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Unlock Competitive Advantage With Application Modernization

Powering AI Transformation Through Application Modernization

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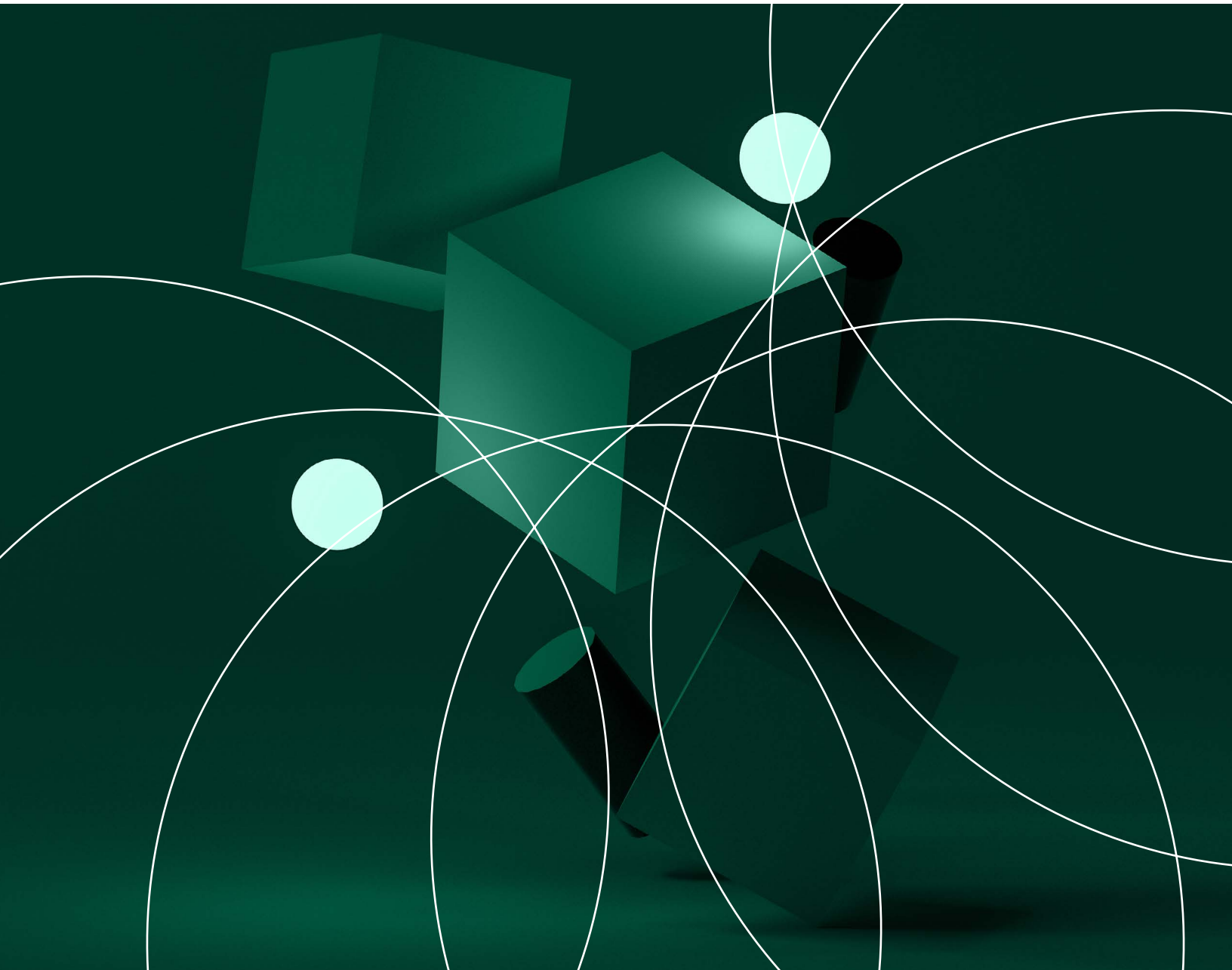

