

Gartner Research

State of I&O Automation: 5 Survey Insights

Infrastructure and Operations Research Team

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State of I&O Automation: 5 Survey Insights

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Initiatives: Infrastructure, Operations and Cloud Management

Gartner surveyed 304 infrastructure and operations leaders to understand the state of I&O automation. Learn where and how I&O leaders deploy automation, common obstacles they face, some success factors and the skills required to execute on automation.

Additional Perspectives

- [Summary Translation: State of I&O Automation: 5 Survey Insights \(27 September 2022\)](#)

Overview

Key Findings

- Only 21% of I&O leaders report high levels of success in their automation endeavors.
- While I&O leaders find automating operational activities valuable, they are more likely to automate deployment activities and realize value from these deployment-related initiatives.
- I&O leaders struggle to estimate automation ROI; shift the workforce mindset to be more agile, iterative and consumer-centric; improve processes; and acquire automation skills.
- Most I&O leaders rely on feasibility and immediate business impact to guide automation decisions, while few consider innovation or potential value synergies like reusability.
- To successfully execute their automation projects, teams turn to development and product management skills.

Recommendations

To successfully manage I&O automation:

- Automate deployment, but don't neglect automating valuable operational opportunities such as change management, vulnerability remediation, and backup and disaster recovery.
- Lay foundations for success by determining automation's potential value, improving processes before automating and equipping your workforce with critical automation skills.
- Look beyond short-term considerations in automation investment decisions.
- Build agile and iterative ways of working to ensure adaptive automation.

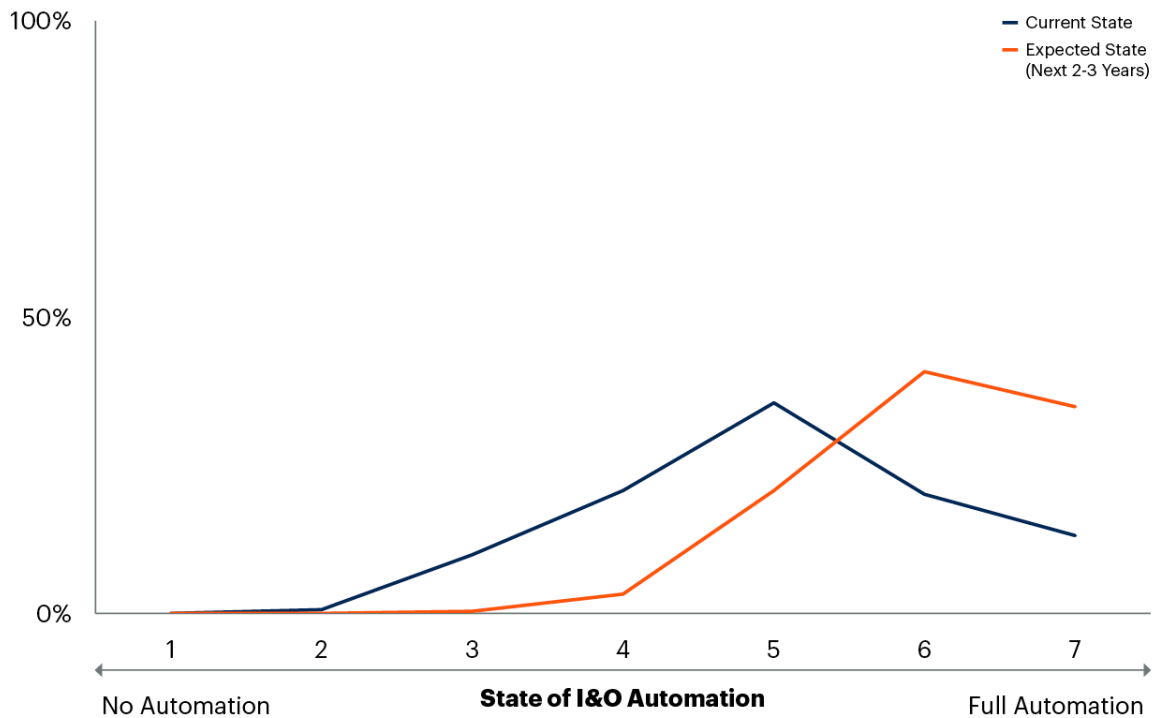
Data Insights

I&O leaders have turned to automation solutions to meet new and evolving requirements. In Gartner's 2022 Adaptive Automation in I&O Survey, two out of three respondents report having some high or full automation in their function, and 85% of those that do not have any full automation expect to become more automated in the next two to three years (see Figure 1).

