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How Application and Data Workflow Orchestration
Enables Organizations To Optimize Processes
And Develop Strategic Business Advantages

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Executive Summary

During the pandemic, business agility shifted from an intangible objective to an urgent necessity. Organizations that could recalibrate their business processes and improve their digital delivery were well positioned to adapt to economic turbulence both in supply and demand.

Global IT managers and directors recognize application and data workflow orchestration as valuable, but it often remains a work in progress. While 70% of survey respondents reported their companies plan to prioritize improving flexibility and agility over the next 12 months, nearly the same percentage conceded that their organizations lack a cohesive strategy to make this happen.

In September 2021, BMC commissioned Forrester Consulting to evaluate how enterprises adapt to changing application and data workflow orchestration priorities. Forrester conducted an online survey with 285 IT/DevOps and software/data engineering leaders predominantly in large enterprises to explore this topic. For the purposes of the study, application and data workflow orchestration was defined as the design, execution, and automation of processes based on workflow rules where human tasks, data, or files are routed between people or systems based on predefined business rules. The study results indicated that leveraging modern application and data workflow orchestration brings quantifiable technical and business benefits.



Key Findings

Improving an organization's ability to respond to market changes is the highest priority for application and data workflow orchestration. Seven in 10 respondents noted their companies are prioritizing enhancing flexibility and agility over the next 12 months. They're seeking advantages such as faster response to customer requests (29%), faster time-to-market (20%), and savings on infrastructure spend (14%).

Meeting high-priority IT initiatives requires application and data workflow orchestration along with process optimization. In pursuing this battery of strategic objectives, four in five respondents determined that integration with continuous integration and continuous delivery (CI/CD) automation is either "Critical" or "Very important" for their organizations.

Achieving application and data workflow orchestration requires clearing several high technical hurdles. The lack of an end-to-end view — a side effect of blending analog and digital processes — impeded 58% of respondents' enterprises. Issues with integrating legacy systems and scaling workflow automation processes were technical issues that also plague more than half of the respondents.

Investment in modernizing application and data workflow orchestration would enable organizations to achieve a range of appealing business benefits. Half of respondents reported that their organizations invested in modernizing application and data workflow orchestration and they anticipate benefits; 46% said it would allow their organizations to improve their customer satisfaction metrics, while 43% said it would give them an edge over emerging competitors.

Workflows Shouldn't Impede Business Agility

Modern workflow automation requirements remain a perpetual work in progress. As enterprise services shift from wholly or partly analog to entirely digital, organizations lacking automated workflows may experience subpar execution, putting themselves at a competitive disadvantage.

This is an insight not lost on today's enterprises, where respondents indicated an awareness of the need to integrate workflow automation into their organizations' broader systems development life cycle (SDLC) portfolio. In surveying 285 IT decision-makers, we found that:

- **Firms prioritize automation and orchestration initiatives that improve their ability to respond to market changes, enhance customer experience (CX), and manage risk.** That is why 70% of respondents noted their companies are prioritizing improving flexibility and agility over the next 12 months. Workflow automation and other forms of process integration both enable and enhance this set of business capabilities.
- **There are multiple automation paths one can take to address these challenges.** Three technologies respondents deemed important to supporting automation and orchestration initiatives were application and data workflow orchestration (86%), robotic process automation (RPA) (79%), and digital process automation (DPA) (73%) (see Figure 1).
- **Integration is not only a critical feature of workflow orchestration, it's also a key business and technical objective.** Four out of five respondents reported that integration with CI/CD automation was critical to their organizations' data workflow orchestration (see Figure 2). Fifty-eight percent of respondents noted their firms integrate with CI/CD automation, and 51% leveraged integration platform as a service or integration services. Delivering consistency, speed, and automation is vital to DevOps teams, and workflows need continuous testing to validate service updates.

