The New Digital Workplace Is Contextual
SUMMARY

The workplace of the future will be intelligent and dynamic, enabling new levels of productivity and ensuring that workers get the right data at the right time, with the right levels of access and security. Applications in the workplace, including those delivering workplace services, are becoming smarter and adopting new capabilities at a remarkable rate. Information platforms are becoming more configurable, allowing them to match changing corporate policies and regulations and keep workers and data safe. Identity and rights management are providing the foundation for mass personalization, governance and granular authorization, ensuring that only authorized users get access to information in the context of the device they’re using, the location they’re working from, and the role they’re performing. All of these trends are creating a software-defined workplace platform where data is automatically filtered and promoted, and where users get a more contextual and productive experience than ever before.
The nature of work is changing, and workplace services need to change, too. Employees need the right information at the right time, to make better business decisions, to be as productive as possible, and to foster lower costs and higher levels of customer satisfaction.

To achieve these goals, today’s workplace is already increasingly becoming data-driven, but IT systems need to become more responsive and contextual. Richer collaboration is needed as well. Today’s workplace is an outside-in experience, one that includes not only coworkers, but also partners, contractors, suppliers and customers.

Three elements are key: people, spaces and technology. By people, we mean individual workstyles, changing demographics and the expanding nature of work. By spaces, we mean that where we work will become increasingly important. By technology, we mean tools for change. These include an agile hybrid cloud platform, secure software-defined networks (SDNs), integrated digital service management, and security systems that are dynamic and intelligent, able to detect new threats, block them and recover if an attack gets through.

To create tomorrow’s hyperproductive digital workplace, organizations should focus on five pillars today:

- **Outside-In Collaboration**: Tools and approaches are needed to support both knowledge communities and collaboration across an enterprise’s boundaries.

- **Consumer Experience**: Self-service tools and bring-your-own-device (BYOD) policies help keep employees engaged and highly productive.

- **Automation**: Blueprinting and code are transforming workplace platforms into dynamic systems.

- **Agile Hybrid Cloud Platform**: The new workplace platform depends on a dynamic infrastructure, increasingly from cloud partners with a core of software-defined virtual infrastructures and networks.

- **Analytics-Enhanced Data and Applications**: Both data and apps are available today, but neither is as available or as interactive as they will be, based on enhancements made available by analytics.
Together, these five pillars can enable significant changes in both employees and the enterprise, delivering new models of experience and collaboration, empowering information sharing and dramatically raising productivity.

Collaborating from the Outside In
In today’s workplace, people are as likely to work with others from outside the organization as with those who are in it. Partners, contractors, suppliers and customers are the new collaborators.

This change is being driven, in part, by new technologies that are highly social by design. These include well-known services and products such as Google Drive, Microsoft Office 365, Twitter, Facebook, LinkedIn, Jive, WhatsApp and Slack. What they share are omnichannel communications, offering new ways to collaborate, cocreate and communicate across an enterprise boundary. Notably, in an echo of the BYOD phenomenon, many of these technologies are first being adopted by consumers, and only then by the enterprise.

Further, the widespread adoption of these tools is leading to the creation of a new entity, the personal knowledge cloud (PKC). The PKC can be thought of as the virtual set of tools an individual uses to develop his or her own data points. For example, a person might use Evernote to capture information, Flipboard to keep up with industry news, and Dropbox to store and share documents, spreadsheets and more.

But the emergence of personal knowledge clouds raises a new challenge for organizations: How can the value of a PKC be harnessed to benefit not only an individual worker, but also the entire enterprise? One way is through integration. For example, many individuals have large personal knowledge repositories that contain research material and valuable analysis. Organizations can enable those workers to upload this information, when relevant, into enterprise systems. This value-add diode lets data in, checks its security and then protects that data as a corporate asset.

Self-Service Consumer Experience
Employees increasingly demand from work applications the kinds of ease-of-use they experience as consumers. In many cases, this will mean transforming manual processes and services into ones that are self-service. For example, applications can be offered to employees through an enterprise app store, accessible through a Web interface and with the advantage that apps can be preselected and approved by the company’s IT, security and other departments.

The New Digital Workplace: The LEF Perspective
We have sleepwalked into the 21st century with 20th century workplaces, talent strategies and assumptions. We have addressed symptoms such as remote working and virtual teams piecemeal, but it is time to reimagine our workplaces based on emerging realities and possibilities.

We have to go beyond thinking about individual technologies (such as augmented reality, virtual reality, quantified self) to digital anthropology — how are our attitudes, needs and expectations of the workplace changing? This is the only way to attract and unleash the talent we need to win.

