Modernize Change Management While Minimizing Business Risk
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Executive Summary

As the speed of digital innovation accelerates, I&O organizations need to increase deployment velocity while meeting ever-increasing demands for high quality of service. This makes effective change management more important than ever. To keep pace with the demands of the business and deliver highly compelling services and solutions, IT must leverage automation to work more quickly and efficiently. But automation in itself isn’t a magic bullet. It must be implemented thoughtfully, with processes in place to eliminate the need for extensive human judgment and interaction without increasing risk. In this sense, the kind of step-by-step, methodical approach that has traditionally led to complaints about the speed of change management now becomes the key to its success at DevOps velocity. By basing automation on strict procedures and guidelines, and bringing together the right data at the right time, organizations can ensure effective change management while accelerating success.

This white paper discusses four key principles for change management in the age of DevOps.

- Build structure into your automation: accelerate success with strict rules and procedures
- Move from data to insight: make better decisions with contextual data
- Increase understanding to lower risk: use analytics to determine which changes require additional diligence
- Empower the user: provide information proactively for fast, accurate service

By investing in innovation for processes and workflows like change management, organizations can maximize the full value of automation and establish a critical element of their success as an Autonomous Digital Enterprise (ADE)—where every user has the information they need at their fingertips and is empowered to make the best decisions possible.
Change becomes constant in the DevOps era

Since the inception of ITIL and best IT practices, change management has been a critical capability for organizations to make sure their services and operations deliver and behave as expected. Now, with the rate of innovation accelerating to a dizzying speed, change management has become imperative for automated digital success. As noted in the Gartner Agile and DevOps Primer for 2020, the firm’s “2019 CIO Survey found that 54 percent of top-performing organizations were more than likely to employ agile infrastructure strategies including adoption of DevOps.”1 By 2023, this will increase to 70 percent. This shift places new strategic importance on the role of IT—with an emphasis on modern, agile change management to help enterprises deploy, upgrade, scale, and phase out services at the speed of business. Without this capability, DevOps teams can’t reach their optimal performance to deliver faster innovation at the highest quality.

As fast-paced digital markets and evolving customer demands make change the new constant, DevOps teams often see change management as a bottleneck that impedes the faster, more frequent deployments their practices are intended to enable. This makes them resist the very idea of change management, and push service owners to remove the onerous change approval process. But this is exactly the wrong way to look at the situation—in fact, as development accelerates, it becomes all the more important to have an effective way to ensure that changes can be executed successfully. Speed at the expense of accuracy can be an expensive way of doing business; the cost of downtime currently averages from $1 million – $5 million per hour. And there’s more at stake than money, with DevOps performance tied closely to change competence. The 2019 Accelerate State of DevOps report notes that: “Elite performers characteristics included a much higher frequency of deployments, faster lead time, reduction of time to restore (MTTR), and lower change fail rate.” It’s just as important to enforce adherence to IT standards, regulatory compliance, auditability, and other legal and organizational requirements.

The demands of DevOps and digital business call for a modern approach to change management. By leveraging automation to increase speed, and using change analytics to enable the best-informed decisions—whether by human agents or automated processes—IT can work in true partnership with developers. Achieving this alignment begins with the following four principles.

1 Gartner, Agile and DevOps Primer for 2020, January 24, 2020.
Build structure into your automation

Machines are better at implementing some types of changes than humans are—in particular, implementing and executing prescriptive plans quickly, efficiently, and accurately. They don’t make common mistakes like forgetting a step or misspelling a word. What does this mean for service and operations management, and what is its potential impact? According to Gartner, “Integrated change and release management is important for organizations to control the governance and risk of changes to I&O.”2 By automating this process, organizations can strengthen governance, increase accuracy, and ensure auditability. Indeed, Gartner also notes that: “The advanced-maturity and agile and DevOps support uses cases benefit from the use of automation for standard change models and the oversight of release and deployment for I&O changes.”3 But machines aren’t perfect. The results of automation will depend entirely on the quality of its guiding data and processes. For this reason, it’s important for automation to be implemented strategically, in the right places and with the right purpose. And it’s also critical for machines to have clear, ITIL-aligned guidelines to follow. The more specific the rules and procedures written into your automation, the more successfully it can manage change.

Change management offers several opportunities for high-value automation. For example:

- **Service automation** – Reactive manual remediation processes typically involve costly disruptions and downtime. Remediation automation can proactively resolve problems before they impact the business.

- **Business process automation** – Time-consuming, error-prone custom integrations can undermine an organization’s ability to connect applications and share data across their environment. Implemented through enterprise iPaaS (Integration Platform as a Service), business process automation enables fast, accurate integrations for greater business agility.

- **Workflow automation** – Manual approval and scheduling processes slow job creation and execution while increasing error. Workflow automation streamlines the approvals process while ensuring accurate and timely execution.