And 73% of respondents believed that integration with system management and reporting is important. Monitoring a defined set of

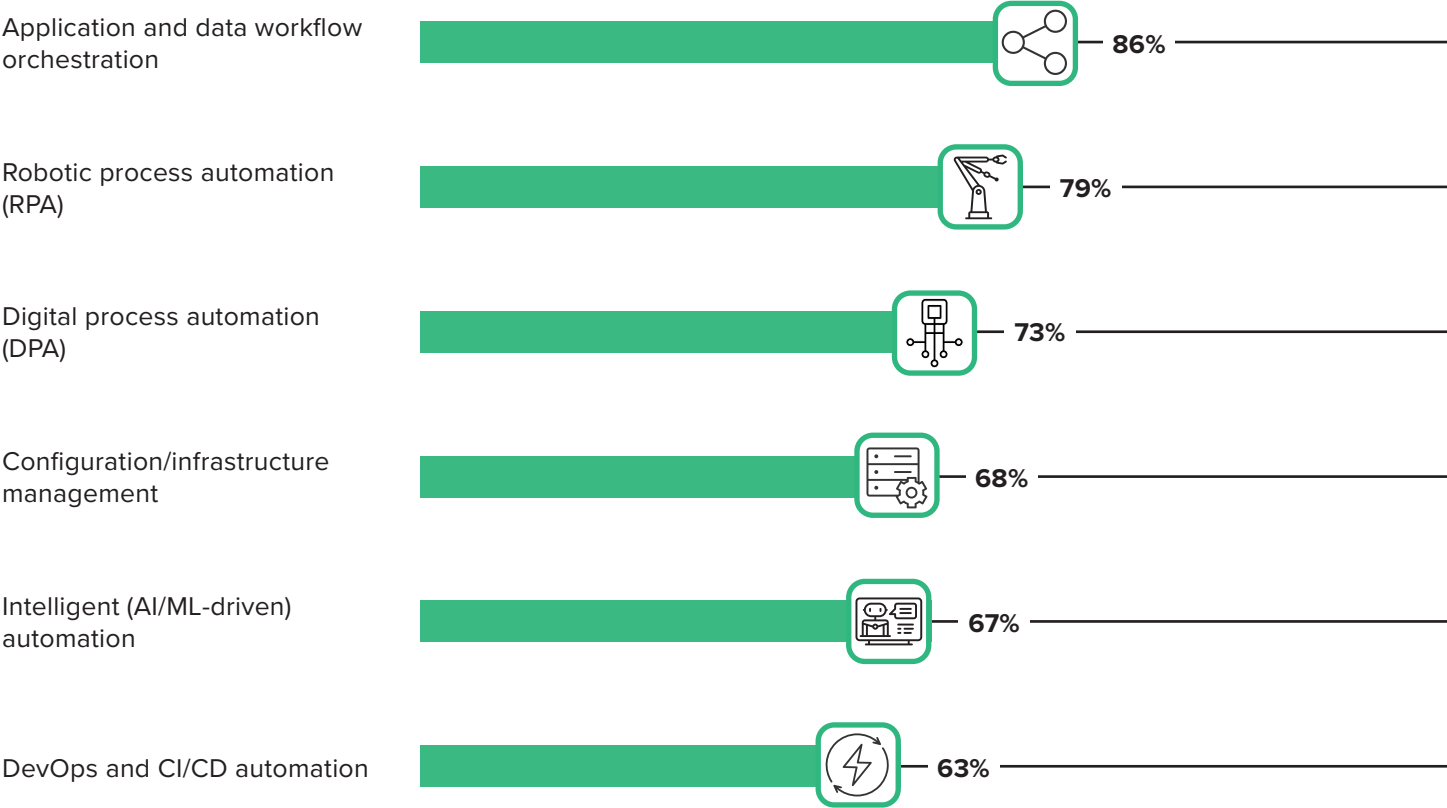
system management tasks is good hygiene and necessary to accelerate the scale of service delivery and enterprise operations.

- **Some investment is required.** Slightly more than half the surveyed decision-makers (51%) stated their organizations are investing in modernizing application and data workflow orchestration. However, just doing this alone is not sufficient. Sixty percent of respondents viewed optimizing — not just automating — processes as key to their organizations’ improvement. Fifty-eight percent also believed that integrating with continuous integration and continuous delivery CI/CD automation was key. This includes not only connecting with CI/CD automation, but adopting DevOps practices like storing jobs in source code repositories and site reliability engineering methodologies.