Many workplace initiatives have failed because we haven’t addressed the behavioral implications. For example, collaborative tools aren’t enough — making collaboration an addiction is the key. Making sure issues of trust and motivation are addressed. Considering the policy rules so that employees and others can thrive without compromising enterprise integrity and security.

Further, because the possibilities are constantly changing, we need to build the capability for everyone to experiment — incorporating new technologies into the way they work. Only through such haptic learning can we know what works for us.

To become 21st century organizations, we need not only digital workplace tools, but also a holistic reimagining of the ways work is conducted in our business.

The Leading Edge Forum (LEF) is the independent research arm of CSC.
Even services can be enabled by self-service. The IT group can manage services for thousands of users and offer them from a cloud-based platform, so that when someone in the organization wants a new service, it’s already provisioned and ready to go. For example, CSC’s Agility Platform can create a new email platform and then add thousands of accounts in just hours—a task that, when done manually, could take months. And if updates are needed later, the blueprint makes that easy, too, delivering automation not just at the individual level, but also at scale.

Because the platform on which services are delivered is based on a software-defined cloud and network, the organization can enjoy dramatic improvements to agility. Virtual servers are aggregated and managed as a single block of memory, storage and processors, delivering massive scale and automation. Also, dynamic scripts can change what’s delivered, based on what’s going on around the system. For example, if one server becomes overloaded, the platform can help by dynamically reallocating additional compute resources.

Network operation can be dynamically adjusted, too, allowing it to change in response to demand, perceived threats and other factors. In addition, CSC can run workloads in its data centers, client data centers or public cloud providers such as Amazon Web Services. This helps enterprises be more agile, and better control their costs, by increasing resources during high-demand periods (such as holidays for retailers) and decreasing them during periods of low demand (such as summertime for universities).

Web stores, similar to those offered by Apple, Google and other consumer-facing brands, can now be offered by enterprises. These let employees download and install approved apps and services, while allowing approvals (and hence, budgets) to be handled by the relevant business units. Employees can also use these stores to request apps and services not currently offered and, subject to departmental approval, download and install them.
Highly automated systems are essential to enabling self-service applications. Automation allows older applications not only to move away from manual, error-prone processes, but also to provide a user experience that’s as similar as possible to that of a SaaS app, such as Netflix, Uber or Salesforce.

Essentially, automated systems hold the system configuration in version-controlled scripts, in what’s called “infrastructure as code,” rather than having the configuration carried out manually. The main benefit to the end user is the ability to quickly adapt to changes — organizational, threats or almost anything else.

A subset of DevOps, this kind of automation is driven by digital blueprints. These blueprints are operational tools that describe a service’s nature and characteristics, details needed for its verification, implementation and maintenance.

Automation makes the IT infrastructure and its networks more dynamic. They can analyze themselves, maximizing performance, quality of service (QoS) and security in real time.

The services running on these platforms can be automated, too. Performance analytics can be embedded in services to proactively monitor for faults, substandard performance and dramatic changes in demand. Expensive resources such as specialized hardware and software licenses can be dynamically adjusted or removed depending upon usage and demand. Like a software-defined network, these services can monitor themselves, adapt to usage and threat-level changes, and heal themselves in the event of a breach. They raise security while lowering risk.

Automation can also help manage BYOD practices for greater control and security. Enterprise services running on BYOD devices can be monitored and reported on. Centralized identity access and management software can assure that only authorized users are given access to enterprise systems, data and applications.

Further, such systems can be integrated with Human Resources (HR) policies. For example, when a new employee is hired, the HR system could automatically provision the right services for his or her role. And if the employee’s status changes, the system could automatically update the access levels, speeding a manual process from weeks to minutes.
Agile Hybrid Cloud Platform
The digital workplace requires a dynamic infrastructure. With businesses changing and the pace of change accelerating, traditional IT delivery models cannot provide the needed agility, which prompts employees to seek solutions outside the IT department’s realm of control. As a foundation element of a digital transformation journey, an agile hybrid cloud platform removes these restrictions and enables CIOs to address the growing issue of shadow IT.

Organizations that complement the dynamic capabilities of public cloud with a modern on-premises platform can rapidly develop, deploy, execute and protect next-generation applications. And they can do so with an agile, policy-driven and software-defined infrastructure, reinforcing the value that IT brings to the business.

An agile hybrid cloud platform provides CIOs a compelling option. It can empower an organization to provision inexpensive computing resources that span both public and private cloud infrastructures. An agile hybrid cloud platform also provides centralized management, orchestration and governance, ensuring that policy-aligned resources can be consumed at the point of use.

