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Stop Fighting Fires: Leverage AIOps For More Proactive Mainframe Monitoring



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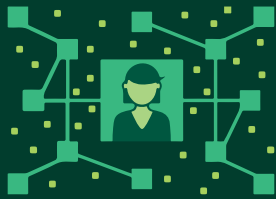
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Executive Summary



More than 70% of mainframe decision-makers indicated that incidents have impact before their organizations are even able to detect them.



Many respondents said their organization's top mainframe priority during the next two years is to implement new AI/ML tools.

If recent events have taught us anything, it's that we must be resilient to survive. Having the ability to pivot, adopt new ways of doing business, and evolve with changes created by outside factors is imperative. The cost and damage associated with downtime is well-known. Being able to quickly find and solve potential issues in real time across complex systems is a must-have. This is particularly true when it comes to mainframe technology. And, despite mainframe technology's reputation for consistent infrastructure, many organizations have embarked on a journey of transforming their mainframe-monitoring technology to meet modern needs. Emerging technologies such as artificial intelligence (AI), machine learning (ML), and automation are leading the way to transform and modernize the mainframe by taking on essential and repetitive tasks like monitoring and integration, easing the onboarding of new mainframe hires, and reallocating human workers to roles that require more critical thinking.

To help find out where customers are on this journey, BMC commissioned Forrester Consulting to evaluate the current state of mainframe monitoring. Forrester conducted an online survey with 400 mainframe decision-makers and influencers in North America and EMEA to explore this topic, and we found that there's still work to be done. For many respondents, their organization's mainframe monitoring is rooted in the past and caught in a vicious cycle defined by poor staffing and technology combined with no cohesive strategy. So, what can these organizations do to fix it? Let's take a look.

KEY FINDINGS

- › **Mainframe monitoring is a struggle for many organizations today.** More than 70% of surveyed mainframe decision-makers indicated that incidents have impact before their organizations are even able to detect them, and 60% said it takes their organization too long to detect them. These challenges stem in part from poor integration with other enterprise systems. Seventy-eight percent of respondents said they need to connect their organization's mainframe to its wider enterprise systems. There is also a lack of automation and proactivity in monitoring, as only 19% of respondents said their organization has fully automated the handling of a slowdown in a mainframe application.
- › **Leaders separate themselves from laggards with strong commitment to effective monitoring.** To analyze what it takes to succeed in mainframe monitoring, Forrester compared mainframe leaders with laggards. We found that leaders have made strong investments in mainframe staff and infrastructure, which leads to much fewer challenges with monitoring. On the other hand, laggards struggle to make up for their lack of investment, and they are caught in a vicious cycle of understaffing and using poor tools. This keeps them from succeeding.
- › **Decision-makers are looking to transform mainframe monitoring with modern AI/ML tools.** As decision-makers look to the future of mainframe, there is a push toward adopting modern technologies like AI and ML. In fact, many respondents said their organization's top mainframe priority over the next two years is to implement new AI/ML tools.

Automation And Proactivity Are Key Growth Areas For Mainframe Monitoring

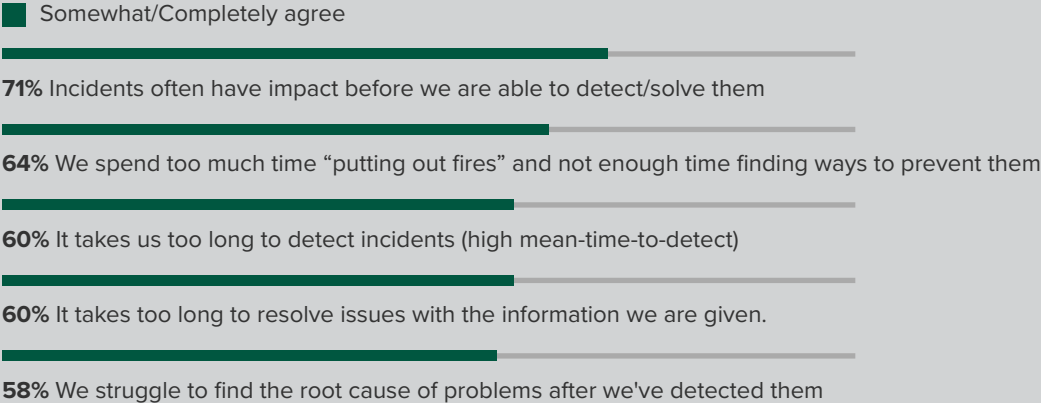
The mainframe has been long considered the epicenter of an organization’s infrastructure given its native resilience and security. But this false sense of comfort may have led decision-makers to overlook modernizing their organization’s platform during a time when benefits from the mainframe’s evolution are needed. Relying on manual processes and reactive monitoring tools prevents firms from optimizing the mainframe to fully support modern digital services. Now is the time to make a push toward new tools and technology. In surveying 400 mainframe decision-makers, we found that:

- › **Mainframe monitoring is a significant challenge today.** We’ve all heard it before: The first step to overcoming any problem is to identify it. Unfortunately, the current state of mainframe monitoring makes this awfully challenging. Organizations struggle to detect incidents. More than 70% of surveyed mainframe decision-makers reported that incidents have impact before their organizations are even able to detect them, and 60% said it takes their organization too long to detect them. Once they finally do detect incidents, finding the root cause is a challenge for 58% of respondents’ firms.
- › **Firms are struggling to be proactive.** More than three-quarters of surveyed decision-makers said they believe proactive mainframe monitoring is valuable to their organization. But current mainframe infrastructure is forcing firms to be reactive. Sixty-four percent of respondents indicated they spend too much of their time putting out “fires” and not enough time finding ways to prevent them (see Figure 1). Only 27% of respondents said their firm is completely proactive when it comes to mainframe monitoring. This means 73% are opening the door to both slow detection and high incident impact.



