The word “digital” has been with us for years, but today it’s experiencing a renaissance, as enterprises in every industry reinvent themselves as software-driven organizations. And yet, digital paradoxically isn’t about software. Digital is all about the customer.

The only reason technology is central to the digital movement is because more than ever before, customer preferences and behavior are driving enterprise technology decisions. Customers—consumers as well as business-to-business—demand diversity in their technology touchpoints, ranging from computers to televisions, smartphones to wearable devices—and more.

In particular, as technology continues its inexorable exponential pattern of faster processors, greater storage and smaller footprints, the number and diversity of technology touchpoints is exploding. This Internet of Things (IoT) encompasses a broad Wild West marketplace of human devices, from fitness wearables to gesture-controlled devices to retail beacons, tracking customers’ every move.
The IoT story—as with the broader digital story—doesn’t end with the user interface. Machine-to-Machine (M2M) devices, ranging from heavy equipment telemetry to factory floor automation, are revolutionizing the power and versatility of automation across the board.

The customer experience, however, doesn’t end with the device; it begins with it. For enterprises to meet the diverse and dynamic needs of their customers, they must connect the dots between user interface and back-end technology, between front-office and back-office. Furthermore, this end-to-end technology story must perform—every time, in real time. Customers demand no less.

To complicate matters, nothing about this digital story is static. Every aspect of the end-to-end equation, from touchpoint to technology infrastructure to systems of record, is in a constant state of flux.

With this move to digital and the IoT in particular, everything is more and faster: more data, more endpoints, faster networks, faster business. How do we keep up, and even more importantly, how do we excel at this blistering pace?

**The digital mandate**

Digital may represent a relatively new mandate for diverse technology and business change, but in fact, much of the digital story has been around for years. The rise of the Web in the 1990s, for example, essentially represented a move toward digital reinvention, as the Internet transformed industries from retail to media and beyond.

In the days of the Web, the enterprise story was far deeper than the user interface, as organizations built scalable architectures that connected to back-end systems of record. Today, the same integration, scalability and process optimization challenges remain—only we’ve doubled down on our bets, as customer demands have driven ever-increasing capabilities from the technology-fueled organizations they work with.

The addition of mobile technologies, starting with smartphones and mobile apps, but now expanding across multiple form factors, including the wide range of sensors and controls that we now lump under the IoT moniker, clearly had a significant impact on the mobile story in the 2000s and into the 2010s. The impact of mobile, in fact, is multifaceted: Yes, people want to use their handheld devices to interact with businesses—but that’s only part of the mobile story.

Mobile also represents a shift in the attention of people worldwide. As our daily use of mobile devices increased over the last decade, there wasn’t a corresponding decrease in the use of computers, televisions, or other established devices. Instead, the rise of mobile form factors represents a substantial net increase in the number of hours per day people in all walks of life are interacting with technology.

The impact of this global trend on business overall has been profound. Companies of all sizes are finding amazing new opportunities as well as challenges, as they rise to the digital mandate. And most exciting—or frightening—of all: The pace of innovation and change will only increase over time.

Technology innovation, after all, proceeds at an exponential rate. Think Moore’s Law—now extended to storage, sensor technology, batteries and all other areas of technology. Any one of these hockey-stick improvements in technology capabilities might represent an enormous opportunity in itself. Now, multiply that opportunity by all the other technology advancements all around us.

No industry is immune from these dramatic effects. The IoT is transforming retail, as beacons, gesture recognition and other technologies complement customers’ desire to “showroom,” or shop on their devices while in stores.
Manufacturing as well is undergoing a transformation, as every piece of equipment from smelters to forklifts can be its own node on the network, issuing streams of telemetry for big data analysis in order to drive efficiencies.

Logistics and supply chain companies are similarly undergoing radical change, as every link in the end-to-end value chain now has intelligence, as it participates in increasingly automated, data-driven feedback loops.

**IoT: Beyond information technology**

The technology story at most enterprises has in fact always been broader than their Information Technology (IT) story. After all, many enterprises have technology outside of IT—everything from cash registers to forklifts to power transformers to vending machines.

Today, of course, all of these technologies are likely to come with some measure of IT as well. Sometimes companies add tags, sensors or controls—from the most basic passive RFID tags to more sophisticated technologies.

In other cases, existing equipment has some level of intelligence built in, an increasingly common scenario. In any of these situations, such equipment may or may not provide Application Programming Interfaces (APIs). Integrating technology without such interfaces presents a challenge.

As a result, today’s IoT technologies are built to integrate, supporting APIs and standard communication protocols in order to play well in enterprise IT environments. This level of technology maturity facilitates numerous solutions as enterprises explore the full power of end-to-end digital.

Coca-Cola Enterprises (CCE) faced the challenge of building such a solution as it sought better management of their soft drink vending machines. (Coca-Cola Enterprises is a Western European independent bottler for Coca-Cola Corporation.)

The company’s strategic vision called for IT to drive innovation and emerging technologies to achieve its strategic business goals. But the short-term problem it faced was more mundane: Thieves breaking into vending machines, and even worse, stealing them outright. In fact, 10 percent of their vending machines and coolers were being lost to such crimes every year—a $10 million annual loss.