Figure 1

Importance Of Application And Workflow Orchestration Technologies

(Showing “Extremely important” and “Very important”)



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

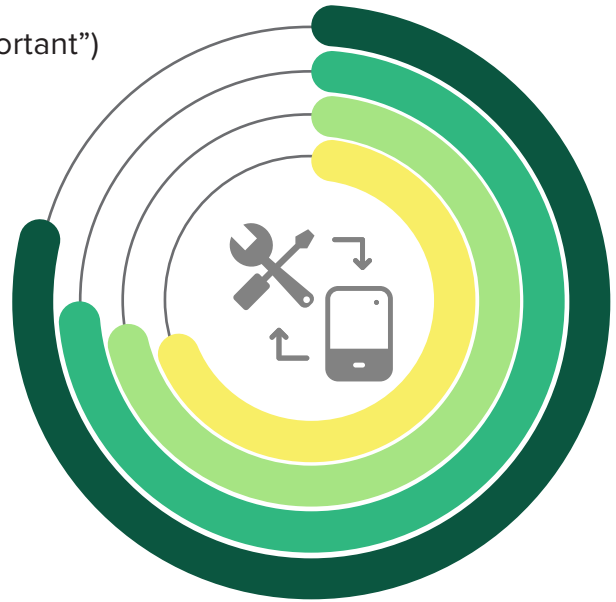
Figure 2

Integration With CI/CD Is A Critical Feature And Alleviates Challenges

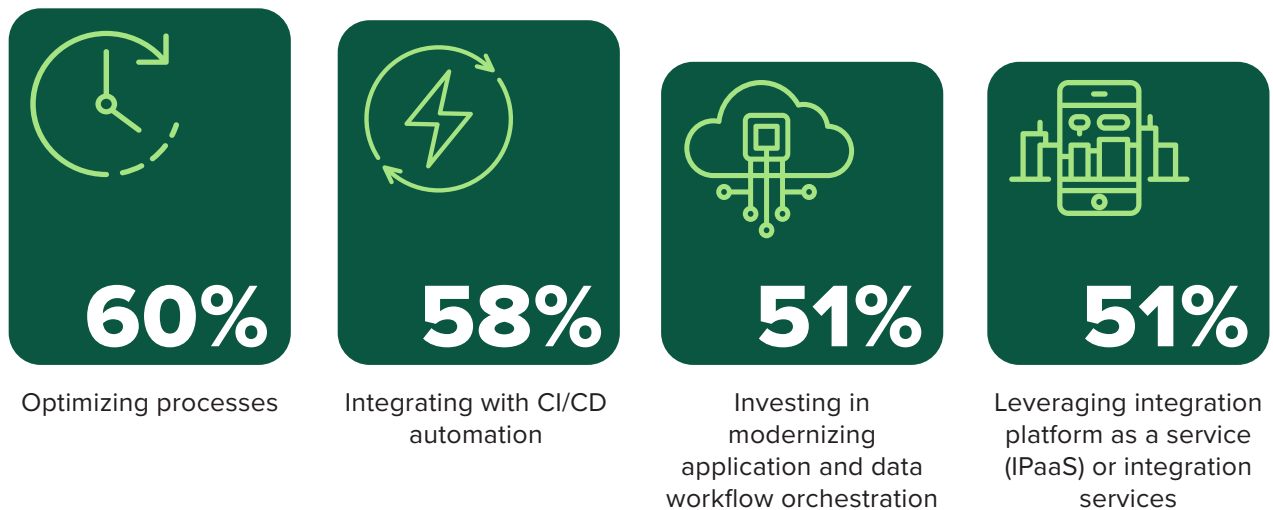
IMPORTANCE OF APPLICATION AND DATA WORKFLOW ORCHESTRATION FEATURES

(Showing “Critically important” and “Very important”)

- 80%** ● Integration with CI/CD automation
- 75%** ● Ability to automate test of jobs
- 73%** ● Integration with system management and reporting
- 71%** ● Analysis of risk of running jobs



HOW ORGANIZATIONS OVERCOME APPLICATION AND DATA WORKFLOW ORCHESTRATION CHALLENGES



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

The Difficulty Of Winging Application And Data Workflow Orchestration

What would symphonies sound like without orchestration? Orchestration enables a group of musicians to play woodwinds, brass, strings, and percussion together and avoid sounding like fingernails scraping on a chalkboard. Similarly, enterprises embrace IT orchestration to automate an entire IT-driven process to pursue a consistent, reliable, and scalable IT environment.