78% of respondents said they need to connect their organization’s mainframe to the wider enterprise.

Figure 1
“To what extent do you agree with each of the following statements regarding your incident detection and monitoring in your organization’s mainframe?”



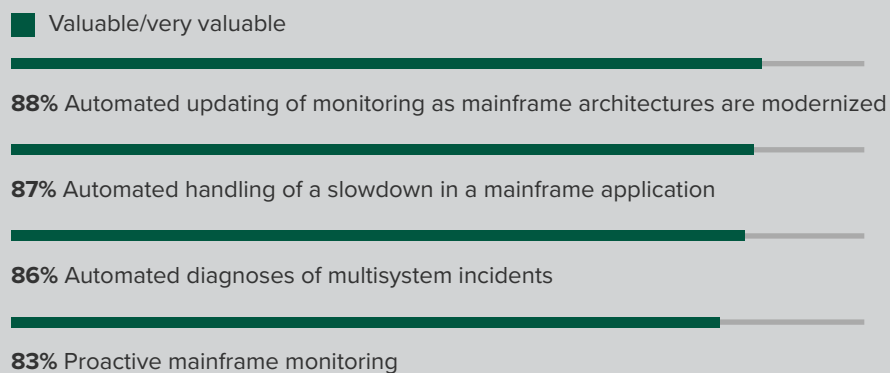
Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

- › **Challenges stem in part from poor integration with the enterprise.** Mainframe has always been the last step in any enterprise application development evolution. Now, with digital services being integrated at an astronomical rate due to modern development principles (e.g., agile, DevOps), the mainframe must become part of conversations about design and operational monitoring. Seventy-eight percent of respondents said they need to connect their organization’s mainframe to wider enterprise systems. Decision-makers indicate segregation of mainframe operations data from the overall enterprise monitoring pipeline across the gamut, from business process monitoring (49%) to security (43%). Nearly half of organizations experience a disconnect between mainframe operations data — even from core areas like applications development and delivery and infrastructure monitoring.
- › **Processes are overly manual.** A lack of automation and proactivity in monitoring is another key issue underlying mainframe struggles. Only 19% of respondents said their organization has a fully automated system to handle a slowdown in a mainframe application. The remaining 81% said their organization relies on manual processes at least in part. Seventy-five percent said their organization employs some manual labor when diagnosing multisystem incidents, and 78% incorporate manual processes when updating monitoring as mainframe architectures are modernized. The value of automation is not lost on decision-makers; 80% of respondents said they find these attributes to be valuable or very valuable when it comes to handling slowdowns, monitoring, diagnosing multisystem incidents, and updating monitoring as mainframe architectures are modernized (see Figure 2).

81% of respondents said their organization relies on manual processes when handling a slowdown.

Figure 2

“How valuable would each of the following be for your organization?”



