Integration and business automation by the numbers

Summary report from the Red Hat-Qualtrics survey

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Executive summary

"Integration" and "business automation" are terms that have been around for a long time, so it feels like everyone should know what they mean. In practice, though, these are fluid terms that can mean different things to different organizations, depending on their own IT structure, digital strategy, and corporate culture.

To explore these differences, Red Hat and Qualtrics surveyed a group of 399 participants from 19 countries across all geographical areas from May 30, 2019, through June 27, 2019. Respondents included IT architects, managers, directors, developers, and C-level executives who belonged to an organization with a minimum revenue of US$10 million.

This report looks at how organizations are defining integration and business automation, and—more importantly—how they are applying those technologies within their IT departments and business units. One consistent theme is that organizations see integration, business automation, data, and digital strategy as coexisting naturally: All of these elements have to cohere for an effective, growing business.

Trend lines

Data is a major theme	Culture and process come from the top	Organizations see themselves as data-driven
Data security is the top overall IT challenge, data privacy is the No. 2 challenge with public cloud adoption, and data integration is the IT approach used by the most organizations. Data-related technologies are the top 5 technologies deployed in line with business automation, from data warehousing to artificial intelligence and machine learning (AI/ML).	Changes related to culture—like introducing new processes or strategies—come from higher management positions in organizations. This is true even for development changes, like agile and DevOps. Changes related to technology tend to be driven by senior technical roles.	A majority of organizations (72%) described themselves as driven by data and analytics. This is backed up by wide adoption of data-related technologies like data integration (76%), data analytics (72%), and big data (64%).

Shifting opinions

When respondents were asked to define integration, they tended to focus on a unified view of data, saying things like integration is "a way to see data from different places in the same way from one common means." While the top-of-mind definition was related to data visualization, data dashboards are deployed by only 41% of respondents. The top reason for adopting integration was data integrity (69%), and the top organizational motivation was digital transformation (25%).

Similarly, respondents gave traditional reasons for using business automation. When asked to define what "business automation" is, respondents described it primarily related to efficiency and reducing reliance on manual intervention. However, when asked for their business motivations for deploying business automation technologies, the most common reasons were new data-driven initiatives like Internet of Things (IoT), AI/ML, and predictive analytics.

These findings show a renewed purpose for these technology areas, past the more traditional use cases, and a move more toward creating data-driven digital platforms.

Survey breakdown

This year's survey had a total of 399 participants from 19 countries across all geographical areas. The majority had more than 10 years of experience in IT and were in senior, decision-making roles.

Respondents had to belong to an organization with a minimum revenue of US$10 million.

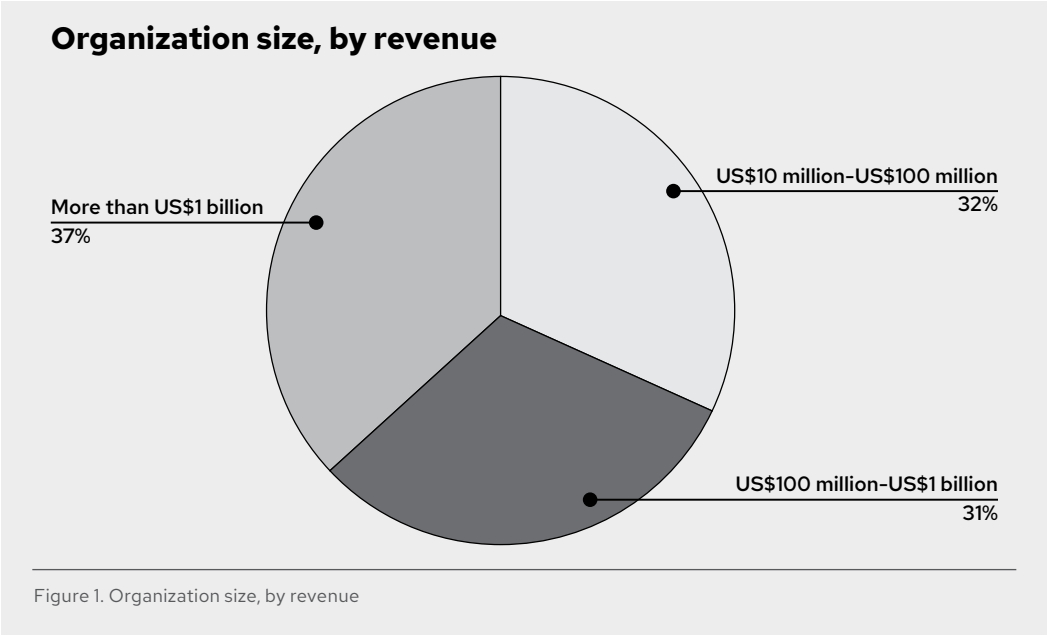

Figure 1. Organization size, by revenue

Years of experience

About half of respondents had a decade or more of experience and were in more senior roles, while another third had more than five years of experience. This seniority shows that these respondents have insight into their organizations' culture and processes in addition to experience with the technologies within their organizations.