Yet, many enterprises face multiple business and technical impediments to achieving effective application and data workflow orchestration.

- **The leading problem is perhaps the least surprising one.** Sixty-nine percent of respondents found a lack of cohesive strategy for optimizing processes to be their organizations' most challenging business issue. While symphonies occasionally change musical arrangements, IT organizations must continuously update business processes. And DevOps adjustments cannot disrupt the entire business. But impediments can also be structural or cultural. For instance, business silos may hinder cross-team visibility and collaboration (see Figure 3).
- **Talent and skills shortages complicate application and data workflow orchestration.** More than half of respondents said that hiring the right talent and a lack of staff with requisite skills were challenges for their organizations. This is often due to the shift in role from operations manager to programmer. Many

Figure 3
The Need For Process Optimization

We lack a cohesive or companywide strategy to optimize our processes.



Organizational silos hinder cross-team visibility/collaboration.



Our staff lacks the requisite skills.



Ability for businesses to control/manage automation



Ability to meet SLOs



Technical debt



Hiring/retaining talent



Cost to automate/orchestrate processes



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Note: Selected variables shown
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

operations professionals, while skilled, don't necessarily have the background to code and integrate complex workflows.

VISIBILITY, INTEGRATION TOP TECHNICAL CHALLENGES FOR APPLICATION AND DATA WORKFLOW ORCHESTRATION

Efficient business processes must be repeatable and scalable. But achieving these objectives requires an end-to-end view of the workflow, a perspective that 58% of respondents noted their organizations sometimes lacked (see Figure 4).

Respondents also noted other workflow showstoppers, including governance issues (48%) and compliance issues (42%). Nearly half of the respondents (47%) could not apply service level agreement (SLA) and service level objective (SLO) monitoring capabilities to workflow orchestration, which posed management challenges for organizations looking to improve their business processes.

A side effect of the lack of monitoring is the difficulty that 51% of respondents experienced when attempting to scale application data and workflow orchestration across their enterprises.

Integration challenges also impede application and data workflow orchestration. First, 54% of respondents conceded the integration of legacy systems challenges their organizations. Second, 49% recognized the challenges of integrating workflow orchestration into a DevOps pipeline. And third, 45% encountered poor integration across their entire tech toolchain.

