



Digital Business Automation Drives Transformations

The business world is entering a new era in which digitization will mean more tasks that need to get done and less time to do them— with even less margin for error.





Business automation is anything but new. Over the last half-century, different category names have been applied to different computing generations of workload automation. The mainframe era ushered in the use of batch processing. Years later came the move to distributed systems and more-decentralized job scheduling. That was followed by the arrival of virtualized infrastructure, which allowed for more-flexible methods of workload automation.

The common theme was the pursuit of productivity improvements that would help companies better face competitive challenges. Now the business world is entering the next era in that history, a stage that will see the emergence of a digitally driven, hyperconnected phase of automation.

The change is going to touch all aspects of the enterprise, and it will involve more moving parts than ever—from the design of an organization’s internal product development processes to the organization’s interactions with customers, partners, employees, and other industries.

As they digitize their business processes, forward-looking organizations are registering great success, with average profit margins growing at three times the rate found in less digitally mature companies. Longer-term, [McKinsey estimates](#), digitization may add some \$2.2 trillion to annual GDP of the United States by 2025.

The introduction of workload automation tools is also helping enterprises drive growth in both their top and bottom lines. [Gartner predicts](#) that by the end of the decade, “the greatest source of competitive advantage for 30 percent of organizations will come from the workforce’s ability to creatively exploit digital technology.”

To be sure, traditional businesses transforming themselves into digital enterprises also need to be mindful of the downstream impact on IT. As they connect their legacy products and infrastructure to newer technologies as part of a digital-first mind-set, this is where things can get complicated. But the long-term gain more than outweighs any short-term pains, and it’s attracting more organizations that plan to make the transition.



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When [Forrester asked IT decision-makers](#) about their future business initiatives, for example, 65% of the respondents cited a desire to improve overall efficiency as their most pressing need. At the same time, they underscored the importance of using automation to improve IT flexibility and agility, with 57% citing future plans to implement new automation technologies.

That's a harbinger of big change as these automation tools help organizations successfully navigate this fourth wave of business automation to become more productive. In the consumer packaged goods industry, for example, organizations are taking advantage of the technical and strategic benefits of digital business automation to harness huge amounts of data to better understand current consumption patterns and consumer sentiment in local markets. These more granular insights into customer sentiment enable companies to collect and parse data that reflects what's happening with customers in particular locations on any given day, week, or month.

As workload functions get merged with the larger process of IT, the newfound ability to get at that information and understand it to make rational business decisions opens up additional vistas for old-line industrial B2B companies.

In 2013 Navistar, the over-100-year-old manufacturer of trucks, implemented a [completely digital solution](#) and revamped how it managed data workflows. The company is now able to capture millions of data points generated by big data and the Internet of Things for its more than 160,000 vehicles. These data points include information about fuel economy, geographic location,

idle time, and even potential failures, enabling Navistar to monitor entire fleets and diagnose problems as they develop and also provide guidance to fleet owners. This has helped the company's customers reduce unplanned repairs and cut truck downtime by as much as 30%.

Until recently this sort of project would have required employees to manually manipulate a tremendous amount of data while running various kinds of scripts—an obviously time-consuming task that wouldn't necessarily have generated actionable information for days.

And although not every digital workplace is going to be the same, the companies that adopt digital business automation stand to maximize their workforce's creative potential as well as foster new ways of working to produce better business outcomes.

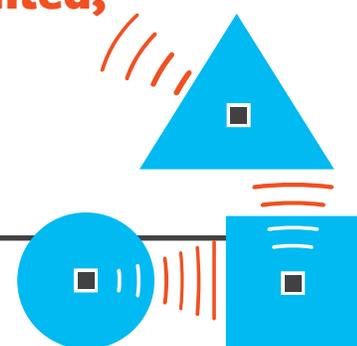
Building Bridges Between Past and Future

When BMC customers were surveyed last year, 81% of them anticipated that workload capacity would grow over the next 24 months. A breakdown of the data also revealed the following:

- ➔ 14% expected a 20%+ increase.
- ➔ 40% expected a 6–20% increase.
- ➔ 27% expected a 1–5% increase.

By 2020, **80% of business processes and products will be reinvented, digitized, or eliminated.**

Sources: Gartner, McKinsey Global





The expected increase in workload capacity means that companies will need to invest in automation to manage a crush of new data. That also means larger resource requirements to handle big-data projects, where it's not always clear who's running them. Sometimes these projects get managed by IT; other times they involve the participation of business units.

But unlike businesses born in the digital era, which enjoy the benefit of building modern IT operations from scratch, older enterprises usually depend on older computer architectures, platforms, and technology ecosystems to run their business. So even though we live in an increasingly PC- and mobile-centric world, the mainframe still remains the backbone of many industries such as [banking](#) and [healthcare](#) and businesses that don't use mainframes still need the support of big, heavy, distributed traditional client/server infrastructures and architectures.