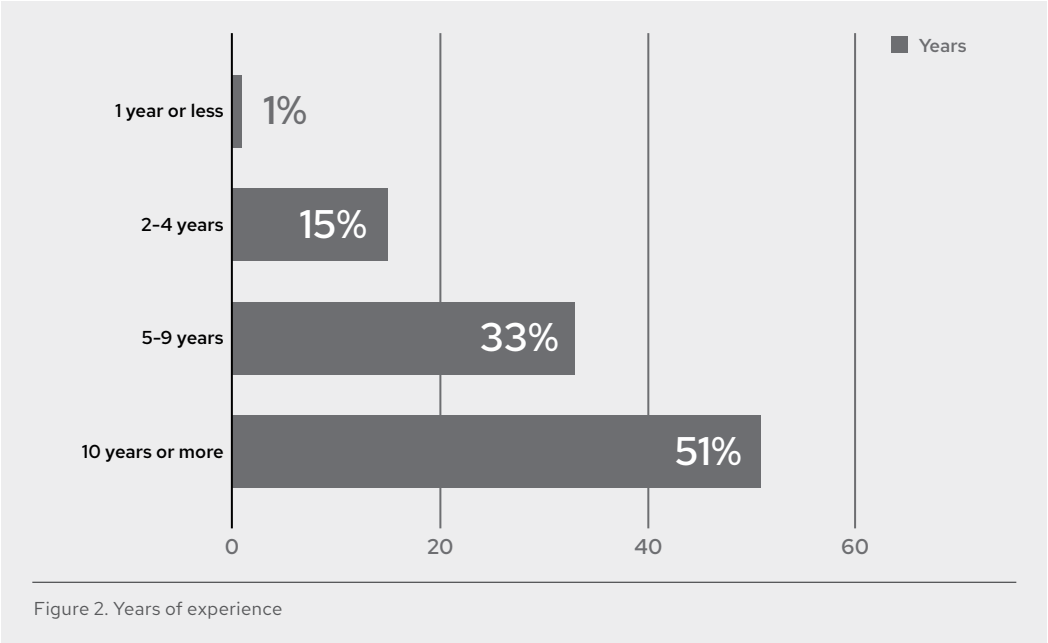

Figure 2. Years of experience

Area of expertise

Respondents came from a variety of different IT backgrounds, with the highest number having expertise in development (29%) and about a fifth with experience in cloud technologies. Most of the rest had experience in more traditional IT technologies like infrastructure and storage, while about 10% had experience in business intelligence.

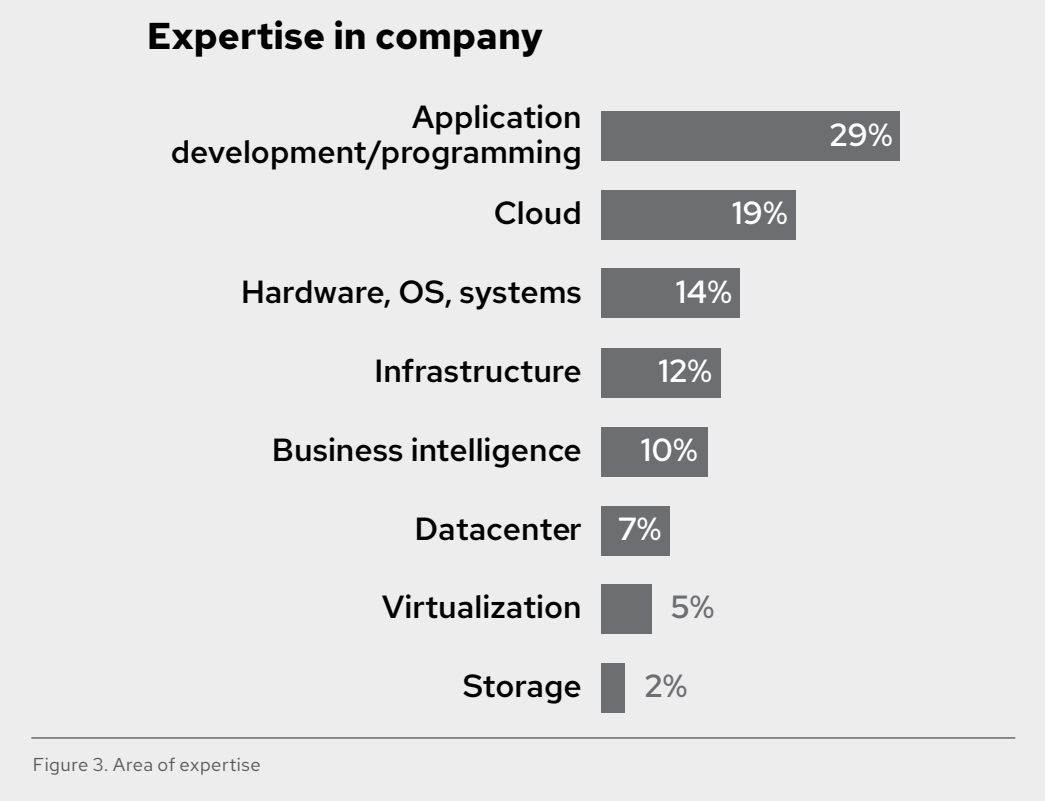

Figure 3. Area of expertise

Current role

Most respondents were from senior levels, especially IT management. Only 14% were currently working as developers.

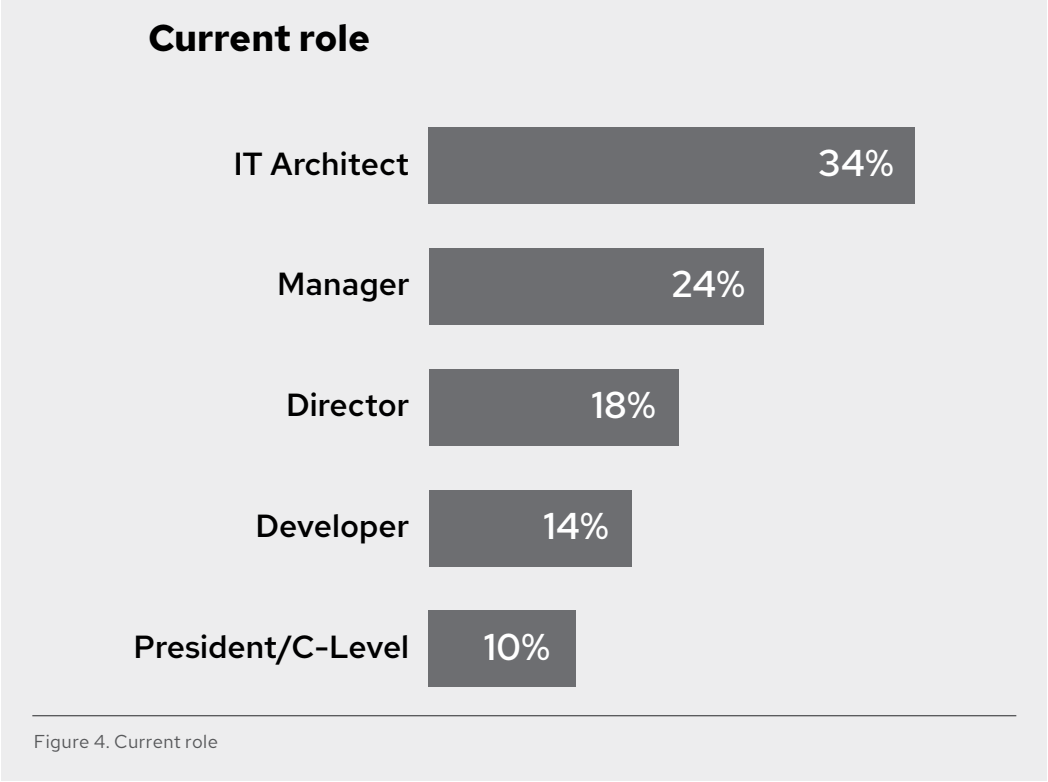

Figure 4. Current role

Geographic location

A plurality of respondents were from North America, but respondents came from all major geographies.