In short, the agile hybrid cloud platform delivers value to a business by enabling digital transformation, providing the best from the cloud and on-premises infrastructure services and transcending the corporate boundary — all while keeping IT leaders firmly in control.

Analytics-Enhanced Applications and Data
The digital workplace is contextual and intelligent. Apps increasingly take data from a full array of sensors on and around multiple devices. They can then deliver that data to an analytics engine that, after analyzing the data, can deliver a contextual experience to the user, taking into account the user’s current activity, physical location, time and risk.

Security policies become dynamic in the digital workplace. Based on risk factors that include the data’s content and the user’s access level and physical location, access and security levels can be automatically and dynamically adjusted. Even an individual document could have changing levels of security as it is enhanced with new information. Systems will also be able to determine whether a file can be shared and, if so, with whom, both inside and outside the organization. They’ll be able to check documents for possible violations of either an organizational policy or a government regulation.

Two big benefits from analytics are a dramatic elimination of waste and an equally dramatic improvement in enterprise performance. Consider, for example, the Delve feature of Microsoft’s Office 365 cloud-based suite. One company applied Delve Analytics to review a weekly 30-minute status meeting, only to discover that preparing for this meeting took employees some 300,000 hours a year — at an annual cost of approximately $45 million.

In the digital workplace, applications can be programmed to “learn” user preferences. For example, a travel-reservation system could, over time, learn a user’s preference for airports and airlines, seat locations, hotels, car rentals and more. The same system could also know where and when the user is allowed to travel, obtain the needed approvals, and allocate travel budget to pay for air tickets, hotel rooms and more.
Getting Started

Ready to start creating your own digital and contextual workplace? Small and simple is the best way to begin.

First, identify roles in your enterprise that would most benefit from a contextual experience. These are likely to be roles that involve travel, working with people outside the organization, and performing a comparatively wide range of tasks.

Second, brainstorm ways to improve these employees’ work experience now and in the future, drawing on our simple framework of eight key areas:

- **Work type:** What tasks do they perform now? What tasks are they likely to perform in the future?
- **Physical location:** Where do they work, and is that likely to change? Are they highly mobile? Do they ever work with outside partners?
- **Technology:** What devices do they use now? And what devices might they use in the future?
- **Software:** Could their support, back-end systems and applications be made more contextual? If so, how?
- **Smart machines:** Could software agents, bots or intelligent machines (like IBM Watson) help make their role easier?
- **Data:** What information do they use and need? How could it be improved?
- **Collaboration style:** In a world increasingly driven from the outside in, how do they work, and with whom?
- **Policies and regulations:** What rules must they follow to do their jobs with full compliance? Consider rules for data flows, security, access, data encryption and more.

Here are two examples of how this approach can be used:

**Healthcare clinician:** Julia is a busy hospital physician who often works evening and weekend shifts. In the past, she typically combined patient visits with responses to emergency pages. But now, when Julia enters various locations in the hospital, beacons detect her location from her mobile device. In the wards, the electronic patient records are constantly updated with data from medical instruments and staff inputting observations and treatment notes. Smart machines analyze this data and augment human interpretation of a patient’s condition. When Julia enters a location, the apps on her device present data that is contextual and can prioritize her time and recommend which patients to see first.

**Product manager:** Atish, a product manager for a global manufacturer, has a hectic travel schedule. He frequently visits partners, customers and internal sites. For help, he

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What new capabilities will employees outside IT need to develop over the next three years to make the best use of IT innovations?

Select all that apply. (% respondents)

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Source: Global Digital Enterprise Survey 2016-2017, conducted by the Economist Intelligence Unit and sponsored by CSC.

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In what areas does IT need to improve and expand its skills over the next 3 years?

**38% of companies say the biggest focus will be on managing big data analytics.**

Source: Global Digital Enterprise Survey 2016-2017, conducted by the Economist Intelligence Unit and sponsored by CSC.
uses bots that request his approvals and then book his travel. The bots “remember” Atish’s preferences and manage them along with corporate policy. As a result, Atish spends far less time chasing approvals and booking travel. Human approvals are needed only when his requests are in a “gray” area; for example, if he needs to attend a client event at an unapproved hotel.

CSC is well placed to help you make this journey. CSC MyWorkStyle — our suite of communication, collaboration, mobility and social tools — can introduce workplace technologies that meet the needs of your people and their workstyles.

The Next Generation of Knowledge Workers

Digital platforms such as those for Industrial Machine Learning make it possible to go beyond producing and storing large volumes of data. These systems can add context to data and help create meaning.