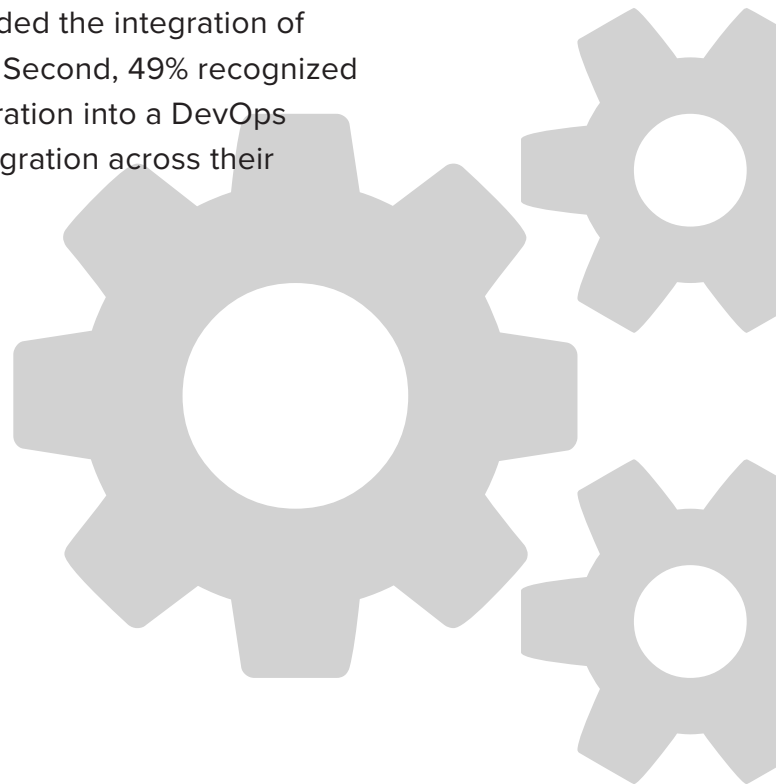
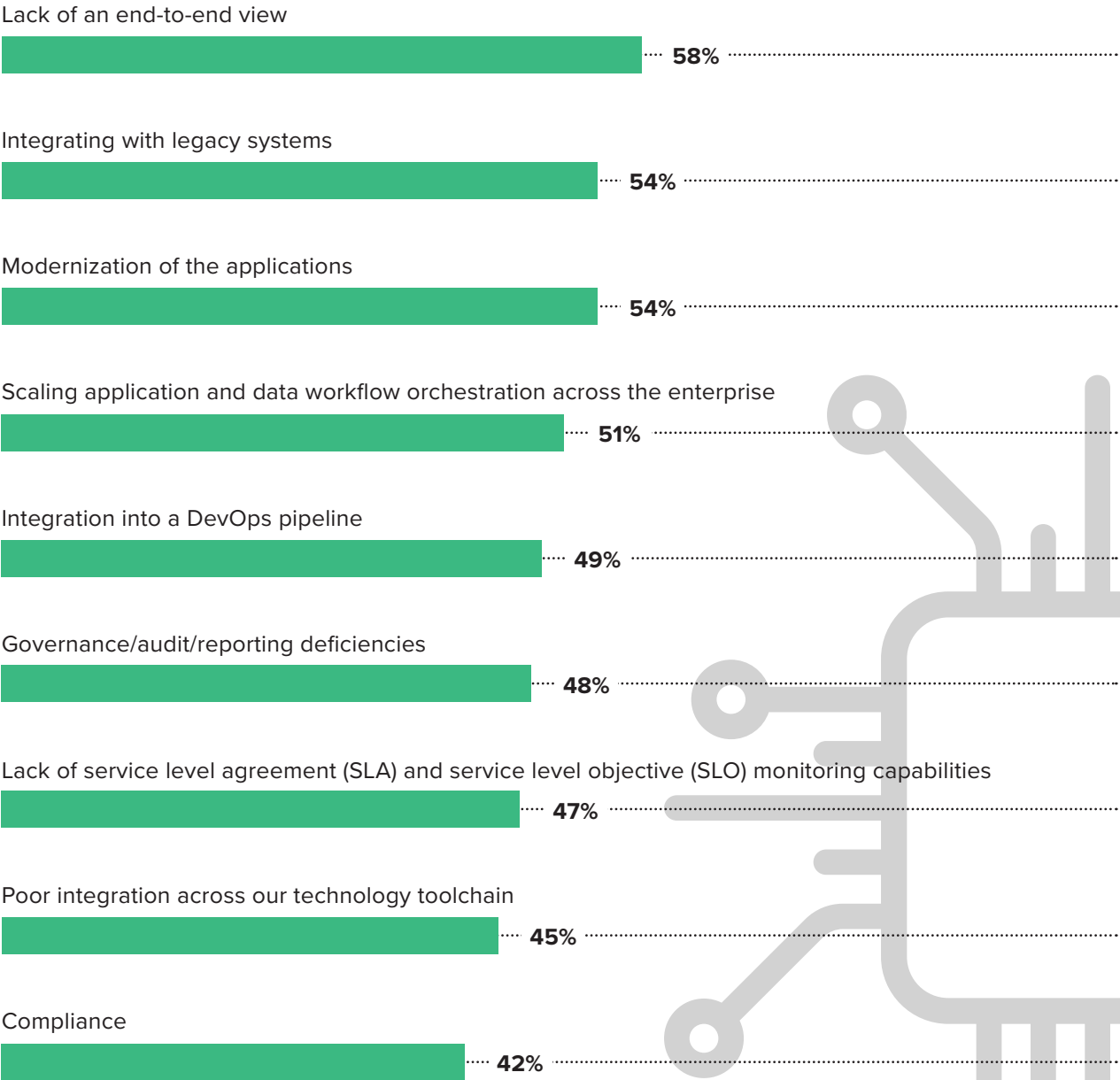


Figure 4

Lack Of Visibility And Integration Hinder Organizations



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Note: Selected variables shown
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

Application And Data Workflow Orchestration Delivers Top Benefits

There is no lack of potential benefits desired by current or future adopters of modern application and data workflow orchestration solutions. The list of appealing business objectives ranges from improving customer-focused business metrics to attaining goals for cost management, additional revenue, or market share.

