Scaling DevOps
for cloud-enabled
IT transformation

Recommendations for using
DevOps for digital transformation
across the enterprise

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Balance agility with control in your journey to cloud

To outpace the competition, companies are looking to transform their customer experience. Businesses are turning to cloud computing to increase agility and efficiency to ultimately improve time to market and achieve that digital reinvention.

However, maximizing the benefits of cloud computing for a digital transformation isn't an easy task. Challenges include not only technological integration, but changing company processes, culture and organization structures that might have been in place for years. While reimagining complex IT architectures is difficult, some companies are finding that the cultural changes are a more daunting hurdle.

Organizations once relied on siloed development and IT operations teams to build and ship software using the waterfall methodology. But this methodology means teams operate with different goals and have little communication with each other. This method proved to be incredibly slow and ineffective in the digital age.

Enterprises now optimize the software development pipeline to be more agile and use continuous integration and delivery (CI/CD). To meet the challenges of this transformation, many businesses have implemented DevOps methods to improve business processes and increase the pace of application development and business innovation.

Speed innovation with DevOps

DevOps is key to the continuous integration, agile development processes and improved application delivery needed for digital reinvention. Individual pockets of DevOps practitioners have sprung up across enterprises. To take full advantage of this innovation, companies are asking themselves, "What's next? How do we guide our teams to implement DevOps at scale across the enterprise? How do we manage a number of teams at the same time? How do we manage the complexity that arises? How can we deliver faster and higher-quality applications that meet customers' rising expectations?"

Recommendations for leveraging DevOps for enterprise transformation

The road to enterprise-wide DevOps adoption won't be easy as organizations face increased risk and complexity while attempting to establish a single view for DevOps management, automate continuous release and deployment, and reduce organizational and technical silos. Here are three recommendations for streamlining the management of enterprise-wide DevOps:

Establish pipeline management
If your development and IT teams use a variety of DevOps tools such as Splunk or Jenkins, establishing pipeline management is key as the number of tools you use increases. For the most part, organizations manage their DevOps toolchains separately, with only 11 percent of IT teams using a platform for single pane of glass management.[1] And even that view only integrates roughly half of all DevOps pipelines in use by the organization.
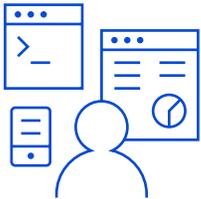
58%
of DevOps toolchains are integrated under a single pane of glass.[1]

Such visibility would enable administrators to standardize continuous development and deployment toolchains for fully integrated pipeline management. That visibility is established as part of an agile development process. Of companies already using DevOps widely across the organization, 44 percent use single-pane-of-glass management for benefits such as greater visibility[1]. Without DevOps toolchain oversight and governance across the enterprise, you open up your organization up to security and compliance risks.

Integrate AI and automation
IT operations that involve big data are too complex for IT staff to manage without the help of AI and automation. AI provides the speed and processing power needed to efficiently perform tasks, such as analyses for instantaneous decision making. IT staff in general, and DevOps teams in particular, need to obtain the most relevant data in what can be thousands of log entries—fast and with precision.

Automation is not yet widely used as just one-third of toolchains are automated.[1] A recent survey on DevOps practices by IBM Market Development and Insights concluded that not many organizations have significant automation capabilities. However, companies that already use DevOps widely across their business are more likely to have increased toolchain automation.[1] These findings imply that AI and automation present a great opportunity for companies to separate themselves from the competition.
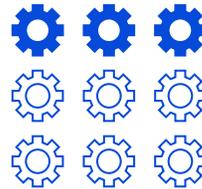
33%
Automation for DevOps tools is not widely used within organizations as only one-third of toolchains are automated.[1]
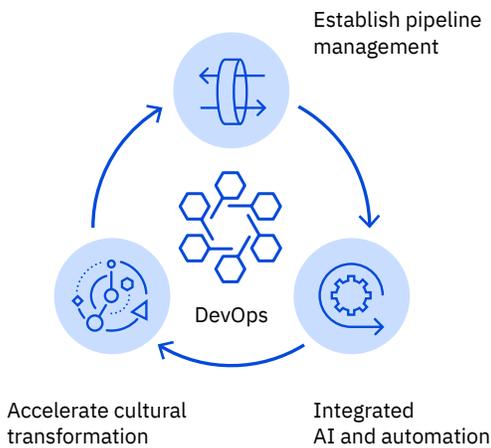
Accelerate cultural transformation

Cultural barriers can be a major roadblock to widespread DevOps adoption. To be implemented at scale, DevOps requires an enterprise-wide shift in cultural mindset. DevOps practitioners report that team dynamics is a major factor impacting the adoption of DevOps.

As Figure 1 shows, the biggest impediments to DevOps adoption are not technical but operational issues. Issues, such as information silos, lack of cooperation from other teams and lack of executive support, are viewed by most respondents as the most serious challenges to enterprise-wide DevOps adoption.

It stands to reason that greater complexity, shorter deadlines and smaller teams could benefit from comprehensive DevOps toolchain management that integrates AI and automation. These tools can help manage the complexity by providing insight across various processes. This insight is especially crucial in large enterprises where frequent software releases and information silos are more common.