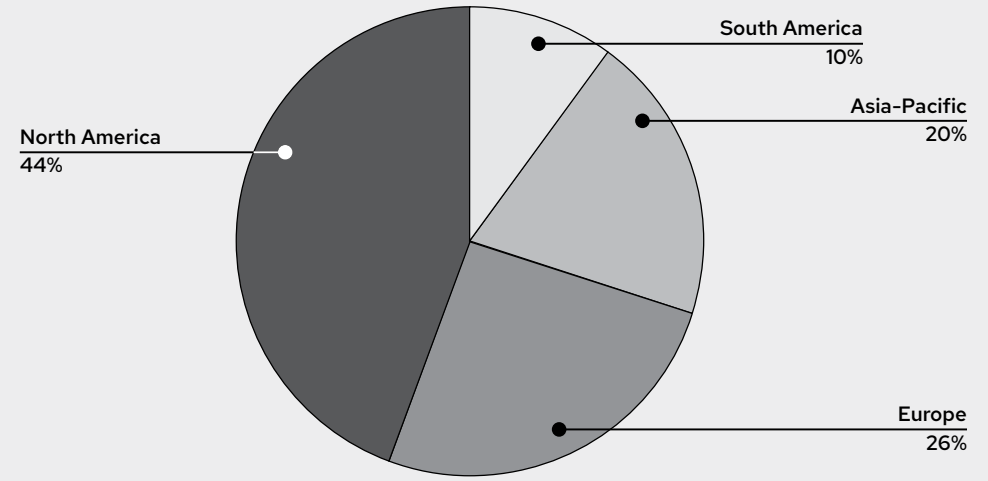

Figure 5. Geographic location

Identifying challenges and priorities

Several of the survey questions asked people why they are adopting certain technologies or what some of their biggest challenges are. One pattern that emerged is that while organizations might be focusing (and experiencing problems in) one area, the solution to those problems might lie in another technology. Similarly, organizations might identify a digital transformation initiative as a top priority, and the method to implement that initiative successfully requires integration or business automation.

This is especially true because of the importance of data-related challenges and priorities. With public cloud, the No. 2 and No. 3 identified issues relate to data: data privacy (44%) and aggregating data from multiple sources (28%). While this is a cloud problem, it has an integration solution. The top reasons that people use integration technologies are for digital transformation (25%) and data management (23%).

Top 5 overall IT challenges

The top identified challenge across the IT field was data security (65%), with aggregating data coming in third at 51%. Issues around budget and culture were ranked lower, even though they were still listed as concerns for specific types of IT initiatives.

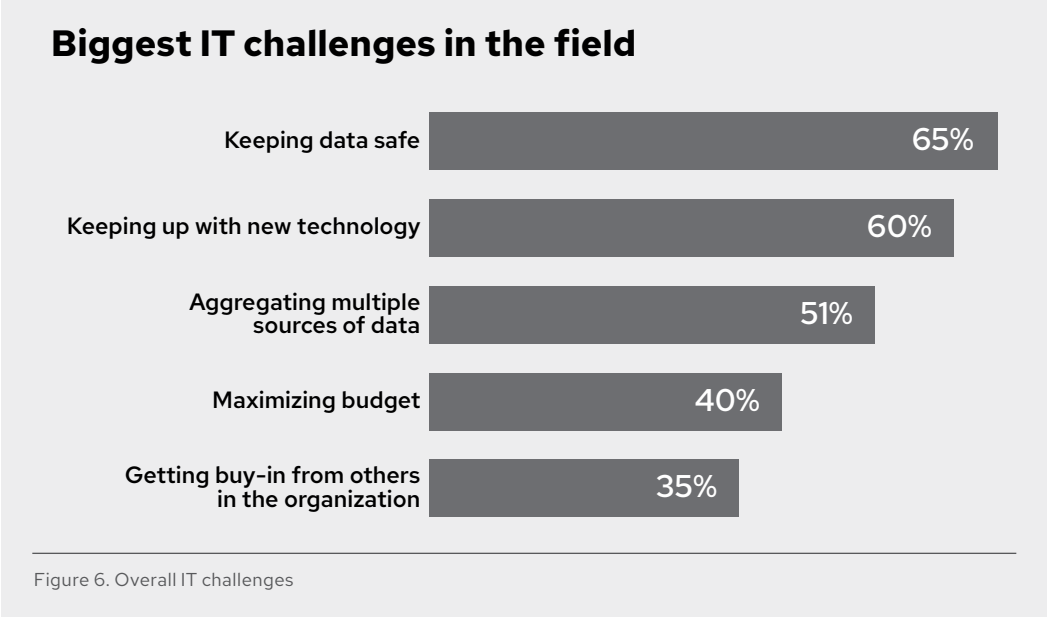

Figure 6. Overall IT challenges

Top 5 cloud integration challenges

Two of the top 5 challenges for public cloud use relate to data. While "lack of flexibility" can be very specific to an organization, it could also indicate the problems of segregated environments. The data and flexibility issues are underlying integration problems—they might present as a public cloud challenge, but the way to address the challenge is through integration and data strategy.

