adapt quickly while continuing to hold the line on costs.

To be sure, open-source software and cloud computing have saved companies a great deal of money. The LAMP stack\(^1\) alone is responsible for significant savings. Still, deploying erstwhile on-premises applications in the cloud and adopting open-source software does require time and expense. What's more, in many enterprises, integrating modern or Enterprise 2.0 applications and technologies with legacy systems creates integration challenges. Given the mission-critical nature of many business applications, it's more important than ever to get implementations right the first time.

**The State of IT**

Fundamentally, for the past five years, IT has been tasked to do more with less, all within the context of an increasingly dynamic business environment. And today, many CIOs are managing all the data they can handle, when what they really need to ensure is that their organizations have more actionable information.

Fortunately, the move toward a WCE goes a long way toward addressing the current and future needs of the contemporary organization.

**WCE COMPONENTS**

In a web-centric enterprise, people and information are connected, wherever they are, at any time of day or night. Numerous components comprise the WCE, and, used together, can provide organizations with the necessary framework to ensure IT helps lead organizational growth and prosperity. Here are the components your organization will need to consider in the evolution to a web-centric model.

**Cloud Computing**

Cloud computing helps organizations meet the need for mobility, while also helping to control costs associated with hardware, ease the introduction of products as services, and more. As the foundation of a web-centric environment, cloud computing brings organizations more than simply the ability to shift their focus from managing servers to managing the enterprise—with it, comes the ability to reduce capital expenses and maintenance costs, and deploy projects faster. These are all key factors for success as business continues to move faster.

Interestingly, while cloud computing is a hot topic today, the concept behind cloud computing has been around for decades. Douglas Parkhill introduced the idea that computing may become more of a “utility” in his 1966 book, *The Challenge of the Computer Utility*. Why is cloud computing a recent trend if the concept has been around so long?

It’s simple. Broadband exploded as storage costs declined. And the real impetus for the rise of cloud computing has been increased mobility. Billions of mobile phones have been sold, many of which are “smart”—that is, they allow for web browsing, productivity, and other “non-phone” functions. In many parts of the world, a smartphone is the most common way to access online resources and information.

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1. en.wikipedia.org/wiki/LAMP_(software_bundle)
Today, many former products are becoming services. Terms like infrastructure as a service (IaaS) and platform as a service (PaaS) have entered the business zeitgeist. Also, it’s projected that many more business tools will be offered as a service in the coming years. “Everything as a service” will become the norm as businesses grapple with finding ways to reduce their innovation timelines.

The WCE embraces clouds, for many, if not every, system and application. Web-native or web-based applications are gradually replacing both legacy systems and more recently deployed on-premises ERP and CRM systems. Of course, companies wanting to extend their investments in tried-but-true applications can easily deploy them in the cloud through companies such as Terremark. (As part of the technology life cycle, organizations will need to continue to provide a solid integration and support strategy to ensure that new technology works well with aging systems and applications.)

Applications and Delivery

Consider how users typically access enterprise applications in most organizations. Centralized IT departments attempt to govern who can do what—and who can’t. Individual desktops and laptops are often locked down, to help discourage employees from downloading unauthorized applications. In many companies, this can feed the perception that corporate IT is slow, inflexible, and blocks progress.

To be sure, many organizations mitigate security-oriented risks through this command-and-control approach. In today’s mobile environment, however, budget-strapped IT departments are hard pressed to keep pace with technological changes and advancements as quickly as employees would like.

And lines of business (LOBs) have even higher expectations. The rapid pace of consumer-driven innovation means that employees are demanding comparable tools in the workplace. Old standbys like e-mail are giving way to more collaborative tools such as wikis. Video has become one of the most effective and efficient means for learning. As might be expected, employees want tools in the workplace that meet and exceed those they routinely use as consumers.

Additionally, many employees and departments increasingly operate “under the radar” by installing apps on their own, without IT involvement. In fact, many web-based applications and services require no downloading or installation. For instance, salesforce.com, a web-native CRM application, passes the “Mom test” with flying colors. Still, larger organizations need to do more than launch greenfield tools; they need to integrate new tools into existing frameworks, some of which are showing their mileage.