Three recommendations for streamlining the management of enterprise-wide DevOps

Establish pipeline management

DevOps

Accelerate cultural transformation

Integrated AI and automation

Barriers to DevOps adoption

Too many silos across the organization

35%

Lack of cooperation from other teams

21%

No clear impact of work on the business

19%

No executive support to change the culture

16%

Lack of cooperation from team members

11%

No incentive to continue to innovate

11%

Not a safe environment to take risks

9%

Other

6%

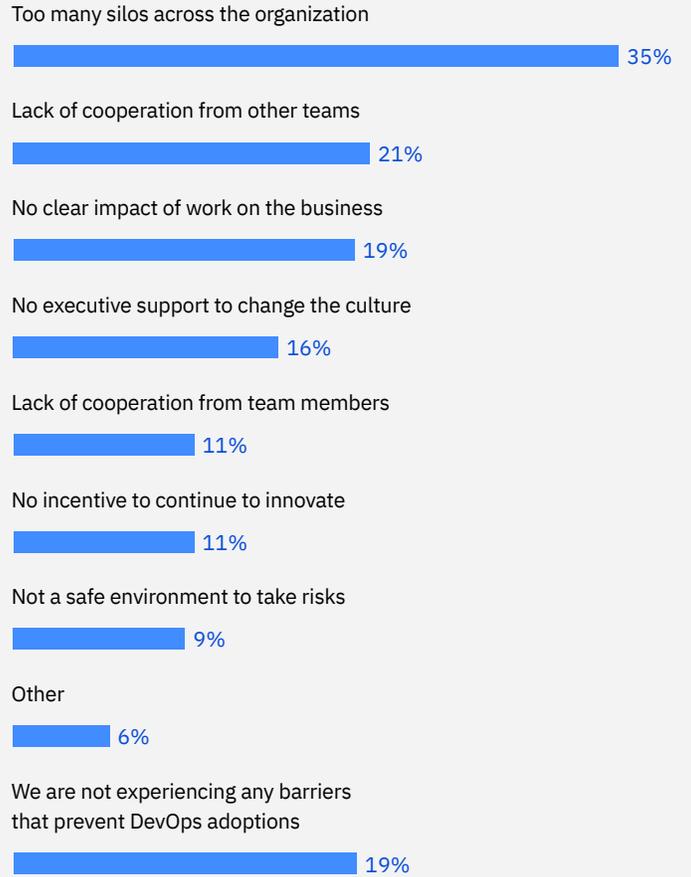We are not experiencing any barriers that prevent DevOps adoptions

19%

Figure 1: Survey of DevOps users regarding barriers to DevOps adoption[1].

Conclusion

Why does DevOps matter? As more enterprises progress in their digital transformation, they need the help of more advanced technology to cope with the increased complexity. Technologies, such as AI and automation, can help improve organizational performance and help achieve higher-quality results. As an example, optimized software delivery helps achieve the following goals:

Meet customers' demand for a better experience with products and services
By providing a differentiated, engaging customer experience, you build customer loyalty and increase market share. To deliver this experience, a business must continuously obtain and respond to customer feedback, which requires mechanisms to get feedback from every stakeholder.

Technology-driven innovation
Modern organizations adopt DevOps to become more innovative. DevOps methods help increase efficiency, minimize rework and focus resources on higher-value activities.

Competitive advantage
Faster time to value involves developing a culture, practices and automation that allow for fast, efficient, reliable software delivery. DevOps can provide the needed tools and help build the necessary culture.

Why IBM?

Accelerating digital transformation with cloud is a key area enterprises focus on for innovation. Most organizations view their future cloud environments as both hybrid and multicloud. In a hybrid approach, you run applications across private, dedicated and public cloud infrastructures. In a multicloud approach, you use multiple cloud providers to support a breadth of enterprise workloads. The IBM point of view on managing hybrid multicloud IT environments is based on a strategy that offers choice with consistency using Kubernetes and container-based technology.

You can prevent vendor lock-in through the support of a standard, container-based approach to application portability with Red Hat® solutions. You also can access a self-service platform with consoles focused on the necessary areas around consumption, DevOps, operations and governance. This strategy can enable a multicloud model through the support of essentially any hosted Kubernetes-based environment on virtually any public cloud footprint. With its services and solutions, IBM can accelerate your digital transformations wherever they are in their journey and deliver business value through cloud transformation, minimizing risk and using existing investments.

IBM's integrated multicloud management platform helps you manage workloads across multiple clouds and current data centers, providing you with:

– A digital, self-service user experience to consume, deploy, operate and govern across clouds and data centers
– Agility and speed through modern technology, automation and self-service
– Reduced risk through integrated governance and management
– Lower costs by leveraging cloud and automation
– Visibility and control of costs and asset utilization across the full estate, from the traditional Information Technology Infrastructure Library (ITIL) to the site reliability engineer and DevOps-driven, cloud-native approaches

The way to help organizations manage multicloud environments is to provide management capabilities that offer visibility, governance and automation across the hybrid multicloud environment. These capabilities include multicluster management, event management, application management and infrastructure management, plus integration with existing tools and processes.

For more information

To learn more about IBM Services for Multicloud Management, please schedule a no-cost, 30-minute consultation with an IBM expert or visit ibm.com/services/cloud/multicloud/management.

1 DevOps Practices, IBM Market Development and Insights Survey Report, March 2019

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