Figure 1: I&O Leaders' Automation Appetite Is Strong and Growing

I&O Leaders' Automation Appetite Is Strong and Growing

Percentage of Respondents Selecting Each State of I&O Automation



n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: What is the current state of automation within your IT I&O organization? What is the expected state in the next 2-3 years? Please consider all automation of infrastructure deployment and/or infrastructure operation workflows within your IT I&O organization.

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Use the key findings in this report to uncover the potential value of automation across the various I&O functional domains, common obstacles, selection criteria, and skills necessary to execute your automation initiatives.

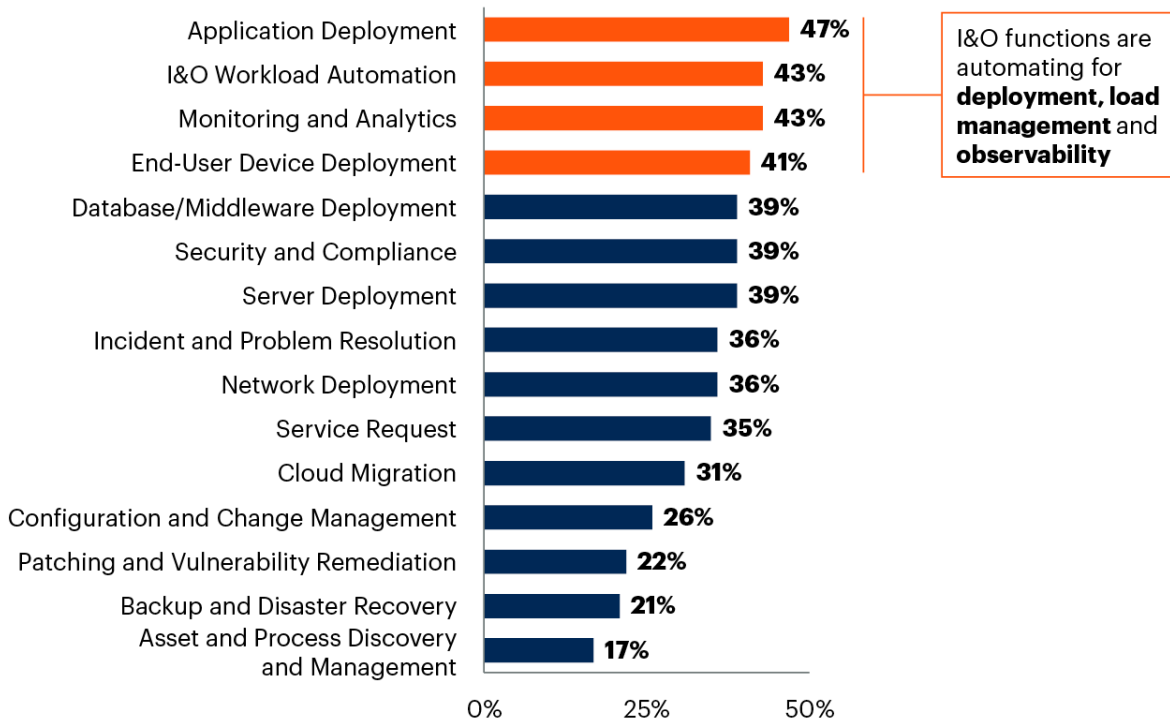
Automation Is More Prevalent in Infrastructure Deployment Workflows

The prevalence of automation solutions varies over most of the I&O functional domain areas, from application deployment to operational work. Automation is often found within application deployment workflow, workload automation (e.g., automatic load balancing), and monitoring and analytics (see Figure 2). However, when considering the full set of operational and deployment domains, I&O leaders are, on average, more likely to automate deployment over operations workflows.