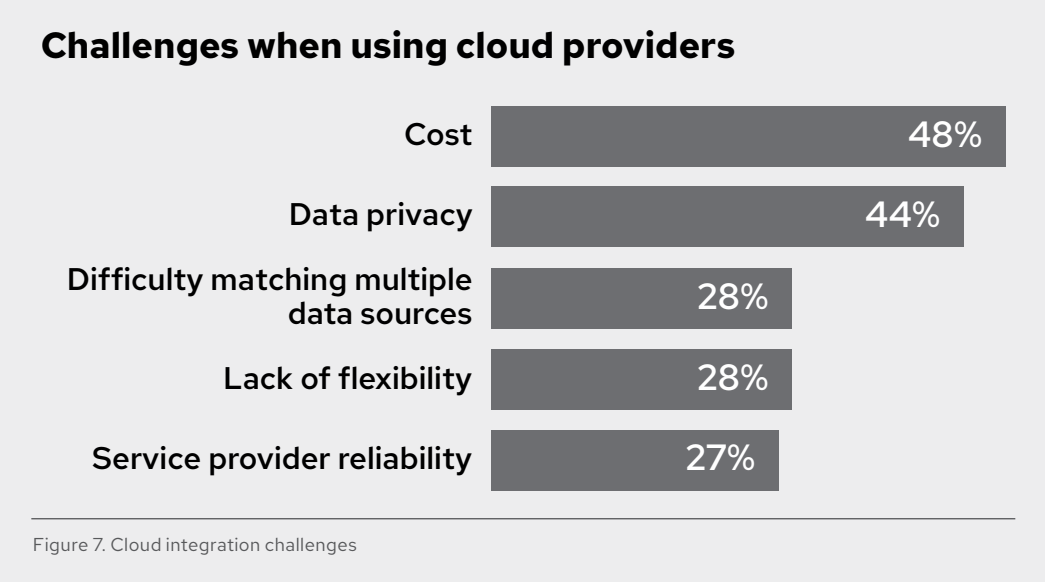

Figure 7. Cloud integration challenges

Why businesses adopt new technologies

For each of the technologies covered in the survey, there was a question about what business outcome was a motivation, including possible responses like productivity, speed of deployment, agility, and collaboration.

The top response by far was productivity, with it being the No. 1 motivation for every technology category:

- Containers: 78%
- Data integration: 75%
- AI/ML: 74%
- IoT: 72%
- Public cloud: 71%

Containers had three desired outcomes that ranked 70% or higher: productivity (78%), scalability (73%), and speed of deployment (70%).

Other business objectives ranked lower overall, including speed of service and deployment (60%), agility (60%), scalability (54%), team collaboration (51%), team autonomy (42%), and resilience (36%).

Integration is tied to data and transformation

There is an increasing emphasis on data and digital initiatives as reasons that organizations adopt both general integration and data integration technologies, especially with motivations around digital transformation, analytics, and business strategy.

This focus on data shows the shift in thinking around the role of integration in both the business priorities and the IT landscape—this integration is no longer a "one and done" approach to try to get point-to-point connections, but an ongoing architectural concern that has to align with business goals.

Top reasons for adopting integration (general)

The two top reasons for adopting integration technologies are digital transformation initiatives (25%) and data management (23%), far outstripping more traditional reasons for integration like mergers and acquisitions (5%). These more strategic motivations also top more IT-centric concerns like public cloud adoption or application development (both at 14%).

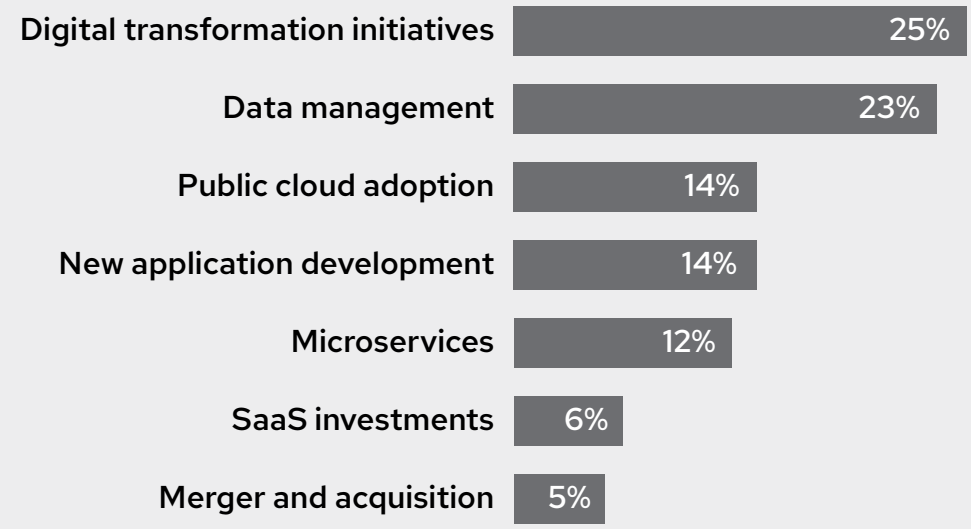

Figure 8. Primary motivation for adopting integration

Top reasons for adopting data integration

Organizations are overwhelmingly adopting data integration technologies for more traditional reasons: data integrity (69%), operational efficiency (64%), and dashboards (41%). However, more strategic reasons are starting to emerge as critical factors as well, most notably faster analytics (56%) and informing business strategy (50%).

79%
are extremely or very familiar with data Integration

91%
believe integration is critical to successful digital leadership

Reasons for using data integration

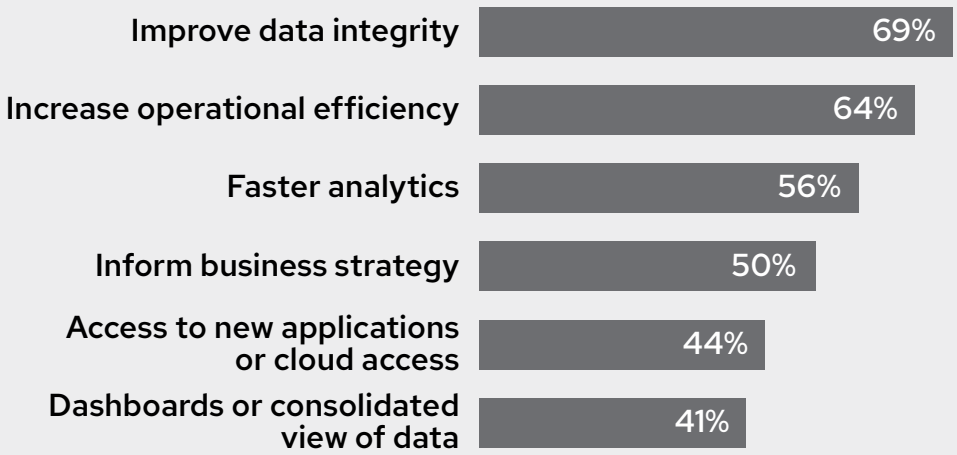

Figure 9. Reasons for using data integration

"There's no shortage of data available these days; the trick is working out what really matters to your business and making the most of it."