Can organizations have it all? Undoubtedly, implementing and tuning application and data workflow orchestration is a process itself. Identifying and ranking these workflow orchestration objectives help enterprises to fine-tune their business rationale and set KPIs and metrics upon deployment. Here's a sampling of the benefits organizations expect to experience:

- **Upgrading to a single workflow solution will increase visibility and control, boost agility and speed, and help firms manage compliance regulations.** Respondents said deployment also enabled increased agility, improved release cycles, and greater operational efficiency. In fact, respondents believed that mean time to recovery (MTTR) would drop by 29% with workflow orchestration. That belief alone could bolster a business case.
- **Leveraging a modern application and data workflow orchestration solution brings tangible technical benefits.** Expected technical benefits included higher-quality data, improved reliability, reduced infrastructure complexity, faster updates, and increased control over workloads (see Figure 5). In quantifying these benefits, respondents expected an average increase of 22% in system availability, 26% faster releases and application updates, and 40% fewer defects (see Figure 6).

Modernizing application and data workflow orchestration will **transform the speed of releases and performance**, and provide enterprises with **better business agility.**



- **A modern application and data workflow orchestration solution also brings quantifiable business benefits.** The expected business benefits are no less appealing, including improved customer satisfaction, better data insights and predictive analysis, and gaining a competitive edge. Respondents estimated their organizations will be an average of 29% faster in responding to customer requests and see 20% faster time-to-market.

Figure 5

Modern Application And Data Workflow Orchestration Drives Many Benefits

TECHNICAL BENEFITS

1. Higher-quality data
2. Prevents or reduces shadow IT
3. Improves reliability and redundancy
Reduces infrastructure complexity
(fewer number of platforms to manage)
Faster customer updates
4. Increases control over workloads



BUSINESS BENEFITS

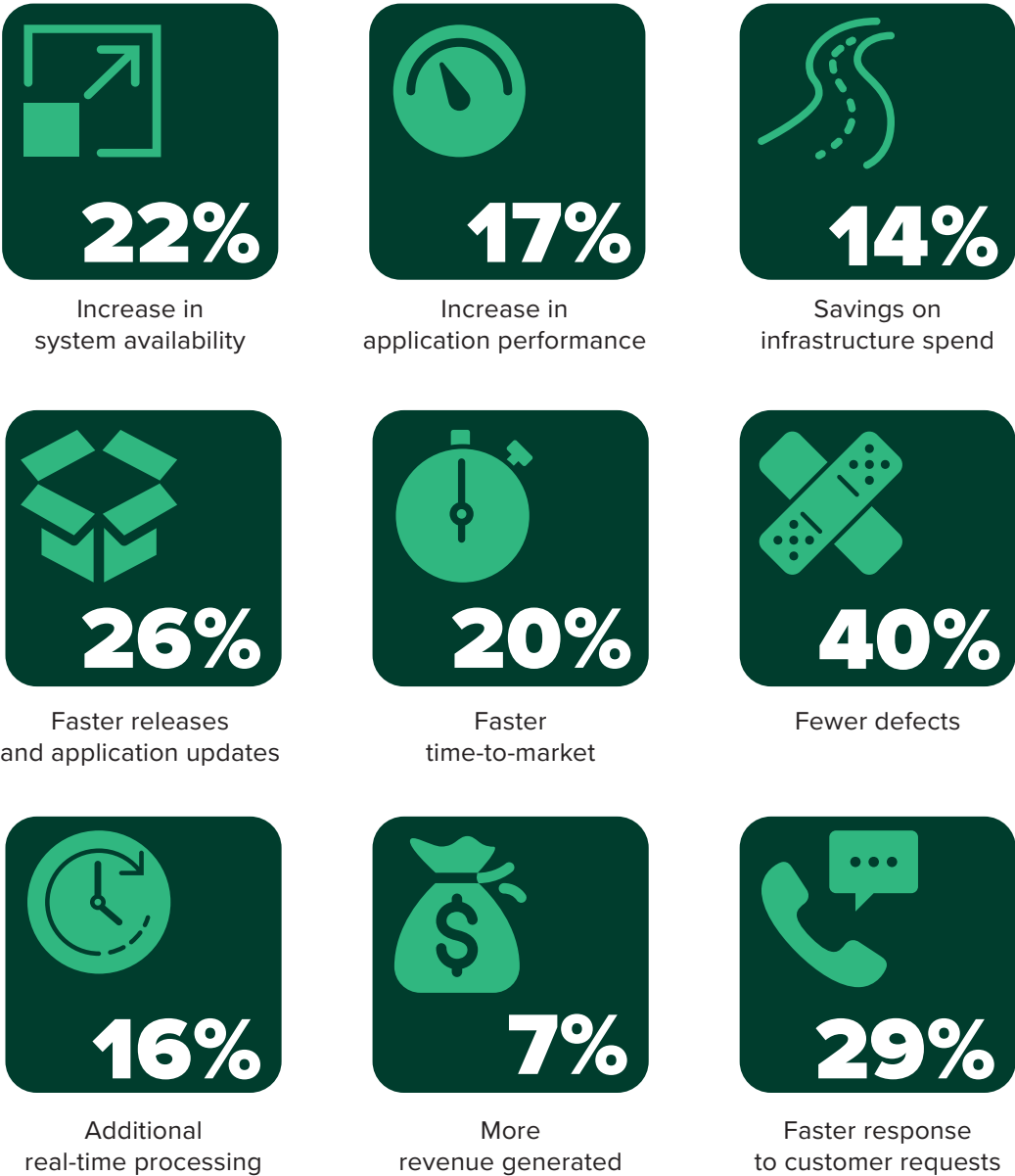
1. Improves our customer satisfaction metrics
2. Derives better data insights and predictive analysis of our customer base
3. Gains a competitive edge over emerging competitors
4. Builds a separate digital business, distinct from our existing business
Ability to reach new customer
5. Streamlines business processes