Figure 2: Automate to Deploy and Manage Infrastructure

Automate to Deploy and Manage Infrastructure

Percentage of Respondents Indicating Where I&O Automation Primarily Occurs



n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: Where does automation primarily occur in the following IT infrastructure deployment and/or infrastructure operation workflows within your IT I&O organization? Select all that apply.

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Don't Neglect Valuable Operational Opportunities

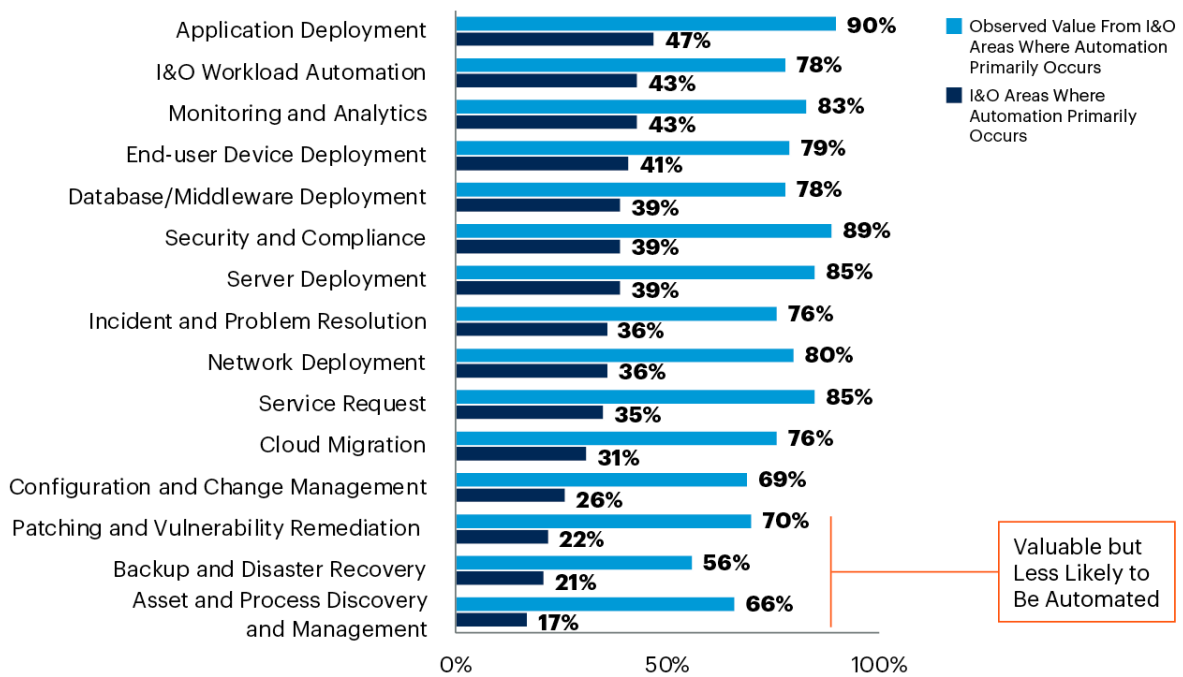
Most respondents report their efforts as impactful and valuable in automating application deployment, security compliance and server deployment (see Figure 3). As organizations work to reduce friction found at the intersection of I&O and its technology-producing consumers, deployment domains have been a natural focus point of automation activities. However, the rise of DevOps, Agile and site reliability engineering (SRE) has led to more automation within operational domains like monitoring and analytics and incident problem resolution.

Yet other operational domains — such as configuration and change management, patching and vulnerability remediation, backup and disaster recovery, and asset and process discovery and management — are automated less often. While still seen as potentially valuable, it can be difficult to justify investments in these domains due to more indirect returns on outcomes.