Base: Variable IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

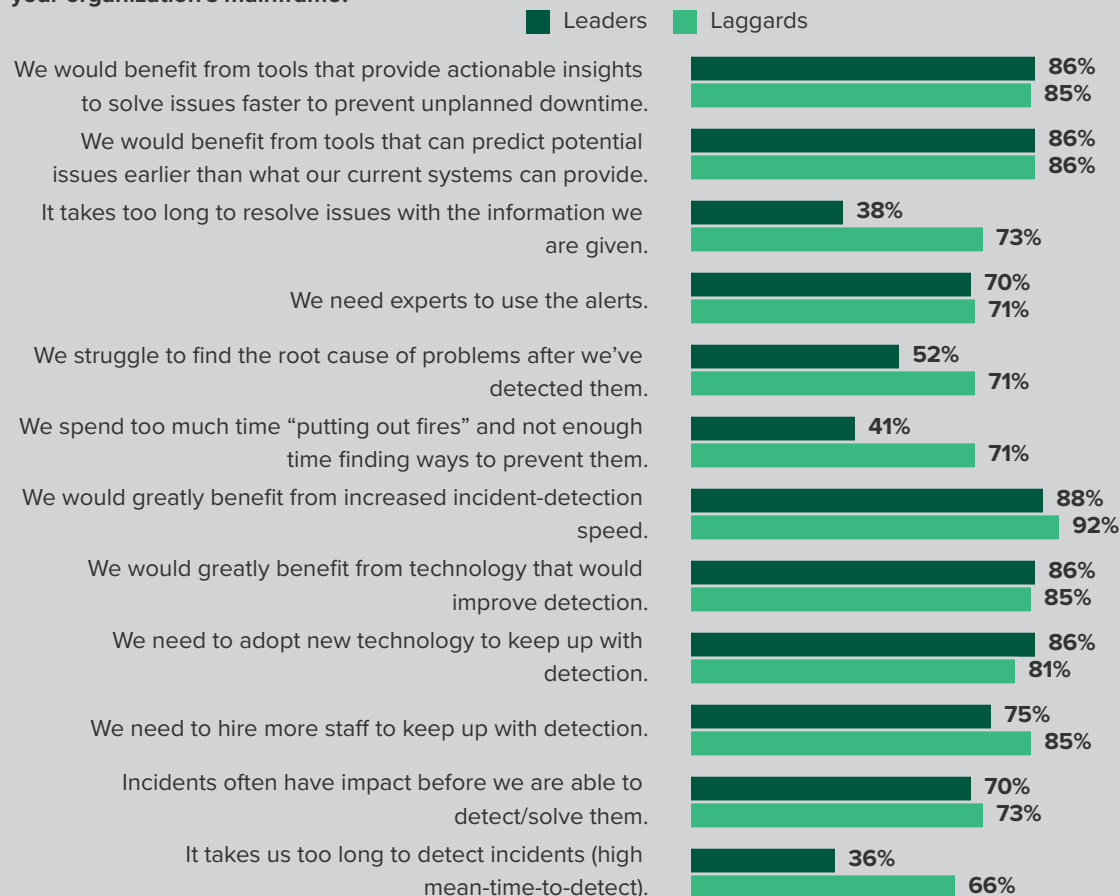
LEADERS VERSUS LAGGARDS

To better examine the benefits and challenges that come with effective mainframe-monitoring solutions, Forrester created an assessment model based on **integration within the larger enterprise** and levels of **automation and proactivity in monitoring**. For the purposes of this study, we will compare leaders to laggards. We define leaders as organizations with high integration, automation, and proactivity of monitoring. Conversely, we define laggards as organizations with low integration, poor automation, and low proactivity of monitoring (see Appendix C for more details on the assessment).

Unsurprisingly, leaders see significantly fewer challenges with their mainframe monitoring and incident detection due to the proactive and automated nature of their technology and its integration with the rest of the enterprise. Compared to laggards, leaders are far less likely to struggle with detection time, they need less issue-resolution time, they find root causes more quickly, and they spend less time putting out “fires” (see Figure 3). They also have fewer challenges with mainframe monitoring and incident detection across the board (see Figure 4). In addition, laggards take more than double the time to resolve incident calls than leaders do. The average time to resolve an incident call is 17.97 hours, but leaders do it in 7.5 hours.

Figure 3

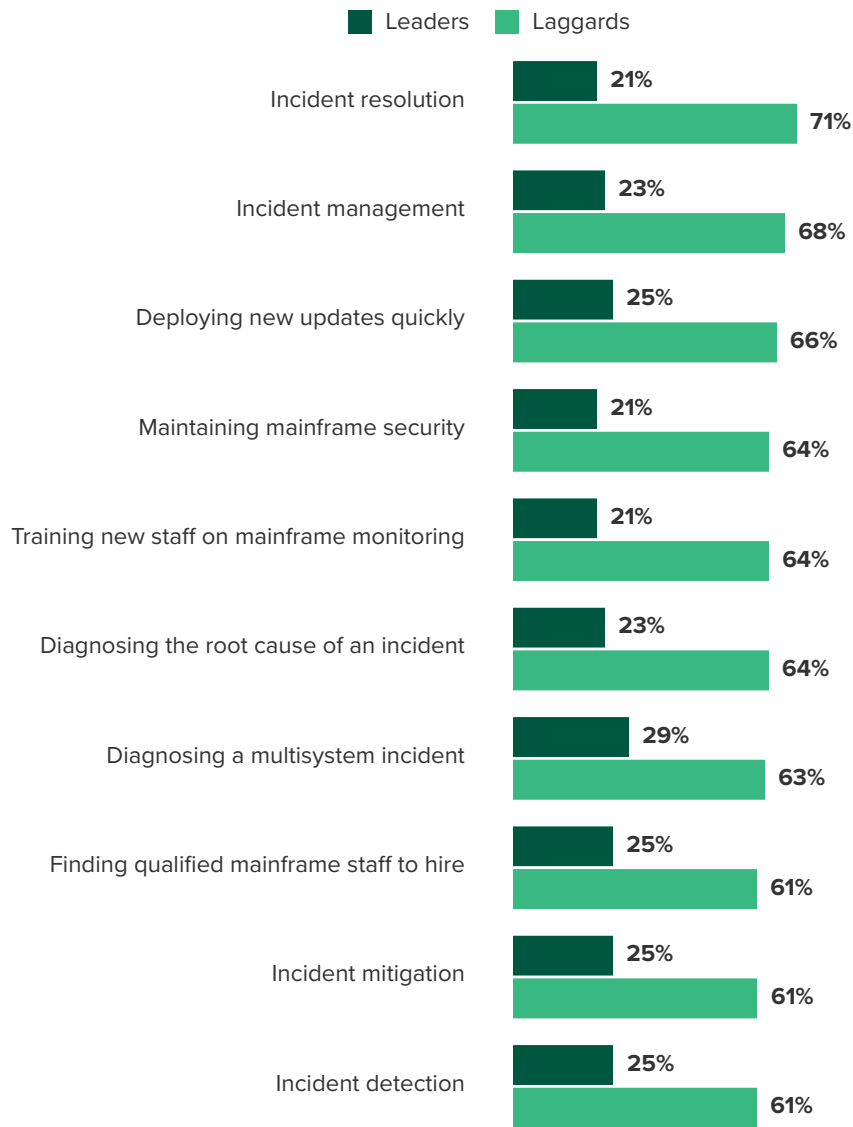
“To what extent do you agree with each of the following statements regarding your incident detection and monitoring in your organization’s mainframe?”