Survey respondent

Where does data integration have the largest impact?

Data integration choices have the largest impact on technology, IT resources, and overall architectural approaches. They have the least impact on culture, which aligns with other responses on organization and culture that indicate that culture leads technology rather than the other way around.

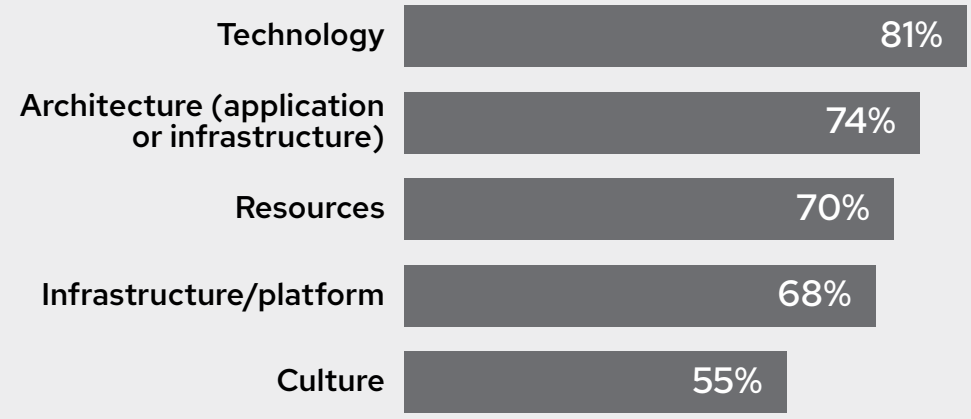

Figure 10. Areas impacted by data integration

Top challenges with data integration

We gave respondents the opportunity to give their own general list of challenges around data integration, and a handful of themes were repeated consistently:

- Security
- Conflicting data and schema
- Making sure IT and the business are on the same page
- Connecting to legacy systems and being able to transform legacy data formats
- A way to see data from different places in the same way
- Combining data from different sources so that it's meaningful and reliable

Identifying data for customer experience

A recurring theme is the importance of aggregating data from multiple sources. The overwhelming majority of organizations (84%) have multiple ways that they interact with customers, and each of those ways can generate different kinds of data. The most common method is the most passive form of interaction: through a company website. Most of the other forms of interaction (phone, email, in person) are unstructured, which makes filtering, aggregating, and identifying relevant data even more challenging.

84%
of companies have multiple ways to interact with customers

Top 5 ways to interact with customers

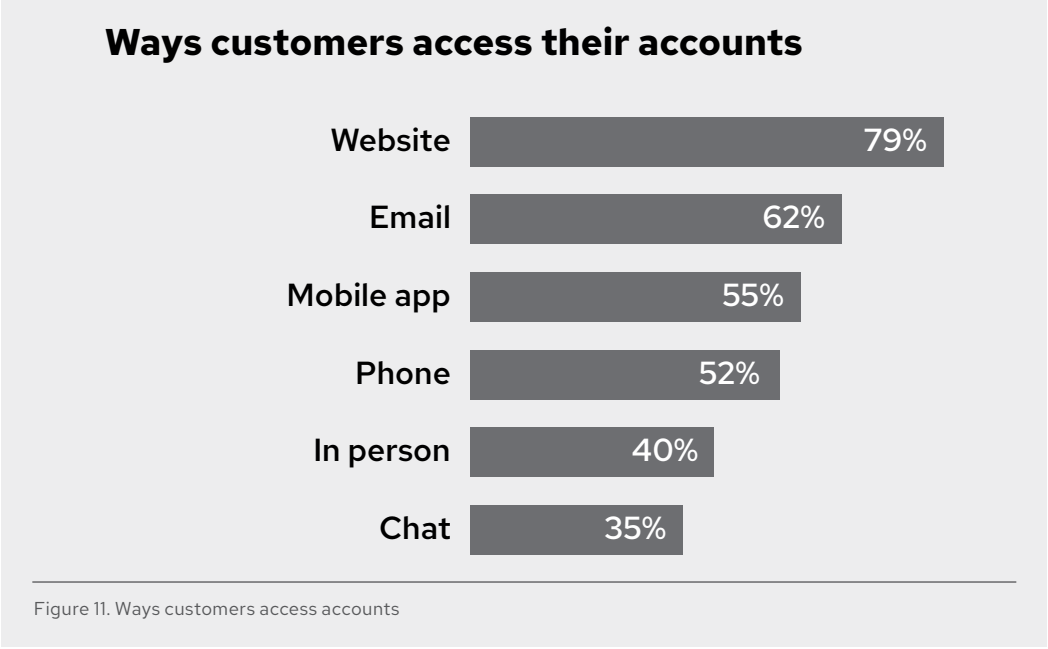

Figure 11. Ways customers access accounts

Top 5 most important types of real-time data

Respondents listed sales data as more important to have in real time than support-related data like service reports and customer feedback.