Figure 3: Expand Automation Horizons to More Operational Domains

Expand Automation Horizons to More Operational Domains

Percentage of Respondents



n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: Where does automation primarily occur in the following IT infrastructure deployment and/or infrastructure operation workflows within your IT I&O organization? Select all that apply.

Q: Where has automation provided the greatest value or impact within your IT I&O organization? Please rank up to 5 items in order of value or impact, with 1 being "the most valuable or impactful".

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Prepare for Common Automation Obstacles

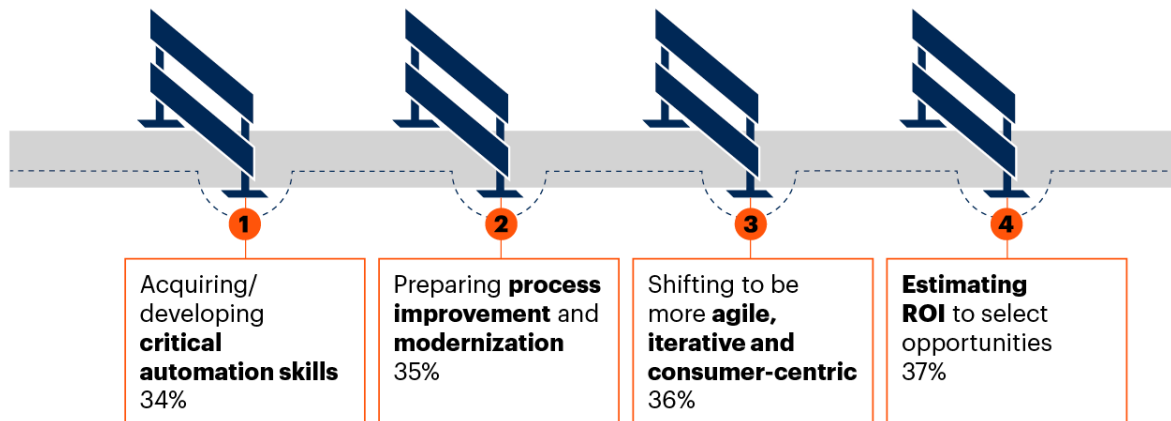
I&O leaders face a range of informational, mindset, organizational and resource obstacles in their automation journey. As a result, when asked to report the performance of their automation initiatives, only 21% of respondents reported high levels of success in their automation endeavors.

The most common challenges include estimating ROI in order to select best case opportunities, changing ways of working to more iterative consumer-centric approaches, improving legacy processes and infrastructure, and developing and acquiring relevant skills (see Figure 4).

Figure 4: Prepare for I&O Automation Journey Roadblocks

Prepare for Common I&O Automation Journey Roadblocks

Percentage of Respondents Selecting Obstacle as a Top Internal Barrier



n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: Which of the following internal barriers have presented the greatest obstacles to your IT I&O organization's ability to identify, initiate, develop, and/or realize full value from automation initiatives over the past 12 months? Select top 5.

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I&O leaders can prepare for these impediments as they build automation strategies. Take the time to determine the value these initiatives bring to I&O, I&O consumers and the business. Focus on internal mindset transformation in addition to external stakeholder support, and secure funding for foundational process simplification and talent management.