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

Figure 6

High Expectations For Modernizing Application And Data Workflow Orchestration



Base: 285 global IT managers and directors involved in IT ops and workflow automation
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, September 2021

Key Recommendations

The effort toward adopting modern application and data workflow orchestration tools is as much cultural as technological. The solutions enable flexibility but excel when paired with other automation toolsets. You must skill your workforce around automation dedicated to improving service, not project delivery.

Forrester's in-depth survey about application and data workflow orchestration yielded several important recommendations:

Rationalize automation tools and skill sets.

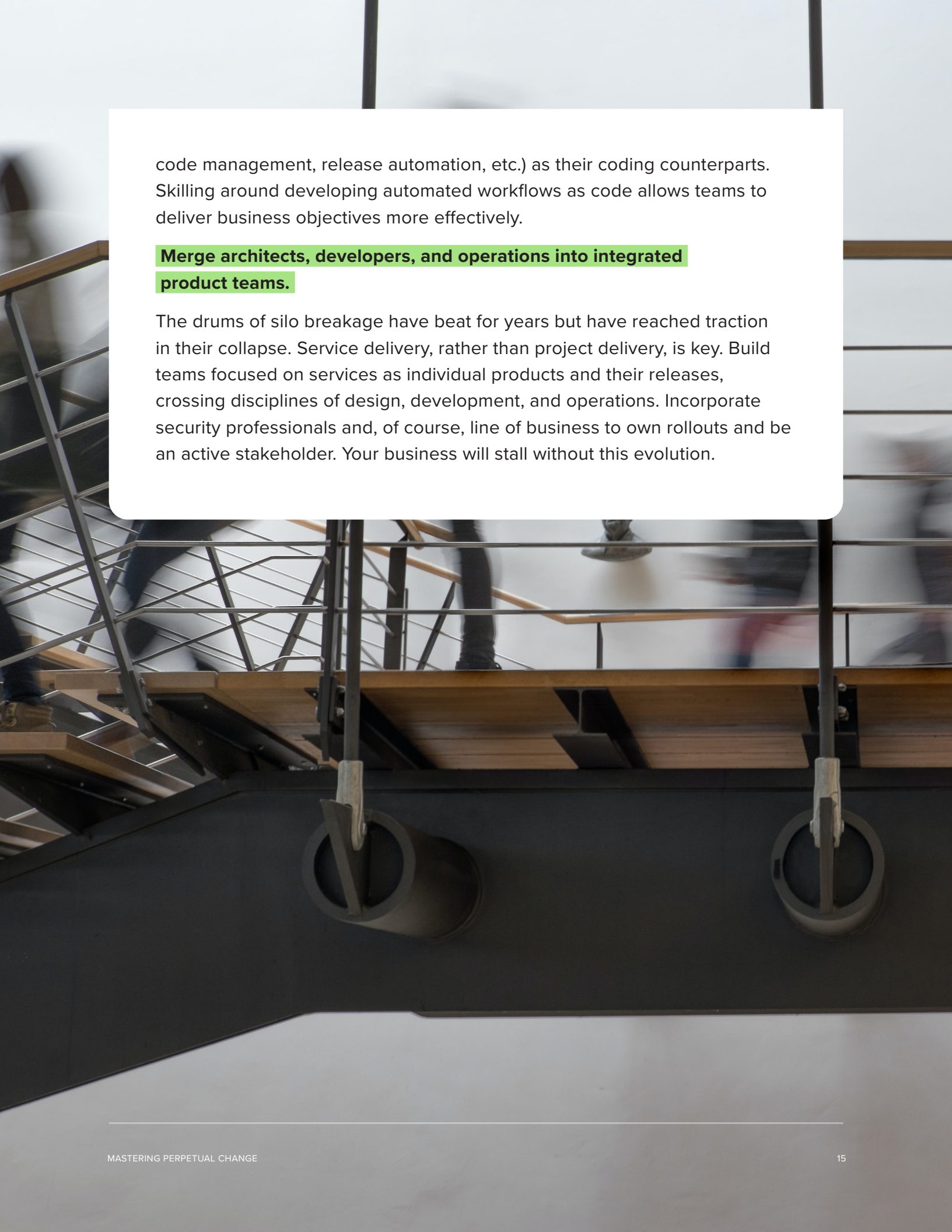
Many enterprises that have experimented with automation end up with islands, which occurs when different tools that achieve the same purpose are used in different parts of the organization. To best address this, conduct a rationalization effort centered around workflow orchestration. Determine what tools are best in class for your purposes and design your automation operating model around them. Build consensus around common workflows — do not dictate them.

Adopt RPA, DPA, CI/CD, and application and data workflow orchestration together.

While employing application and data workflow orchestration on its own can achieve gains, the combined impact of both unlocks their power. RPA automates the edge cases around workflow orchestration, while DPA automates the underlying business process. CI/CD permits the holistic nature of fully exploited modern workflow orchestration tools, tying specific workflows to service releases. When done right, application and data workflow orchestration becomes a systemwide proposition.