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

Figure 4

“How challenging are each of the following for your organization?”



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

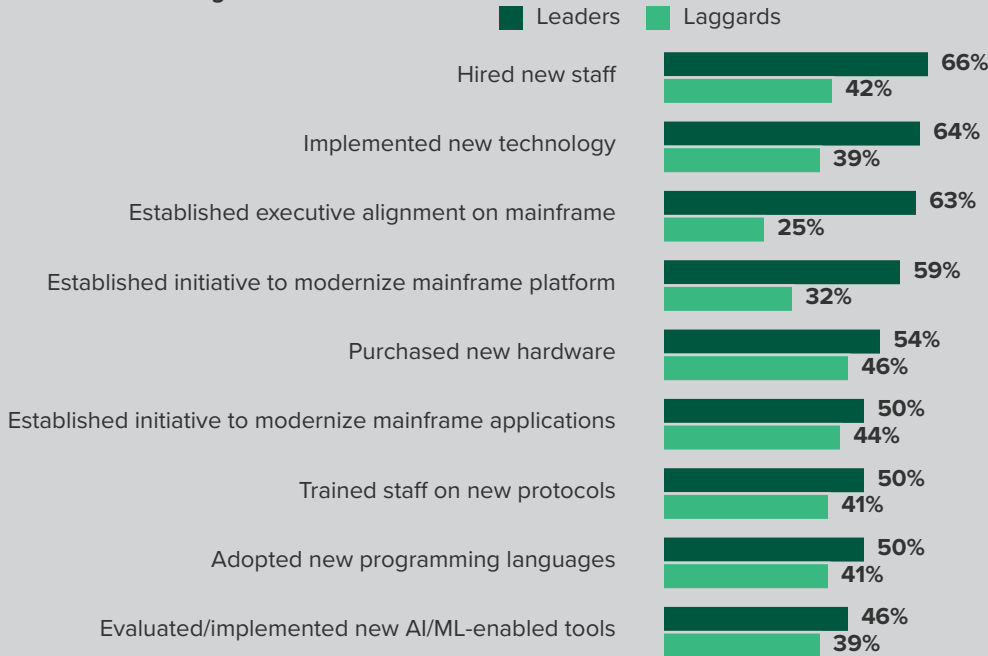
Leaders And Laggards: A Tale Of Two Mainframes

Beyond mainframe automation and integration with the rest of the enterprise, what separates leaders from laggards when it comes to mainframe? Leaders distinguish themselves with serious commitment to modern mainframe infrastructures from leadership down, and they make real investments in the future. Laggards, on the other hand, struggle in many areas. We found that:

- › **Issues start at the top.** Challenges with mainframe often start at the top and trickle down. Respondents from laggard organizations cited both lack of executive support and lack of budget in their top three challenges when it comes to mainframe management. Ironically, reducing support and resources designated by leadership hurts the efficiency that senior leaders say they want.
- › **Laggards have set themselves up for failure with a lack of investment.** Whether through a lack of support from leadership, a lack of overall budget overall, or a lack of the skills needed to make the right decisions, laggards have put themselves far behind their peers by not sufficiently investing in mainframe monitoring. During the past two years, leader organizations were far more likely to hire new staff, implement technology, and establish initiatives to modernize their mainframe platforms (see Figure 5). With executive support and sufficient budgets, leader organizations have wisely invested to set themselves up for success. On the other hand, laggards have had to play catch-up without the resources to easily do so.

During the past two years, leader organizations have been far more likely to hire new staff, implement technology, and establish initiatives to modernize their mainframe platforms.

Figure 5
 “In the past two years, which of the following has your organization done to address challenges with your mainframe monitoring?”



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

› **Lack of investment causes a vicious cycle.** When asked about the top barriers to modernizing their organization’s mainframe-monitoring tools, respondents from laggard organizations said the two things that most hold them back are a lack of staff needed to implement new systems and time-consuming modernization processes. Without proper buy-in from leadership, investment, and the right tools, laggards often struggle to piece together the right staff in the right places. Even worse, organizations that do not implement new and developing mainframe technologies will lose talent to those that do. Unsurprisingly, laggards find it more difficult than their leader counterparts to hire qualified mainframe staff and to train new staff (see Figure 6) despite allocating a higher portion of their mainframe budgets to staff and training (32%) than leaders do (28%). And laggards end up paying more for less when it comes to staff, which then makes it even more difficult to improve their tools without the right people in place. Decision-makers with leader organizations have clearly realized that the key to mainframe success lies in securing the right tools and addressing gaps with people and skills.