Appification

The app-ification of corporate software is yet another example of how consumer behavior is influencing enterprise information technology. Executives who enjoy easy-to-use apps in their private lives are demanding the same tools in the workplace, leaving IT departments scrambling to develop mobile applications and get them onto employees’ devices. “End-users expect more,” says Jeff Bipes, an IT manager for device maker Medtronic (MDT), which boasts 55 company apps. “They expect their apps to work better, and they expect to get them quickly.”

Necessarily, individual LOBs will require fast development and deployment cycles. The reason is simple. Senior executives’ jobs hinge upon results, not compliance with IT standards. Given the cauldron of apps and services available these days (many of which are free), it’s important for business units to step up the pace of innovation in order to keep ahead of the competition.

With flexible cloud computing, you can deploy some or all of your apps, or add apps over time to help manage costs and extend the life of your critical business tools.

As with any technology, not all clouds are created equal. Organizations should consider factors such as single- versus multi-tenancy, public versus private clouds, and other specifics when plotting a cloud strategy.
Today’s IT departments need to be prepared to drive new product development within this new model. One company that is well on its way is biotech giant Genentech. In a recent piece for CNN/Money, Michal Lev-Ram writes about how the company:

has created some 20 mobile apps for its employees—and a dozen more are in the works. In addition to highly specialized applications like Small Molecule Data Integration (a database of molecular compounds), there are generic ones such as the aptly named Get a Room, used for finding and booking conference rooms, and Peeps, an employee directory.’

And Genentech isn’t alone. A growing number of companies are building customized corporate apps. (Think of them as mobile versions of the tools you find on your company’s intranet.)

**IT as the Leader of App Innovation**

IT departments need to help lead the way in an organization’s transition to becoming a web-centric enterprise. Technology leaders need a solid approach to manage and secure the enterprise while overseeing the influx of apps as mobility increases and personal devices are being used more extensively to accomplish daily work. Working collaboratively with departments as a valued partner will help IT help set the pace of application delivery within the WCE.

**Private App Stores**

Moreover, organizations need a solid delivery mechanism for dispersing and updating their applications, such as a private application store. In a private app store, an organization can offer the customized, in-house apps it develops, as well as provide access to a list of approved third-party business apps to keep pace with employee demand. Downloads remain secure to help protect corporate resources.

Providing a fast, consistent, and accurate means to deliver apps to diverse constituencies across the globe will help IT address the accelerated need for mobile innovation and the constant connectivity that today’s business world demands. A proactive approach will also help ensure that IT remains an enabler and broker for business innovation tools, rather than a controller or gatekeeper. To prepare to address this influx, senior executives should also consider the following questions:

- Are current—and, presumably, large—software vendors developing and releasing apps fast enough for them?
- How should they utilize best-of-breed applications versus enterprise-wide ones?
- Are these apps sufficiently powerful and useful?
- How will their organizations strike a balance between “bite-sized” chunks of information and full-blown corporate applications?

**Mobility**

Tied closely to the notion of apps is mobility, which is of cardinal importance in a web-centric enterprise. The pace of business requires employees to be reachable, available, and capable of being productive while out of the office. Employees also need to be able to complete work in a variety of places. This is creating the notion of the “anywhere office,” reinforced by the consumerization of IT. At the same time, employees today demand information at any time in any place on many types of devices.

Mobility has been the major motivating force behind constant connectivity—and for so much more than simply answering phones, sending a quick text message, or replying to an e-mail. These days, employees can access key information via many phones—and, increasingly, tablet-based applications. For instance, retail store managers can respond quickly to real-time reports detecting previously unrecognized trends. Dashboards alert employees of events as they happen, alleviating IT of its historical burden of generating reports—and managing the varying requirements and data needs of end-users.

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4 tech.fortune.cnn.com/2011/06/28/your-companys-own-app-store
Businesses today need a strategy to keep up with the demand for increased mobility. And as part of that, organizations must ensure that the need to work on the go is supported by the tools to do so. Just as important, it needs to provide an IT environment designed around the ability for employees to be out of the office altogether.