These mature and super-stable technologies deliver mission-critical business processes, which makes it hard—sometimes impossible—to easily pull out or replace these legacy technologies with newer automation tools. The upshot is that organizations frequently find themselves having to automate workloads across a mix of modern and legacy platforms.

For instance, companies with older databases are adding to their application stack newer SQL types of databases, along with Hadoop or other more modern big data technologies. The increase in cloud computing environments and various forms of newer software-defined infrastructure only compounds the operational challenge of scheduling and automating application workflows across these many layers of infrastructure and applications. Integrating old and new processes with other automation tools, such as job scheduling, can also turn into a pain point.

That sounds daunting, but it's a recurring theme in the history of workload automation. Prior waves of automation didn't replace each other; instead, they changed, improved, and built on themselves. It's now up to CIOs to build bridges within their infrastructure between Development and Ops.

Enterprises face a host of operational challenges as they move to digitize their business. Applications need to be agile, self-learning, and as responsive as possible to meet the demands of continuous integration and application delivery. What's more, software-defined infrastructures must be able to adapt to the presence of massive amounts of structured and unstructured data flows that are growing at an exponential clip. Furthermore, businesses must integrate newer digital-first mobile applications so they can easily communicate with the layers of legacy enterprise applications and infrastructure systems built up through the years.

81% of BMC customers surveyed anticipate that workload capacity will grow over the next 24 months.

Sources: BMC



Which is why this is possibly CIOs' biggest challenge. The outcome will separate the winners from the losers. In his seminal work on [disruptive innovation](#), the business historian Clayton Christensen described how traditional industries frequently get upended by disruptive changes in technologies and business

models. The forces unleashed by digital technology and their impact on workload automation are no less profound.





The massive structured and unstructured data flows companies are experiencing are **exploding at an exponential rate.**

We're Not Reinventing the Wheel

For businesses grappling with the challenges of digitization, automating critical technology areas involving infrastructure, data, and applications in an effort to prepare for the biggest impacts on their organization is akin to a hair-on-fire situation.

74% of IT ops will have deployed software-defined infrastructure by 2019.

Sources: IDC, ActualTech



CIOs leading the charge to move their company to become a digital business will have to combine all these new technologies to bring greater efficiency in managing data flows. Their task has grown more complicated, due to the [massive amounts of new information](#) being generated by big data applications as well as by the Internet of Things.

On the organizational front, CIOs also must confront the challenge of breaking down silos that have grown up over the years and become barriers to effective digital business automation, hindering the ability to build high-quality

applications in a rapid and agile way. The task is made more complex in that they can't simply rip and replace older infrastructure but have to build from where they are.

But successful business automation isn't necessarily about reinventing the wheel so much as it is about the smarter application of technology. The best advances aren't necessarily only about inventing newer, better widgets. They're often about taking things that are currently available and combining them in a different, more clever fashion. They will still be using the capabilities of their existing technology for what they were created to do; it's just that they'll need to be applied in different ways.

Overcoming DevOps Bottlenecks

At its simplest, DevOps is about bringing the traditional operations world into closer collaboration with corporate development efforts. With IT groups now under pressure to rapidly produce software products and services and to keep them current, organizations that have reorganized and adopted a DevOps culture are able to deploy code [up to 30 times as frequently](#) as before.

As digitization spreads, even more tasks will need to get done in less time—and with even less margin for error. With more organizations digitizing their operations, they also need to take steps that ensure the quality and scalability of applications. But as updates get delivered by development teams to the operations team, the process involved in creating and deploying apps rapidly into production also runs the risk of generating logjams due to basic app “plumbing.”



Many DevOps teams are building application workflows with basic tools to schedule jobs and automate their applications. Often, however, companies take tools that were developed to do specific tasks and write extensions that push them beyond the limits for which they were intended. The result may be scripts that are inherently risky and brittle and applications that may not be scalable for a full production environment when they reach the deployment stage. This can lead to a time-consuming rework process. The resulting cobbled-together code that gets turned over to Operations can be hard to decipher or can even fail to meet production standards. And if something breaks, the problem is hard to find and fix.

This can affect even the most mature DevOps teams that strive to release applications as quickly as possible. At the heart of the problem are app workflow solutions that get deployed to automate and manage applications in production but are not really built to support developers or their workflows in the early stages of the life cycle.

This creates a DevOps blind spot that affects both the quality of delivery and the scalability of applications, slowing the development cycle to the point where it creates bottlenecks in the deploy-to-operate stage.

Jobs-as-Code

Instead of adding more silos of automation to resolve the problem, enterprises can automate their application release processes with a concept BMC calls [Jobs-as-Code](#). That means including jobs as artifacts in the DevOps delivery pipeline to accelerate the software development process and deliver a higher-quality product operationally.