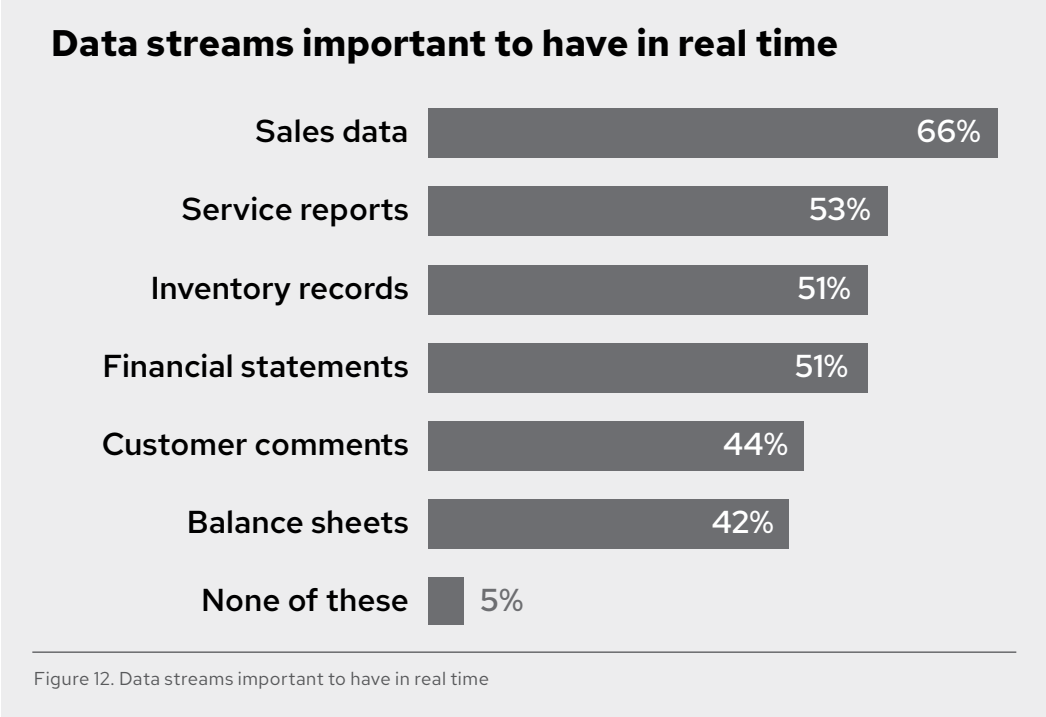

Figure 12. Data streams important to have in real time

Business automation is central to digital growth

We saw a similar trend with business automation as we did with integration. When respondents named reasons why they were using business automation technologies, they gave more traditional reasons like improving operational efficiency (81%) and workflow automation (70%). This was also reflected in how some of them defined business automation. For example, one respondent's definition was "automating the integration of information, data, and processes to save money and offer control."

However, we also see a theme around digital transformation in the business automation responses. Adopting new technology was cited as a reason for business automation by 60% of respondents. And when asked to define business automation, respondents pointed to things like using machine learning to detect fraud and unusual behavior, as well as using business automation to manage strategy and growth.

All regions and business sizes know business automation

Business automation was recognized by more respondents than any other technology and is either in use or in planning by nearly all of them (97%). Of respondents:

- **80% are extremely or very familiar with business automation.**
- **66% have adopted business automation.**
- **31% are planning to adopt business automation.**

Top 5 reasons for using business automation

There is a split between traditional and strategic reasons for adoption of business automation, similar to the reasons for adopting data integration. The dominant reasons are still the core, traditional reasons for business automation: operational efficiency (81%), workflow automation (70%), and cost reduction (68%). However, rounding out the top 5 are reasons that are increasingly important within digital transformation initiatives: adopting new technologies and improving customer responsiveness (both 60%).

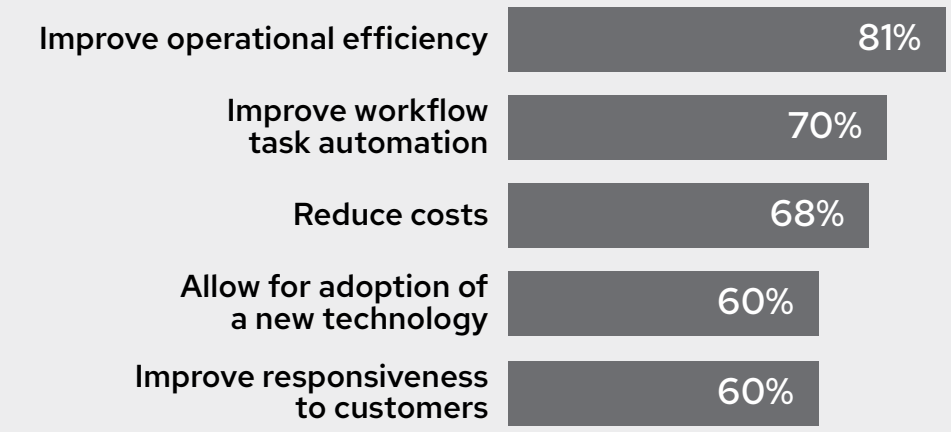

Figure 13. Reasons for adopting business automation

Top challenges for business automation

There are nuances to the different challenges in business automation, but they break down into two main categories: complexity in the workflows and problems in organizational communication. Process automation requires clarity on both the business side and the IT side of defining workflows, which requires strong cross-team communication and objectives.

Figure 14. Challenges when using business automation

Technologies employed along with business automation

Business automation technologies underlie many data and digital initiatives, and this factor is apparent in how frequently business automation is used in parallel with initiatives like data analytics (72%), AI/ML (57%), and predictive analytics (48%). These technologies do not occur in isolation, and taking a broader, more strategic approach to business automation can keep these other related initiatives in perspective.