Figure 6

“How challenging are each of the following for your organization?”



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

> **The consequences are dire.** When incident detection is poor, significant consequences proliferate for laggards. Increased downtime, higher costs, and falling behind the competition are the top results of having slow mainframe incident detection. These neutralize any efforts to cut costs that decision-makers may have been attempting through a lack of investment in mainframe modernization (see Figure 7).

Figure 7

“Which of the following consequences does your organization face due to slow mainframe incident detection?”
(Showing top consequences for laggards)



Base: 56 IT decision-makers and influencers responsible for mainframe at a laggard organization in North America or EMEA
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

AIOps Is A Major Component Of Mainframe Modernization

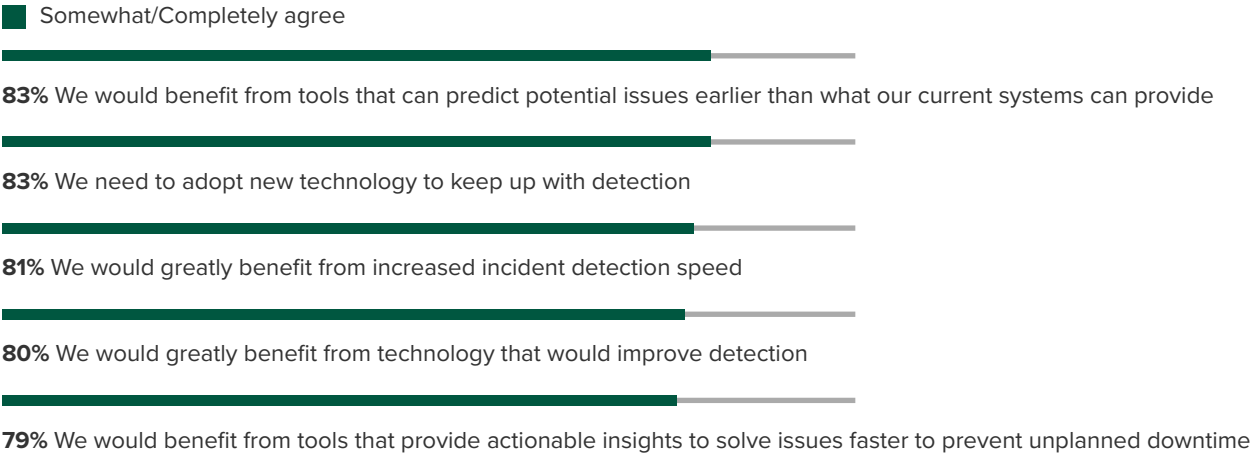
Better and more proactive monitoring comes with substantial benefits to the business. This is especially true when it comes to utilizing AIOps for mainframe monitoring. To move toward this ideal state, what's next? We found:

- > **Mounting struggles lead to pressure to purchase new tools.** Decision-makers are feeling the heat from their organizations' mainframe problems and shortcomings, and they realize the value that new tools can provide around incident detection and monitoring. Upwards of 80% of respondents said tools and technology that help with proactivity, speed, and accuracy in issue detection would be assets to their organization (see Figure 8). Every single respondent in our study said their organization is either already purchasing or has plans to purchase new mainframe monitoring or automation tools.

83% of respondents said they believe their organization needs to adopt new technology and would benefit from predicting potential issues earlier.

Figure 8

“To what extent do you agree with each of the following statements regarding your incident detection and monitoring in your organization’s mainframe?”



Base: Variable IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

- › **Decision-makers are looking to transform mainframe monitoring with modern AI/ML tools.** Respondents said their organization’s number one plan for addressing mainframe-monitoring challenges in the next two years is evaluating and implementing new AI/ML-enabled tools. Decision-makers are looking to overhaul their organizations’ mainframe-monitoring solutions by establishing initiatives that modernize their mainframe platforms, and AI/ML technology is a crucial component of that mainframe modernization process (see Figure 9).
- › **AIOps solves many key challenges.** The use of modern mainframe technologies can bring substantial benefits to the business. Utilizing AIOps in particular can improve security and reduce costs and downtime (see Figure 10) and alleviate the reactive nature of current mainframe-monitoring tools. In fact, 71% of respondents said they expect their organization to become more proactive as a result of implementing AIOps.
- › **Laggards are still held back from leveraging AIOps.** The same cycle that keeps laggards from improving their mainframe monitoring also keeps them from implementing this helpful new technology. Respondents from laggard organizations cited a lack of executive support, the length of implementation process, a lack of staff, and organizational resistance to change as top barriers. If laggards hope to break out of this spiral, they must make it a priority to implement new and transformational technology like AIOps.

Laggard organizations should use the data in this study to make the business case for more proactive mainframe monitoring and to identify key areas for improvement. The following recommendations will also help laggards move forward in this important task.