**Collaboration**

While intelligent organizations have been able to work for years with partners, clients, vendors, and employees across the globe, the web-centric enterprise moves well beyond e-mail as the primary form of collaboration.

By providing applications that enable telepresence meetings or face-to-face interactions via tablets, web-centric IT organizations can introduce the use of visual communication tools to help speed decision making and enhance productivity. The rise of high-bandwidth networks like Verizon 4G LTE is expanding the reach of corporate networks, helping to make video more and more commonplace.

Free or near-free tools such as Yammer allow organizations to communicate in real time, creating wikis, streams of news, and video-based discussions. While mostly a consumer tool, Google+ shows good promise with its ten-way video chat, among other features. Skype, arguably the de facto standard for online video chatting, continues to be a major player in both the business and consumer video chat experience.

In this mix of change is a generational shift. Millennials in the workforce have a firm expectation of being able to use social tools to do their daily work. They don't want to rely upon stand-alone tools. To them, collaboration is a conversation independent of the tools and platforms. The new generation is as comfortable interacting in a virtual crowd as the old generation was in physical meetings.

Simply put, collaborative tools are going to define how people get work done, wherever they are. These collaborative tools support the ability for employees to engage with one another, with other businesses, and with their customers in nontraditional ways and are a necessary element of an agile business going forward. More importantly, the true value in enabling collaboration on a wider scale is in empowering this distributed workforce—connecting talent and brainpower in a more cost-efficient manner, and increasing the capability to enhance the speed to market.

**Document Management and Enterprise Search and Retrieval**

While an individual typically can search billions of web pages in less than a second, in the workplace, it’s often more challenging for them to find a key PowerPoint® presentation or Word document in even a few minutes. Is the file on a hard drive? E-mail? Knowledge base? Archived storage?

Effective document management is essential to a strong WCE strategy. And this strategy should include an enterprise search and retrieval (ESR) tool to help significantly increase the availability and searchability of essential documents in today's environment, where information and data are housed in sites beyond local and/or on-premises applications. The breakdown of organizational silos and availability of new sources of user-generated information open the opportunity to ask, receive, and share in a more dynamic but necessarily framed way.

**The Data Element**

WCEs do not solve the data problem simply by deploying web-based tools or moving legacy apps into the cloud. The old adage “garbage in, garbage out” applies now as strongly as it ever has. In fact, organizations would do well to cleanse, validate, complete, and de-duplicate their data before attempting to fundamentally alter their architectures, embrace the web, roll out new apps, and the like. Better access to bad data is not the endgame. Rather, organizations should strive to provide their users with contextual data made available at the point of contact or when it’s needed.

**Security and Privacy**

Addressing security and privacy concerns continue to occupy an important role in any IT strategy, particularly in large organizations where accomplishing work on the Internet poses a greater threat. And keeping pace with an increasing array of security and privacy threats requires significant effort.
Fortunately, new advances and security protocols are becoming available to help address these concerns. While this paper is not sufficient for reviewing and evaluating them all, suffice it to say that a company that fails to overcome security risks as a barrier towards the implementation of a WCE model will find itself not only behind the times, but at a much greater risk of being out-paced by its competition and its customers.

For more information on how to address your security strategy, please see the Risk Management section at [verizonbusiness.com/thinkforward](http://verizonbusiness.com/thinkforward). In particular, the Verizon Data Breach Investigation Report provides awareness on the latest threats, and how to mitigate them as you move towards a web-centric business practice.

**The Evolving Role of the CIO**

Even as the technology undergoes a significant shift, the role of the CIO, too is changing. Although the evolution will vary by industry, geography, and individual organization, the traditional role of CIO as gatekeeper of a company’s information will continue to evolve. The Harvard Business School Press recently published a study titled "The New CIO Leader," in which the authors highlight four roles that CIOs will serve in the near future:

- Chief integration officer
- Chief infrastructure officer
- Chief intelligence officer
- Chief innovation officer

Along these lines, Gartner predicts that, “innovation accomplishments will be among the top-three selection criteria for new CIOs by 2016.”