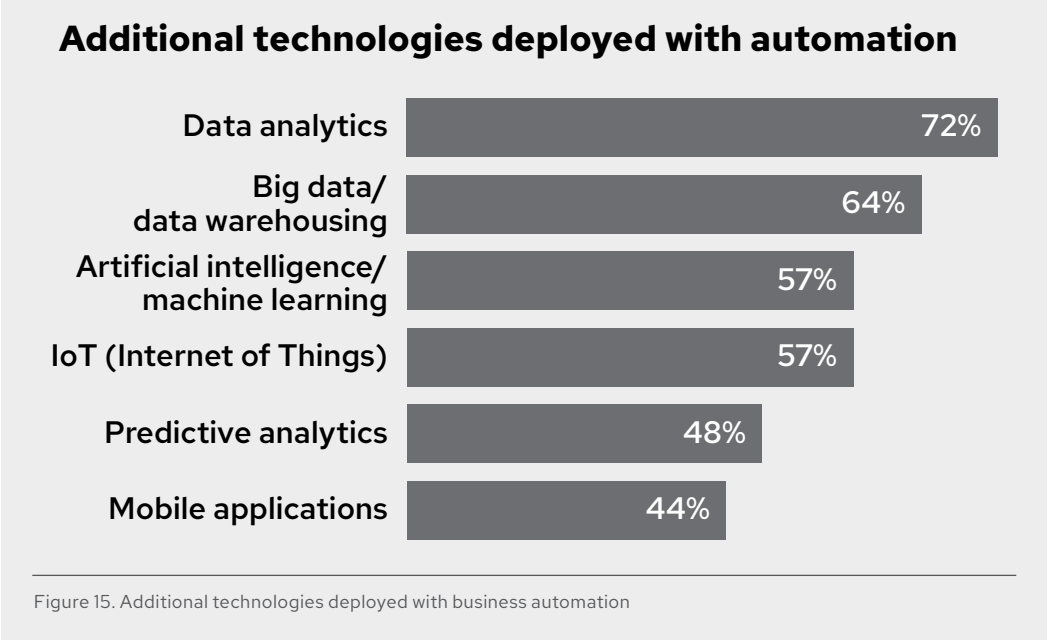

Figure 15. Additional technologies deployed with business automation

How do organizations see themselves?

72%
describe themselves as data- or analytics-driven

69%
view IT as a collaborative business partner

Change is cultural, not technological

The respondents for the integration and business automation survey covered a wide range of IT roles, from senior developers to C-level executives. Every question was broken out by role for responses, and a couple of questions showed that clear and different influences exist over culture and process, depending on role within the organization.

Architects had a much stronger influence over technology and (not surprisingly) IT architecture. Meanwhile, senior executives had a stronger influence over process and team structure.

How it fits in the larger organization

One of the top ways that respondents described their IT department was that the department's IT strategy aligns with the company's business strategy (69%). This sentiment is reflected in other responses, like half of all respondents using integration technologies to inform business strategy. Real-time data, automated workflows, and strategy are all closely aligned and reflect how more than two-thirds of respondents describe the role of their IT departments.

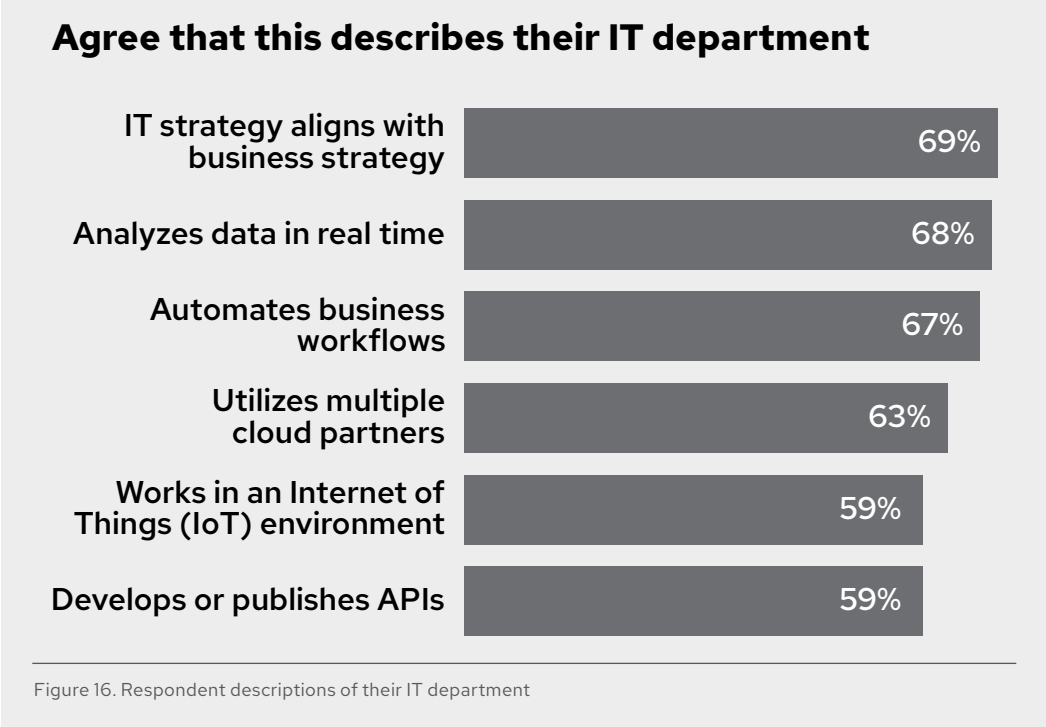

Figure 16. Respondent descriptions of their IT department

Who leads data integration?

Integration is most strongly an architectural issue, with nearly one-third of respondents stating that architects lead integration within their organizations. While this finding also correlates to the percentage of architects in the survey group (34%), other groups diverged from their sample percentages, with C-level executives outperforming their representation (16% vs. 10%) and managers underperforming compared with their representation (15% vs. 24%). These results likely reflect how integration is perceived within the organization—either from an architectural perspective (skewing toward architects) or from a data strategy perspective (skewing toward executives and directors).