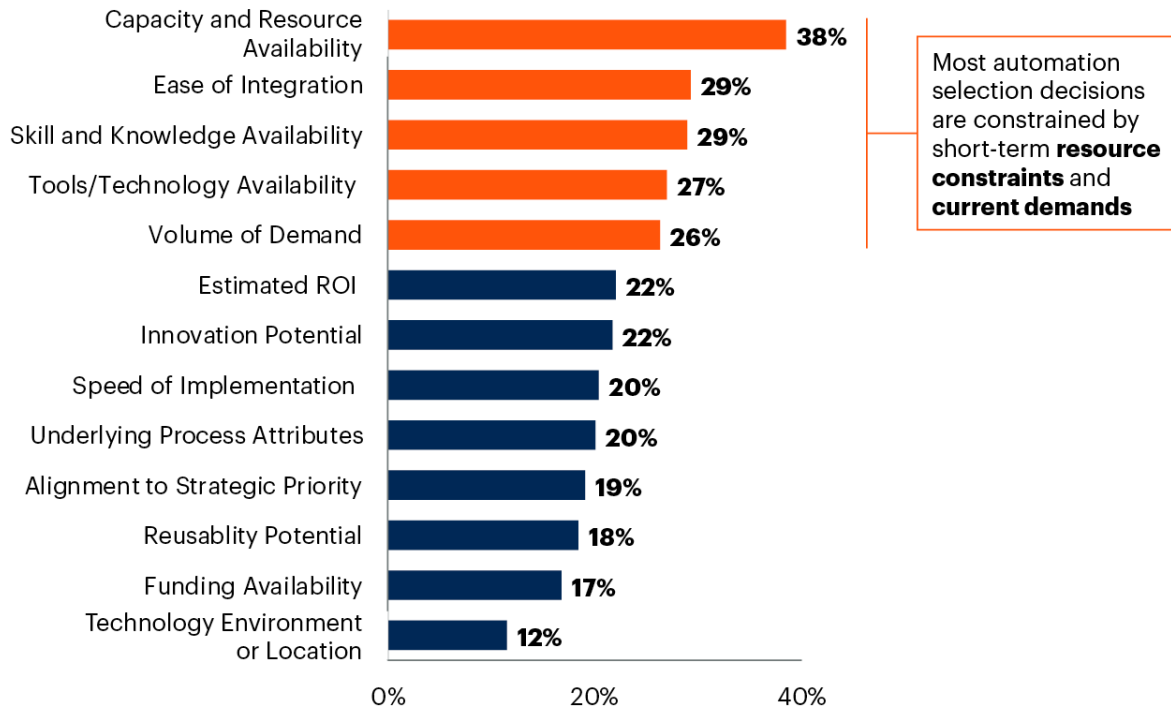
Look Beyond Short-Term Considerations When Making Automation Investment Decisions

When asked about the decision criteria for selecting automation initiatives (see Figure 5), respondents tend to point to feasibility (e.g., capacity, skill or tool availability) and demand volume. To realize the full value of automation, I&O leaders need to also incorporate future-focused criteria in their selection processes. I&O leaders can extract more future returns from their automation investments if they prioritize initiatives that are reusable and likely to support innovation and emerging business priorities.

Figure 5: Investment Decisions Focus on Feasibility and Demand

Investment Decisions Focus on Feasibility and Demand

Percentage of Respondents Indicating Criteria as a Top Consideration to Identify Initiatives



Most automation selection decisions are constrained by short-term **resource constraints** and **current demands**

n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: Which of the following criteria does your IT I&O organization consider when identifying automation initiatives? Select top three.

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Execute Automation With Critical Automation Skills