Figure 9

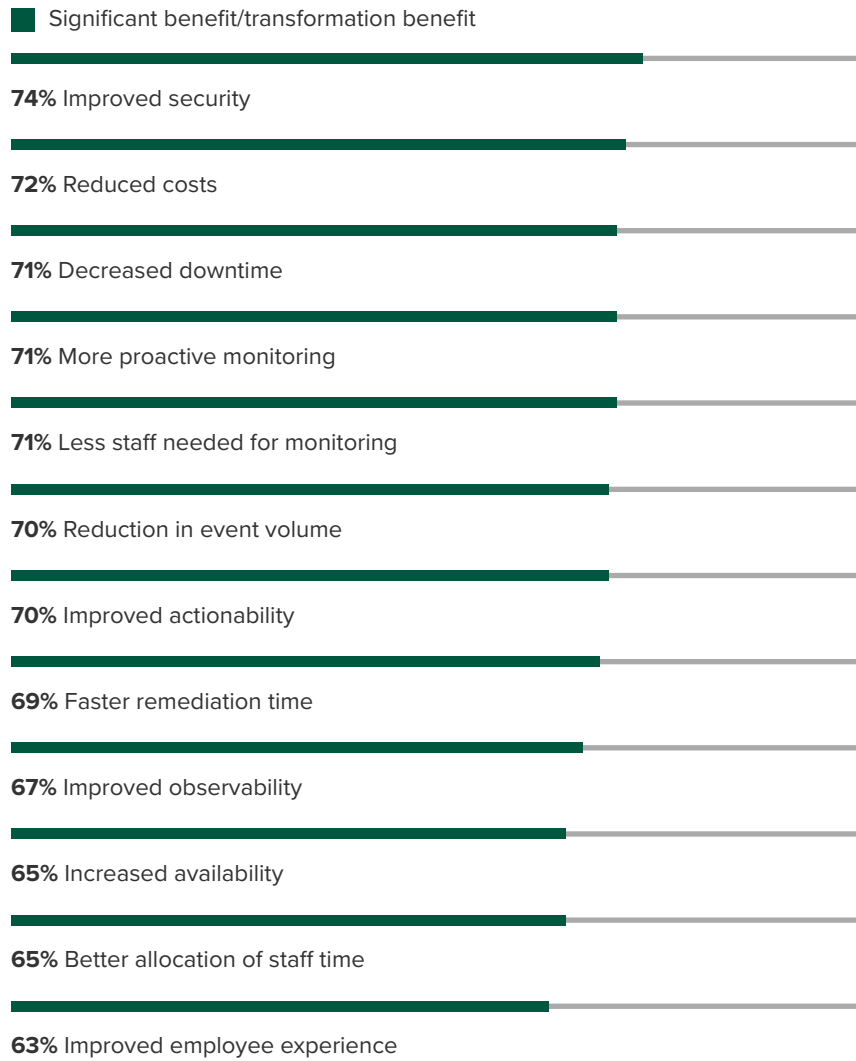
“What does your organization plan to do over the next two years to address challenges with your mainframe monitoring?”

- 1 Evaluate/implement new AI/ML-enabled tools
- 2 Establish initiative to modernize mainframe platform
- 3 Train staff on new protocols
- 4 Implement new technology
- 5 Purchase new hardware

Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

Figure 10

“To what extent do you anticipate your organization would receive the following benefits from utilization of AIOps for mainframe monitoring?”



Base: 117 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

Key Recommendations

Year after year, data confirms that mainframe is here to stay. As more digital services rely on the mainframe as a back end for transaction processing at speed and scale with the highest level of security, it becomes incumbent upon operations teams to modernize mainframe monitoring to meet the current availability requirements.

Forrester's in-depth survey of mainframe decision-makers about mainframe operations yielded several important recommendations. These include:



Refresh your mainframe tools. Increased adoption of digital services has revealed a lack of visibility into the IT stack when using legacy monitoring tools. Without a complete end-to-end view into the user journey, IT operations professionals are flying blind. AIOps takes the guesswork out of the picture and speeds incident resolution, or it prevents them altogether.



Recognize the mainframe as a revenue driver. Lines of business increasingly have a say in what digital services should be underpinned by the mainframe and they are pushing for faster development/integration into the mainframe ecosystem. AIOps is your real-time view for measuring business outcomes driven by mainframe processing.