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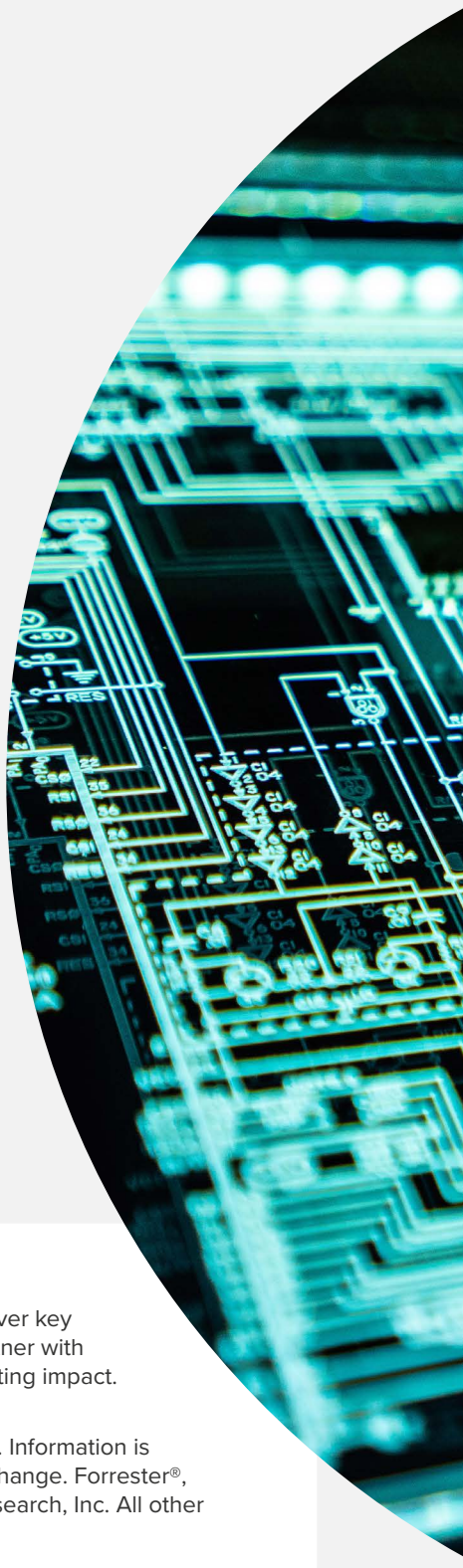

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Executive Summary

To stay competitive in today's market, companies must constantly adjust and improve the way their business operates to keep up with customer expectations and achieve differentiated growth. Application modernization is increasingly critical to this end. However, this is an approach that entails more than just a flip of the switch or simply upgrading business technology or migrating to the cloud; it encompasses complex processes and orchestration across all aspects of the business, including the right strategy, processes, people and skills, and technology.

As emerging technologies like generative AI (genAI) proliferate, the need for organizations to stay abreast of industry changes and evolving customer expectations only increases. Organizations that grasp both the business and technical drivers of application modernization — and account for a future with AI — stand to reap the rewards of more deliberate technology strategies. These benefits include streamlined processes, better agility to changing market conditions, and stronger competitive advantage for the business.

In October 2023, Microsoft commissioned Forrester Consulting to evaluate application modernization efforts at global organizations. Forrester conducted an online survey with over 600 IT and business decision-makers to explore this topic.

> Application modernization refers to the transformation of application assets to adapt, optimize, and migrate to or more readily integrate with more modern digital software and cloud architectures.

Key Findings

Cloud migration is just the first step to application modernization. Migrating to the cloud isn't an end point — it's a pathway to larger modernization efforts anchored by cloud-first ecosystems. This requires an understanding and alignment of both technical improvements and the right business processes. Gaps in key capabilities and practices now impede firms from reaping business value from application modernization efforts. Organizations that view cloud as a means are better positioned for digital transformation success.

Cloud migration alone leaves critical value on the table. To stay competitive, cloud-based infrastructure is table stakes. Simply being in the cloud isn't enough. Cloud is not just a tool but is a platform that powers innovation, and modernization is ultimately where the business value is derived.

AI is being harnessed in and through application modernization for business outcomes. AI promises to significantly impact how applications are built and modernized. One in five decision-makers said their firm is achieving successful modernization already. These firms have built a clear technology strategy around AI and training; tied AI and key metrics to business outcomes; and upgraded technology stacks supported by strategic partnerships.

Real application modernization requires cloud-first strategies and processes and effective technology integration. Updated, best-in class technologies are just one piece of the equation. Modernizing and aligning applications, operations, and practices across the business to be cloud-first drives innovation and allows for agile operations that respond to market dynamics and process and operational improvements. This ultimately leads to business growth.

Application Modernization Gaps Leave Competitive Value On The Table

In recent years, firms have pursued lift-and-shift migration to the cloud to buttress against economic uncertainty and achieve a competitive upper hand.[1] However, as cloud technology evolves and presents new scenarios for decision-makers, simply moving to the cloud is no longer enough for firms to remain competitive.[2] For example, genAI is revolutionizing the cloud market and transforming the type of use cases and productivity that customers expect from providers.[3]

To properly evolve with shifting market dynamics, firms must increasingly focus on modernization efforts — namely through cloud-first investments and cross-functional practices tied to business performance — if they are to enable AI transformation and take their cloud and business performance to new heights.

Yet as firms modernize their applications, critical gaps are exposed that impede them from achieving greater business value. First, firms are playing catch up with key capabilities, such as AI, which organizations must infuse into applications as part of application modernization. A majority of business decision-makers said their organization is not yet at the scaling or enterprisewide phase with its AI implementation, but is currently between the learning, exploring, and piloting phases as it tests business use cases. Further, technology infrastructure investment plans are skewed toward external-facing business systems (so-called "systems of engagement"), reaching directly to end customers. This leaves work to be desired to balance these out with internal-facing systems.