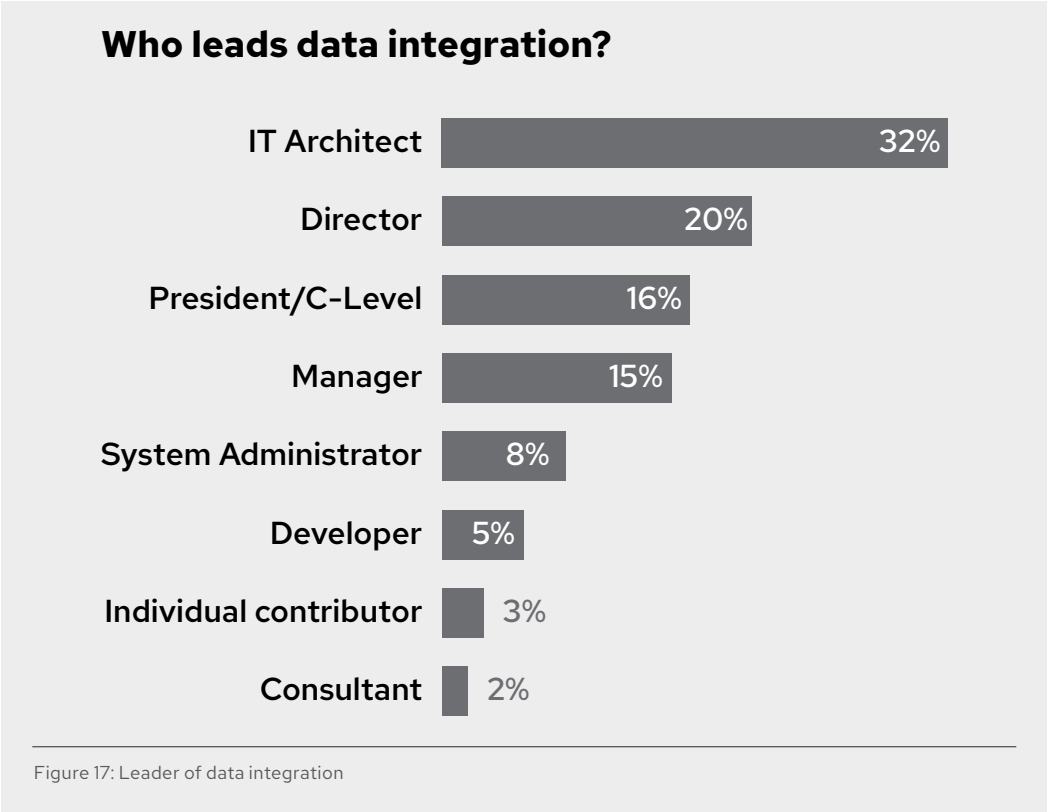

Figure 17: Leader of data integration

Process change vs. culture change

When asked about what technologies and processes had been implemented within the past year, architects and IT decision makers were largely in agreement. However, they differed when asked about what they are planning to implement. Architects are focused on deploying new architectures (microservices), whereas decision makers are more likely to focus on process changes.

Implementations in the last 12 months

Architects and IT decision makers were largely in agreement about what changes had been implemented in the past year, with architects usually a couple of points higher. Examples are with implementing new DevOps processes (37% vs. 35%) and using agile development (44% vs. 41%).

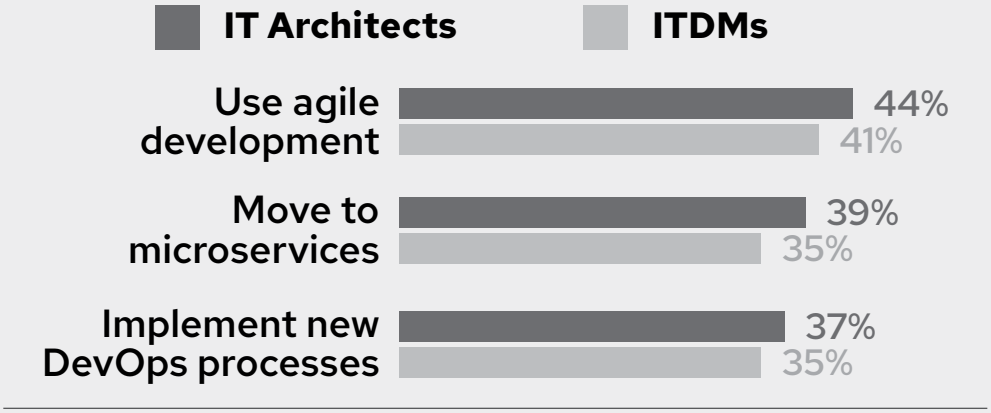

Figure 18. Changes implemented in the past 12 months

Plan to implement within the next 12 months

The bigger split in opinions between more technical architects and more business-driven decision makers was in what will be implemented within the next year. Architects were much more likely to focus on technology change, voting for moving to microservices at 26% vs. 20% for the decision makers. The IT decision makers, however, were more focused on process changes, planning instead for agile (23% vs. 19%) and DevOps (28% vs. 21%).

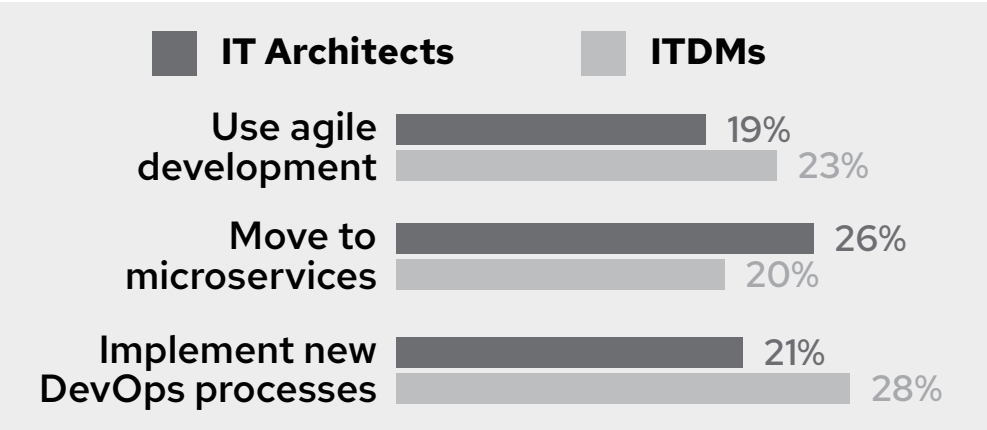

Figure 19. Changes to implement in the next 12 months

North America
1 888 REDHAT1
www.redhat.com

Europe, Middle East, and Africa
00800 7334 2835
europe@redhat.com

Asia Pacific
+65 6490 4200
apac@redhat.com

Latin America
+54 11 4329 7300
info-latam@redhat.com

facebook.com/redhatinc
@RedHat
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