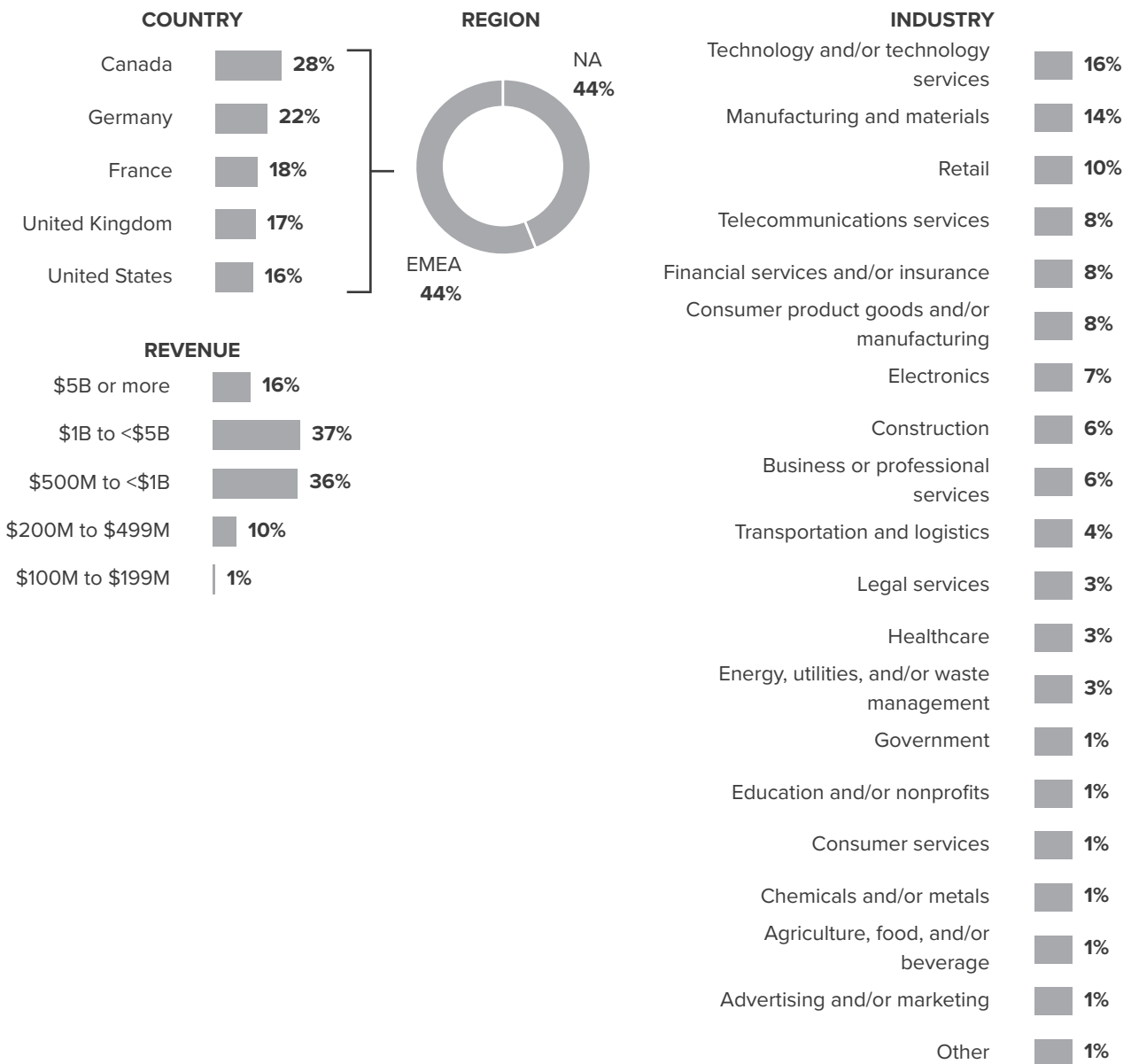


Adopt a “crawl, walk, run” model. Modernizing any tooling stack can seem daunting at first. Working with a trusted partner that has experience with these evolutions can be key to a project's success. With AIOps, organizations can automate many manual processes while the deeper insights it provides can change how teams engage and collaborate. Be ready for cultural change (for the better) along with the rollout of the new platform.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 400 IT decision-makers and influencers responsible for mainframe at their organization in North America and EMEA to evaluate the state of mainframe monitoring and where organizations are planning to take their mainframes going forward. Questions provided to the participants asked about their organization's mainframe and mainframe-monitoring technology, tools, and strategies. Respondents were offered a small monetary incentive as a thank you for time spent on the survey. The study began and was completed in January 2021.

Appendix B: Demographics



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA

Note: Percentages may not total 100 because of rounding.

Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

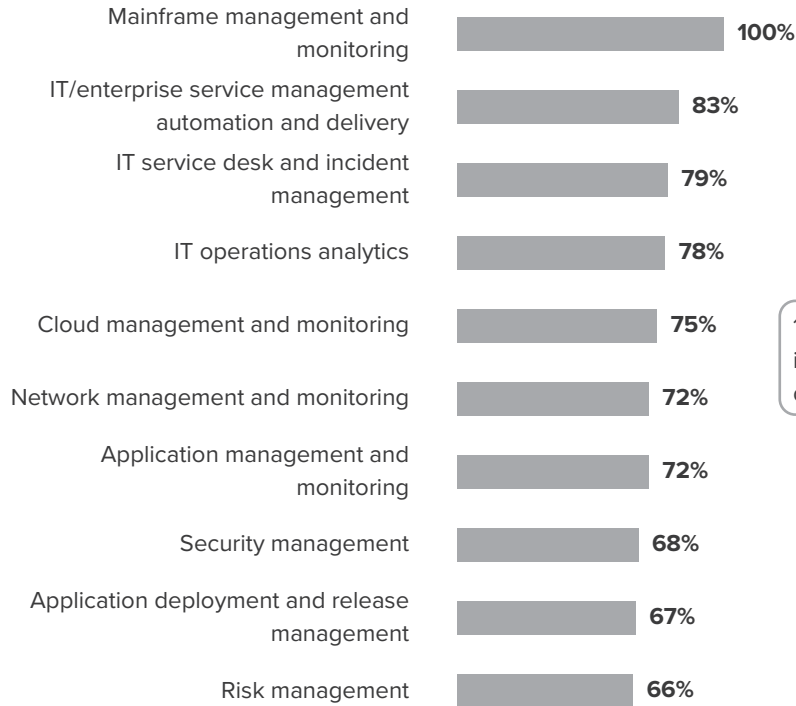
SENIORITY



50% Decision-makers	20% Vice president
	31% C-level executive

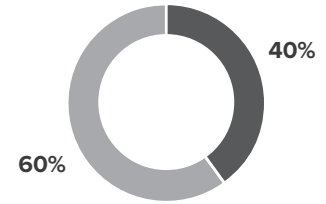
50% Influencers	24% Manager
	26% Director