BMC enables the Jobs-as-Code approach through an API that gives developers access to app automation in Control-M from BMC. Developers can embed code by using simple notation and manage those job artifacts throughout the continuous delivery pipeline in much the same way that Java or Python code is managed through the entire software development process today.

Prior waves of automation didn't replace each other.

They changed, improved, and built on themselves.



Developers can thus use the tools they already have on hand to change what they're doing—and avoid rework, headaches, and poor-quality apps. By the time applications pass through that chain of automation, the product will be truly deployment- and operations-ready.

The Jobs-as-Code approach also helps secure a future benefit. The teams that build applications now will be able to integrate those applications with new technologies later on by packaging automation capabilities as code. Because the automation is code within the application, they are guaranteed to be inherently compatible as applications move to containers and other cutting-edge technologies.





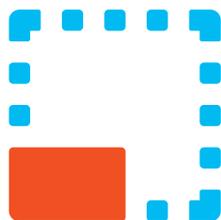
Organizations that create a harmonious Dev-to-Ops relationship benefit by enabling their teams to leverage their preferred tools and code bases without trading off business-ready speed or scalability. In addition, these organizations will be able to satisfy the needs of both Development and Operations through a simplified, standard platform across the enterprise with their security protocols already included.

Last, application agility for digital business automation is a lot more than a buzzword. The power of the self-service nature of Jobs-as-Code in the DevOps context eliminates the need for a wasteful back-and-forth between different teams. The teams are able to ensure that their applications can integrate with new or emerging technologies to essentially “future-proof” their apps. It also frees developers to spend more time writing value-added code, automating business logic and process-control layers within applications in a way their colleagues in IT operations can interpret and understand.

The incorporation of enterprise-grade scalability into the build phase of the development life cycle doesn’t just guarantee inherent scalability—clearly a desired goal. It also means that the Dev team doesn’t have to huddle again with IT Ops during a rework process later in the development cycle.

Instead, developers can serve themselves and make changes with their tools in their own way, which translates into big-time savings for already very overbooked—and very expensive—developers.

Jobs-as-Code
builds in **scalability**
from the start
of the development
process.



Call to Action

Businesses must digitize to survive, but the number of new technologies coming together and the potential disruption to industries [are unprecedented](#).

In the most recent survey of IT trends by the [Society for Information Management](#), CIOs and other IT executive respondents put “IT flexibility/agility” as their fourth-most-important IT management issue, up from seventh in the same survey taken a year earlier. They also ranked “business flexibility/agility” fifth, moving up the ladder from ninth.

Clearly, digital business automation is empowering organizations and their employees to create value in a variety of new ways. Technology is enabling them to be more collaborative and creative as they shorten the time it takes to complete many formerly rote tasks and projects. But the challenge of doing business in the digital economy puts new demands on workload automation, suggesting that it is no longer sufficient to meet the requirements. Rather, digital business automation is the next wave that will drive this digital transformation forward.

Although researchers say that user satisfaction is [up by 20% since 2013](#), organizations continue to look for more ways to cut scheduling costs, improve performance monitoring, scale more efficiently, and make it easier to upgrade software. And as always, they are looking for ways to resolve familiar organizational pain points such as ease of use, performance, and cost when it comes to workload automation.

And that’s where Control-M can help digital businesses with a range of solutions that meet their heightened expectations of product quality and rapid service as they incorporate DevOps into their processes. At the same time, they’ll be able to rely on Control-M to serve as a bridge between their existing infrastructure and newer data and application platforms.



Global top-15 retailer deploying Control-M: “With this API, not having to know anything about Control-M and never having to go into the Control-M tool, **I can deploy my job from Jenkins to Control-M in seconds.**”



Control-M can automate job scheduling and batch management to deliver these new digital business application services with agility and scale across what can prove to be highly heterogeneous and evolving enterprise platform environments. Another key part is managed file transfer: Control-M Managed File Transfer enables you to securely automate file transfers from a central interface, integrating them with other applications and activities, to increase convenience, visibility, and control. Also, Control-M—and more specifically Control-M in the cloud—can address the heterogeneity found in complex modern infrastructures, automating and managing workloads from a single point of control. This simplifies and extends this ability to public, private, and hybrid cloud environments. The ability to

trigger jobs on other platforms—as well as the ability to schedule jobs running on different platforms and to create dependencies between those jobs—provides additional flexibility.

Users also gain all the benefits of an agile or continuous application development process, given the need for scalability from the beginning of the development life cycle. If components of the application are not sufficiently capable of scaling once the application is in production, expensive developers will incur rework. The right Control-M solution will ensure that your DevOps process anticipates any technology evolutions in automation, infrastructure, and other operational requirements on your agenda.



To learn more, visit [Control-M](#) online.