Furthermore, IT will be expected to drive innovation at an increasingly accelerated pace, and technology executives will naturally play a big role in that effort, even as their roles continue to evolve. As with many technological innovations that have occurred in the past 30 years, the CIO will be a key driver in the move toward a more web-centric environment, and will be required to ensure that all components are in place and work well together. In addition, the role of CIO will continue to be crucial in helping drive the successful adoption of these tools into the workplace, including helping to advocate for the cultural shifts that may be required to make the transformation truly successful.

**The Human Element**

As with any business transformation, the journey toward becoming a WCE requires more than adopting the latest technologies. True change is dependent on the people involved, and how they are encouraged to embrace new tools and processes.

As most organizations know from their ongoing technology transformation efforts, modernization must be accompanied by effective policy, cultural, and management environments. Collaborative tools that allow people to work remotely, for example, require cultural support that reduces the emphasis on face time and focuses more exclusively on productivity and results.

In a recent Verizon white paper titled “Improving Business Fluidity with the Enterprise Cloud,” the authors discuss “dispersed expertise” and its potential to move the needle:

> According to this new model, a company could establish remote teams of high-value professional experts. These individuals could provide customer-care services, engineering expertise, radiological diagnostics, or other types of services using a mobile video-conferencing application. While this is just one operational model that might emerge, it illustrates the type of innovation that will be possible with the advancements in cloud and mobile technology. It highlights the level of services that can be obtained, the conveniences that can be created for business partners and customers, and the cost-control that can be achieved.

Luckily, most organizations are keenly aware that technology adoption requires corporate backing on a wide scale. And by ensuring the “soft” elements are in place, organizations can help collaborative and time-saving tools to gain traction within their companies and achieve the desired results.

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5 [gartner.com/5_about/news/gartner_press/NewCIO.jsp](http://gartner.com/5_about/news/gartner_press/NewCIO.jsp)
6 [gartner.com/it/page.jsp?id=1465614](http://gartner.com/it/page.jsp?id=1465614)
CONCLUSIONS AND RECOMMENDATIONS

Building a successful WCE requires many moving parts and collaborations within an organization, and virtually every facet of business will be impacted going forward. In addition to the points covered previously, here are additional considerations for organizations to take into account as they move forward:

- Identify specific business goals and objectives before you begin the process, and continue to measure your progress towards these goals both during the initial transition period and for a reasonable period of time immediately following.
- Seek additional strategic partnerships if existing ones are insufficient, and guide those partnerships toward resolving tangible “now” problems while continuing to be mindful of the potential risks and challenges that may arise as you progress.
- Find an enterprise-grade provider that can understand and implement solutions customized to an organization’s business, network, and application requirements.
- Ensure that consistent global processes and certifications are in place, while continuing to support those existing frameworks that aid the transition or will continue to provide ongoing value.
- Analyze whether increased breadth of technology and services offerings equate to greater value.
- Consider customizing current solutions.
- Introduce a new demographic into the organization to incorporate the millennial DNA.
- Compete on global enterprise value, not just price.

Of course, key factors that an organization also must take into account include the type and current state of its industry, regulatory requirements, organizational culture, and size. From there, a plan of action that is appropriate for this environment can gain traction.

The move toward becoming a web-centric organization is underway for many of today's leading organizations. These next-generation tools are already impacting how organizations do business and are meeting the call for helping employees be productive virtually anytime, anywhere. Businesses that embrace a web-centric environment will set themselves up to respond quickly and remain agile in the face of accelerated change. It will pave the way for faster innovation, and lay the foundation for organizations to succeed in the coming years.

ADDITIONAL RESOURCES

Explore related topics on the Verizon Business thought leadership website located at verizonbusiness.com/thinkforward.
Verizon is a global leader in driving better business outcomes for mid-sized and large enterprises and government agencies. Verizon combines integrated communications and IT solutions, professional services expertise with high IQ global IP and mobility networks to enable businesses to securely access information, share content and communicate. Verizon is rapidly transforming to a cloud-based ‘everything-as-a-service’ delivery model that will put the power of enterprise-grade solutions within the reach of every business.

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