AREAS OF VISIBILITY/OVERSIGHT INTO PROCESSES/TOOLS IT TEAM USES



MAIN IT RESPONSIBILITY

- Mainframe operator/developer
- Mainframe system programmer



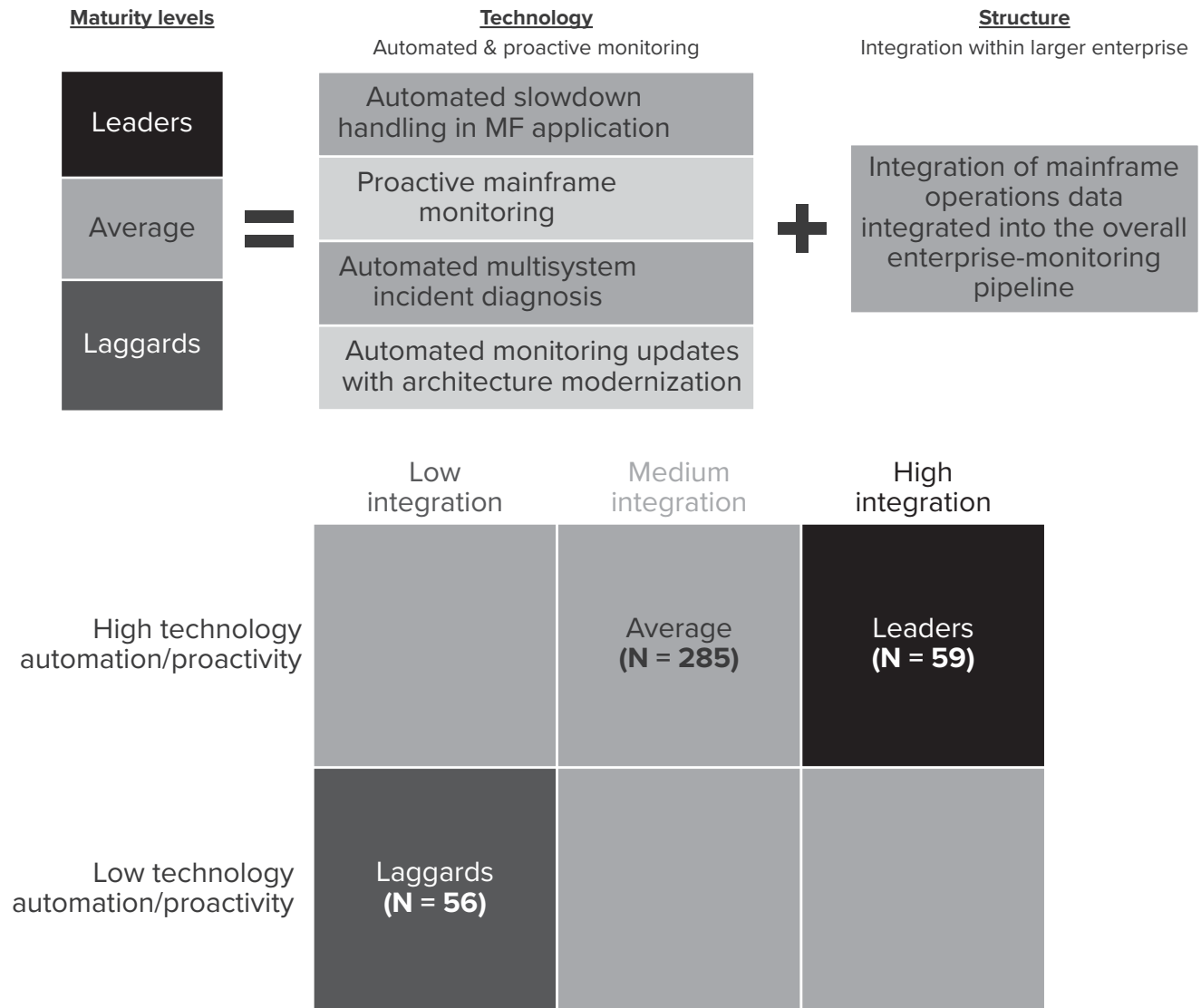
100% of respondents work in IT and are mainframe decision-makers



Base: 400 IT decision-makers and influencers responsible for mainframe at their organization in North America or EMEA
 Note: Percentages may not total 100 because of rounding.
 Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021

Appendix C: Assessment Details

Defining Maturity



Source: A commissioned study conducted by Forrester Consulting on behalf of BMC, January 2021