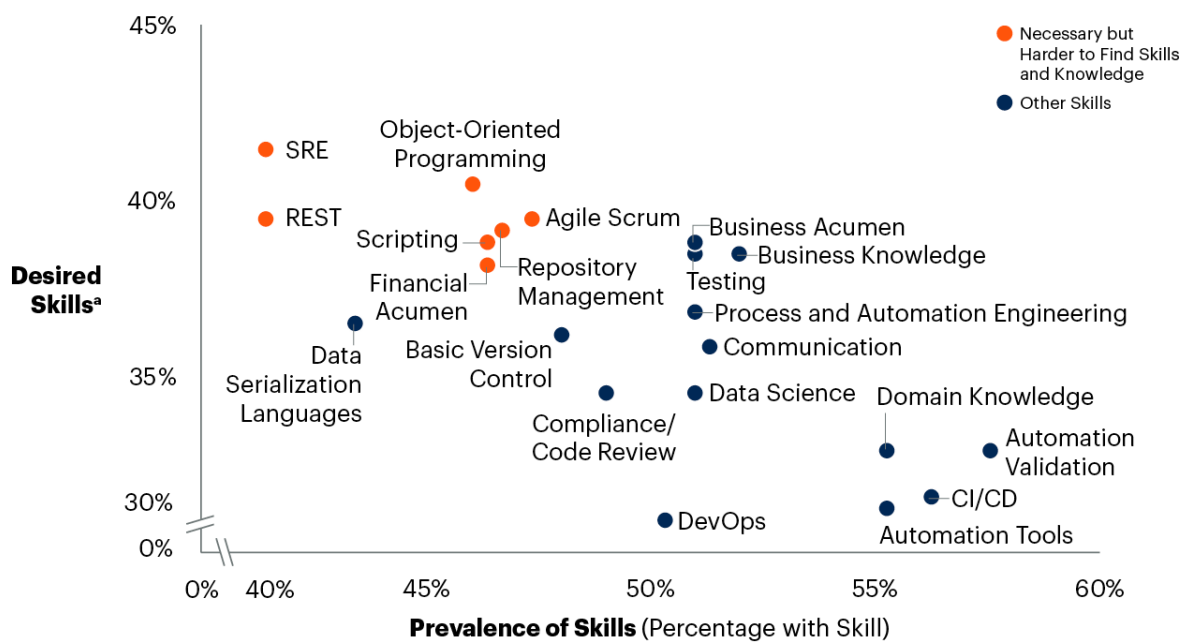
Automation initiatives owned by domain-specific experts that grow from the bottom up are more likely to succeed than top-down, mandate-driven projects. However, for automation to occur organically across the function, practitioners need to be armed with essential knowledge and skills, including software development skills as well as the abilities to manage automation like a product. Teams implementing automation must be able to select and apply a range of tools, navigate complex workflow designs, conduct validation and facilitate collaboration.

Our findings show that automation teams should have access to commonly available core skills such as business knowledge, automation engineering, testing and validation. I&O leaders also require skills that are harder to find but critical to increase initiatives' yield. The objective is to target and gradually grow skills like SRE, object-oriented programming, scripting, representational state transfer (REST), Agile or Scrum practices, repository management, and financial acumen.

Figure 6. Plan for Critical Automation Skills

Plan for Critical Automation Skills

Prevalence of and Demand for Automation Skills and Knowledge in I&O Automation Teams



n = 304 senior IT I&O leaders, their peers and direct reports

Source: 2022 Gartner Adaptive Automation in I&O Survey

Q: Which of the following skill(s) and knowledge exist in your IT I&O automation team(s) or among the individual(s) responsible for automation within your IT I&O organization? For skills and knowledge that do not exist, do you consider the skill and knowledge necessary to successfully execute on automation initiatives?

* (Percentage Selecting Skill as Necessary but Missing)

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Conclusion

I&O leaders responsible for automation must:

- Create an automation strategy that builds a portfolio of initiatives across both operations and deployment domains.

- Recognize that successful automation requires knowledge of automation value possibilities and attention to related people and processes.
- Drive prioritization decisions with a long-term perspective to produce a flexible and interconnected portfolio of initiatives.
- Continue to develop and spread critical software engineering and product management skills to grow automation capabilities across the I&O function.

Evidence

Gartner's 2022 Adaptive Automation in Infrastructure & Operations Survey was conducted April through May 2022 among 304 respondents from North America, EMEA and APAC, across industries and companies with \$1 billion or more annual revenue. Qualified respondents were senior IT I&O leaders, their peers or direct reports with IT automation initiatives within their scope of responsibilities.

Recommended by the Author

Some documents may not be available as part of your current Gartner subscription.

Ignition Guide to Measuring the Success of I&O Automation Initiatives

Infographic: Benchmarking I&O Automation Activities – What Most Mature Organizations Do Differently

Case Study: Jump-Start Your Infrastructure-as-Code Journey (Inspire Brands)

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