The solution: Introduce a smart cooler. By adding an IoT telemetry device to coolers and vending machines, CCE could track the GPS coordinates and machine tilt/movement data for every piece of equipment.

Furthermore, the capabilities of the device went well beyond such theft and vandalism protection: CCE also monitored temperature (both inside and outside), the electrical current load on the compressor as well as how long it would run, and additional metrics including power and battery state.

Over and above the loss deterrence, it found that eliminating one service call per machine would pay for each device. Furthermore, it would save $210,000 per year simply by replacing filters only when necessary.
Behind the scenes, the IT infrastructure that supported the smart cooler initiative had to execute 5 million monthly transactions across over 500 software interfaces. This technology integrated to over 400 applications (including third-party applications at partner companies) and enables over 500 service technicians. Furthermore, CCE found that integration traffic was increasing at about 40 percent per year.

The architecture supporting the smart cooler data flow appears in Figure 1.

At the center of this architecture is Software AG’s webMethods, part of the Software AG Digital Business Platform. Data arrives from the coolers and vending machines and feeds into several APIs. webMethods then integrates this information with corporate master data, in turn feeding data to Web interfaces for various personnel, including cooler services and asset protection teams.

For the Web interface, CCE uses Software AG ARIS MashZone to present asset and customer reports with real-time mapping and the ability to drill down on individual events, as Figure 2 illustrates.
Figure 2 illustrates real-time information about an individual cooler—one of several screens that repair technicians or customers can use to gather and analyze important information about their Coca-Cola® equipment, regardless of where the coolers or vending machines are located.

**End-to-end digital**

The smart cooler example above illustrates several important points about what digital is all about. True, there is a customer-facing user interface element, which likely as not will appear on smartphone or tablet interfaces—but this story isn’t solely about the user interface.

Even though digital is customer-facing, it must connect the customer (including employees, partners and others) to back-end enterprise systems. Without such end-to-end capabilities, the enterprise won’t be able to meet the diverse and dynamic requirements of each customer.

This case study also illustrates a real-world application of the IoT—and furthermore, places the IoT into the context of end-to-end digital. We may not be accustomed to thinking of vending machines and soft drink coolers as technology touchpoints, but the IoT is changing the world of technology beyond traditional IT. Any piece of equipment may now serve as a fully digital customer touchpoint.

Furthermore, the smart cooler example illustrates the importance of a full range of supporting technologies and protocols, from GPS to 3G or 4G mobile communications to end-to-end enterprise infrastructure technology like the Software AG Digital Business Platform. Only because our broader technology environment has reached a sufficient level of maturity are real-time digital examples like the CCE smart cooler even possible.

Finally, it’s important to emphasize the role that data play in this scenario, as they do in so many enterprise digital initiatives. Once an organization like CCE implements technology that produces real-time telemetry data, then there’s really no upper bound in the quantity and diversity of data that this company may decide to leverage.

The big data opportunity is apparent: Smart cooler data reduces costs, improves the efficiency and morale of diverse teams, and increases customer satisfaction. Smart coolers, however, only scratch the surface, as CCE and other companies in similar industries leverage real-time visibility into retail store data, logistics data, field representative data, and other sources of information relevant to their businesses.

Real time, in fact, is a central theme in the digital story. Customers and employees demand high performance, and businesses require real-time visibility and insights into their businesses. To achieve this goal of real-time business, no link in the end-to-end digital chain can present a bottleneck, as a single slowdown will impact the entire organization.
**Succeeding in a digital world**

It’s no surprise that the Internet of Things is now exploding as enterprises are undergoing digital transformations. After all, in the final analysis the IoT isn’t an Internet of things at all—it’s an Internet of people. And people, of course, are the driving force for digital.

Technology plays an important part in digital to be sure, but digital is really about customer-driven, real-time business. Digital transformation is more of an organizational and cultural shift, as enterprises around the world renew their focus on changing customer demands and preferences.

No corner of the business is immune from this transformation, and thus no executive will avoid its impact. From the CMO to the CIO, CFO to CEO, the entire leadership of today’s enterprises must both understand and properly value the role that digital transformation plays in achieving the strategic goals of their organizations.

Regardless of your role, it’s essential to understand the technology trends that promise to impact your business, now and into the future. You must also place new technology investments into the context of existing assets. Digital transformation is customer-driven to be sure. But it is also technology-fueled. The Internet of Things is but one thread in this complex weave.

The end result for enterprises is profound. Business agility has become the primary strategic goal of every organization, as they get their arms around the power of digital technologies and the Internet of Things.
ABOUT SOFTWARE AG

Software AG offers the world’s first Digital Business Platform. Recognized as a leader by the industry’s top analyst firms, Software AG helps you combine existing systems on premises and in the cloud into a single platform to optimize your business and delight your customers. With Software AG, you can rapidly build and deploy digital business applications to exploit real-time market opportunities. Get maximum value from big data, make better decisions with streaming analytics, achieve more with the Internet of Things, and respond faster to shifting regulations and threats with intelligent governance, risk and compliance. The world’s top brands trust Software AG to help them rapidly innovate, differentiate and win in the digital world. Learn more at www.SoftwareAG.com.

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