The importance of context can’t be overstated — especially when it comes to data. Data is great, but it’s meaningless and even cumbersome without context. Put a sign up saying “Keep Out,” and many will ignore it. Put one up saying “Keep Out: Unexploded Bomb,” and all but the most foolish will stay away. Data in context is what we use to make educated and informed decisions.

By now, we’re used to the idea of finding patterns in data. But by adding context, we can go a step further. Digital platforms can help integrate enterprise data from disparate systems based on meaning and context. Imagine a platform that tells you how an email, a document and recorded audio from a meeting are all related. Imagine, instead of just collecting data about diet and exercise habits, users were warned about the likely consequences of an action — or inaction — based on that data. For instance, “If you don’t go for a run today, your blood pressure is likely to rise by 2 percent within the next week.”

Building systems that can support the next generation of knowledge workers means tapping into scalable solutions for ingesting data, building algorithms, deploying them into production, and generating continuous insights. It may sound exotic, but it’s really just a modern twist on a very old idea: the scientific method. Evidence comes from continuous pipelines of data collected; models are coded as business algorithms running in production; experiments are done in very short sprints; and new relationships are discovered in continuous iterations.

While the next-generation workforce must be able to draw actionable insights from data, we can’t just transform employees into an army of data scientists. Data has to meet us halfway. The workforce has to become more data literate, and data has to become more workforce friendly. The shift to modern platform architectures and inexpensive computing resources makes it possible to go beyond producing and storing large volumes of data; we can use these systems to add context to data and help create meaning.

We are now full swing into the Age of Context, where contextual data means smarter decisions in everyday situations. It’s time to get much better at putting data to good use. Let’s think bigger when it comes to “Big Data.” We can go beyond hoarding it to making sense of it.

— Jerry Overton, Data Scientist, CSC Distinguished Engineer
48% of companies plan to boost their spending on collaboration software over the next 3 years.

Source: Global Digital Enterprise Survey 2016-2017, conducted by the Economist Intelligence Unit and sponsored by CSC.

How CSC Delivers the Modern Workplace

CSC offers tools and services that help IT departments implement systems that power the modern workplace, often from behind the scenes. This work includes creating cloud delivery models and native cloud applications, modernizing older core applications, and enhancing applications with mobility. CSC also helps IT departments integrate these applications and bolster them with high-level capabilities for cybersecurity, identity and access management, and governance.

As new data, applications and next-generation devices enter your world, integration and security are vital. So is being able to work the way you choose — wherever, however, whenever. That’s why CSC has designed MyWorkStyle to be an end-to-end solution, personalized for every way of working. It enables a productive and contextual experience.

CSC MyWorkStyle offers a range of flexible packages based on the most common workstyles across a variety of industries. These workstyle packages are designed to provide a starting point for provisioning and addressing the core tools and technologies workers require to accomplish their jobs. People can work anywhere, anytime, on any device, using leading mobility features. The tool’s innovative communication and collaboration technologies let them tap into community-building social tools. And a single entry point keeps things simple, secure and scalable. What’s more, all CSC tools and technologies, including MyWorkStyle, are delivered as a service, so they can evolve and adapt as your business needs change. By allowing the user to select, add or reconfigure services through an automated Web store interface, CSC is putting the end user at the center of the digital workplace and putting control of IT back where it belongs, namely, in the hands of the user.

CSC MyWorkStyle is enabled with strategic alliances that include Microsoft, VMware, Citrix and other workplace leaders. CSC consultants can help clients understand their business needs and assess user workstyles, devices, underlying infrastructure and global environment; identify and deploy the right solutions for their business; and train the workforce to take full advantage of CSC solutions. With help from CSC service management, clients can manage their IT infrastructures through a zero-touch, smart service model that provides ongoing support services to keep their organizations running smoothly.

CSC can help you zoom into the modern workplace, unlocking your data and empowering your employees, partners and customers to get answers to their most important and pressing questions. With CSC, the modern workplace is here and now.
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Ali Shadman is chief engineer for the CSC Workplace and Enterprise Service Management business. Ali shapes and drives the technical, partner and go-to-market strategy, and corresponding efforts in realizing the vision as market-consumable solutions. He has defined “hybrid workplace” and “software-defined teaming” as cornerstones of the workplace of the future, where services can be consumed seamlessly and securely no matter what infrastructure they are delivered from (traditional, managed cloud or public cloud), and massive automation removes costly labor while dramatically increasing responsiveness, improving operational effectiveness and profitability.

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About CSC
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