- **IT process automation** – As IT complexity grows, manual change management processes become slower, impeding time to market. IT process automation enables enable closed-loop change management across disparate technologies

At a higher level, automated change/risk analysis can be used to calculate the risk score for changes produced from agile development tools so that service owners can determine which changes can be approved automatically, and which need additional diligence before deployment. To prevent poor decisions from being made, data related to changes—how they were implemented, whether they succeeded or failed, how they impacted other systems, and so on—can be analyzed thoroughly, with change management analytics, prior to automation. When implemented well, automation can empower the workforce to be more productive while ensuring security and governance, documenting changes, creating an audit trail, and eliminating manual errors.

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Move from data to insight

To avoid unintended consequences, it’s critical to know what’s in your environment before implementing a change. Comprehensive, high-quality data is especially critical for intelligent change automation, providing the information needed to guide automated decision-making. The foundation of insight is the CMDB, the definitive repository of up-to-date information on applications, infrastructure, and their relationships to business services. Automated discovery tools make it possible to discover these assets and populate the CMDB more quickly and accurately, without the effort and potential for error associated with manual input. This is particularly valuable in light of the increasing complexity and rate of change of modern IT environments, which push traditional discovery methods to the breaking point and beyond.

At the same time, the CMDB doesn’t have to hold every possible piece of data—a federated approach can be effective as well. By the same token, make sure you can normalize and reconcile data from disparate sources; this allows you to maintain multiple sources of the same data without worrying about conflicts or inconsistencies. Instead of viewing the CMDB as a data store, start using it as a relationship store, and map out your business services to understand how they are powered. As your CMDB grows and evolves, it can become a key resource actively driving value for your IT organization. Embed it into your technology ecosystem, and bring it alive by building an IT operations management (ITOM) strategy around it.

In addition, IoT devices and other assets generate IT and operational data that can be mined for real-time and historical insights. The faster people can access and understand this data, the more informed their decisions can be. At the same time, in making decisions about changes, organizations can’t afford to be blinded or deluged with petabytes of undifferentiated data. Whether decisions are made automatically or through human expertise, they depend on access to the right data at the right time—curated and analyzed.

Intelligent insights can help users make more productive use of data by providing more natural ways to find and understand information. For example, the automatic creation of natural language narratives can give users faster insight into significant aspects of the data. Artificial intelligence can enable the use of natural language queries to search unstructured knowledge across diverse data sources and in different formats, such as database, Word docs, DropBox, pdf, and websites like Microsoft SharePoint.
Increase understanding to lower risk

Traditional approaches to risk management are too subjective and deliberative to keep pace with digital innovation. In the past, organizations could take the time to analyze risk, debate alternatives, and come to a decision. However, those decisions were based on the best information that they had at hand, which in many cases was incomplete and dependent on educated guesswork. Organizations now recognize that it’s critical to be able to bring together the right information from the right places at the right time. This makes it possible to set clear thresholds and parameters according to an acceptable level of risk, then perform data-driven analysis of changes to enable consistent, fully informed decision-making. Whether a given decision is made automatically or by a human expert depends on the level of risk involved.

To take this approach, I&O organizations need a clear understanding of which changes can be allowed to proceed automatically, and which call for a higher level of human expertise and scrutiny. By implementing intelligent risk analytics, and ensuring access to the right data, organizations can use AI and machine learning to calculate the risk of every change that’s being produced—both in DevOps and downstream in IT operations—so that service owners can identify those calling for additional diligence.

Similarly, the system can use past history to evaluate the trustworthiness of a team to safely create and release changes, and factor this into the risk score of the changes they produce. Once changes have been made, AI/NLP models can be used to correlate their impact to any subsequent incidents in order to continually improve the accuracy of change risk prediction over time. In this way, organizations can deliver rapid changes without risking the availability of the services that they offer.
Empower the User

A key element of the autonomous digital enterprise (ADE) is to provide both information and services to users proactively so that they have the understanding they need, when they need it, as well as a way to act on it. When agents in the network operations center (NOC) know exactly what is happening in the environment, they can work quickly and accurately to minimize downtime. On the service desk, automation helps agents understand and resolve issues more quickly by providing insights and surfacing relevant, actionable knowledge. When people have the right data and service at the right time, productivity and efficiency remain at their peak.

Change managers represent a unique type of persona. In fact, they’re unlikely to think of themselves primarily as change managers in the first place. Instead, they’re project managers, infrastructure managers, operations professionals, developers, and DevOps leaders. They might play a part in managing change throughout the enterprise, but their interactions with the change management system are probably limited.

Some of these users might touch a change management system once a day, once a week, or perhaps even less frequently. Whatever the level of their involvement, it’s imperative that these users are empowered with curated data, analytics, and automation to play their parts. In every part of the IT organization, all the way up to the CIO, automation can help people understand the meaning of data, the impact of change, and the right way to proceed.
**Conclusion**

As the modern digital enterprise accelerates, the ability to manage change effectively and consistently is both a competitive differentiator and an operational imperative. By applying rules-based automation, I&O organizations can proactively empower users with the right data at the right time, and achieve new levels of insight into their environment. Investing the time to set up the right processes enables automation to run at full efficiency so organizations can realize its full benefits, transforming change management from a brake or bottleneck on innovation to a true enabler of digital success.

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