Skill your workforce around developer technologies.

While cloud has enabled an uptick in technology professionals attuned to application delivery, there is still work to be done. Operations managers are now developers, and must employ the same tricks of the trade (e.g., source



code management, release automation, etc.) as their coding counterparts. Skilling around developing automated workflows as code allows teams to deliver business objectives more effectively.

Merge architects, developers, and operations into integrated product teams.

The drums of silo breakage have beat for years but have reached traction in their collapse. Service delivery, rather than project delivery, is key. Build teams focused on services as individual products and their releases, crossing disciplines of design, development, and operations. Incorporate security professionals and, of course, line of business to own rollouts and be an active stakeholder. Your business will stall without this evolution.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 285 IT managers and directors at organizations with 1,000 employees in North America and Europe. The study began in August 2021 and was completed in September 2021.

Appendix B: Demographics

COUNTRY	
Canada	20%
United States	19%
United Kingdom	16%
France	15%
Germany	14%
Spain	8%
Portugal	8%

COMPANY SIZE	
1,000 to 4,999 employees	61%
5,000 to 19,999 employees	26%
20,000 employees or more	14%

RESPONDENT LEVEL	
Vice president (21%)	21%
Director (50%)	50%
Manager (29%)	29%

TOP 5 INDUSTRIES	
Technology and/or technology services	16%
Retail	12%
Manufacturing	9%
Financial services and/or insurance	9%
Energy, utilities, and/or waste management	6%

Note: Percentages may not total 100 because of rounding.



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