Second, a perception-reality gap exists. Nearly 90% of decision-makers said their organization's current technology infrastructure allows them to navigate the future of their industry (see Figure 1). However, many firms still deal with inflexible, outdated, and

> "Our competitors are getting ahead of us, and ownership is just getting aligned with what we need as a company. They're starting to see the money that's needed to keep up."
>
> **MANAGER, MANUFACTURING AND MATERIALS, US**

brittle legacy software systems that stifle their ability to attract, delight, and retain customers.[4] Most firms have substantial room for improvement. They require help with:

- **Operational efficiency.** Considerations of cost are persistent: Half of decision-makers said improving the efficiency of business operations is a top priority for their firm (see Figure 2). As organizations work through economic headwinds and cost-optimization reinforced by economic uncertainty, they continue to emphasize doing more with less to compete — but firms can't slash their way to greatness.
- **Security and risk.** Security is another organizational imperative that simply won't go away soon and for good reason. Forty-three percent of respondents prioritize improved security and risk management to deal with bad actors and imminent threats and to safeguard the business against data leaks and compliance gaps. This aligns with ongoing Forrester research that reveals high-performance IT must build trust on a foundation of security, privacy, and resilience.[5] Security needs to be built in from day one but cannot result in organizational paralysis.
- **Innovation and customer experience (CX).** While firms need to shore up internal processes and technologies, the business won't grow without differentiated offerings that attract and delight customers. Forty-two percent prioritize product and service innovation, with another two in five decision-makers emphasizing better

FIGURE 1

Most Leaders Are Satisfied With Their Current Technology Infrastructure

(Showing "Agree" and "Strongly agree")

My organization is prepared to navigate the future of its industry.

I would characterize my organization's technology infrastructure as modern.

I am satisfied with my organization's technology infrastructure strategy.

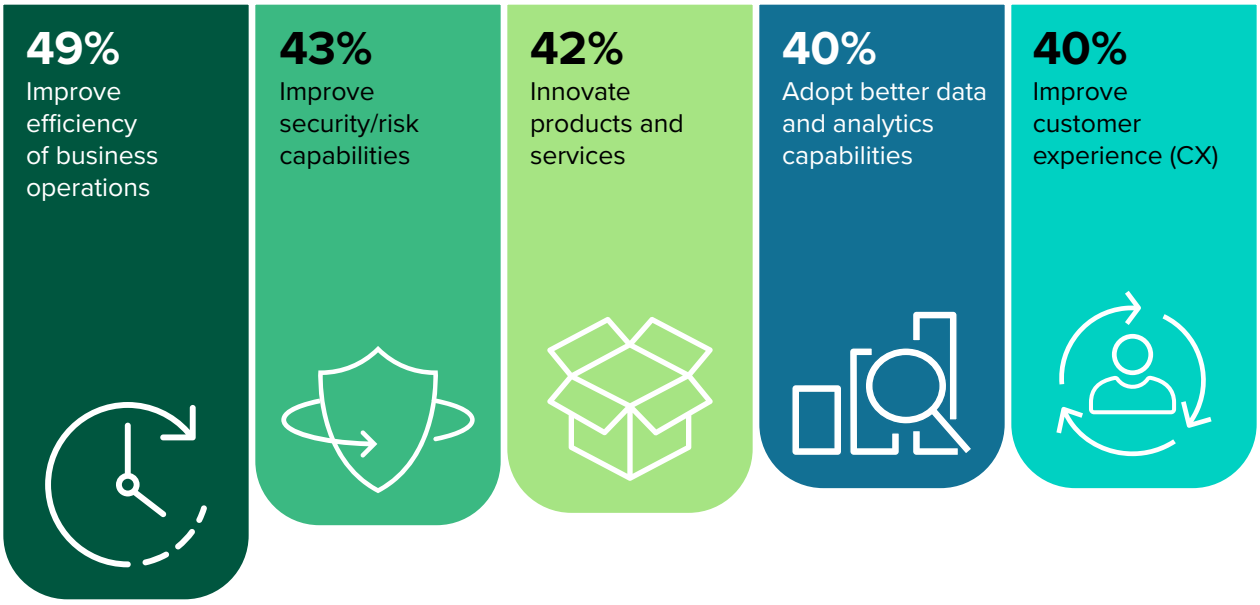
Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Note: Showing top three responses
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

data and analytics capabilities and improved CX — critical pieces of a robust innovation engine as customer engagement and behavioral data feeds back into the customer journey loop. Employee experience also matters: Happy employees normally translate to happier customers.

> "[Our] company was hit by a multicountry cyberattack, which has forced an acceleration of IT and systems improvements."
>
> **MANAGER, CHEMICALS/ METALS, UK**

FIGURE 2

Top Organizational Priorities For The Next Year



Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Note: Showing top five responses
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

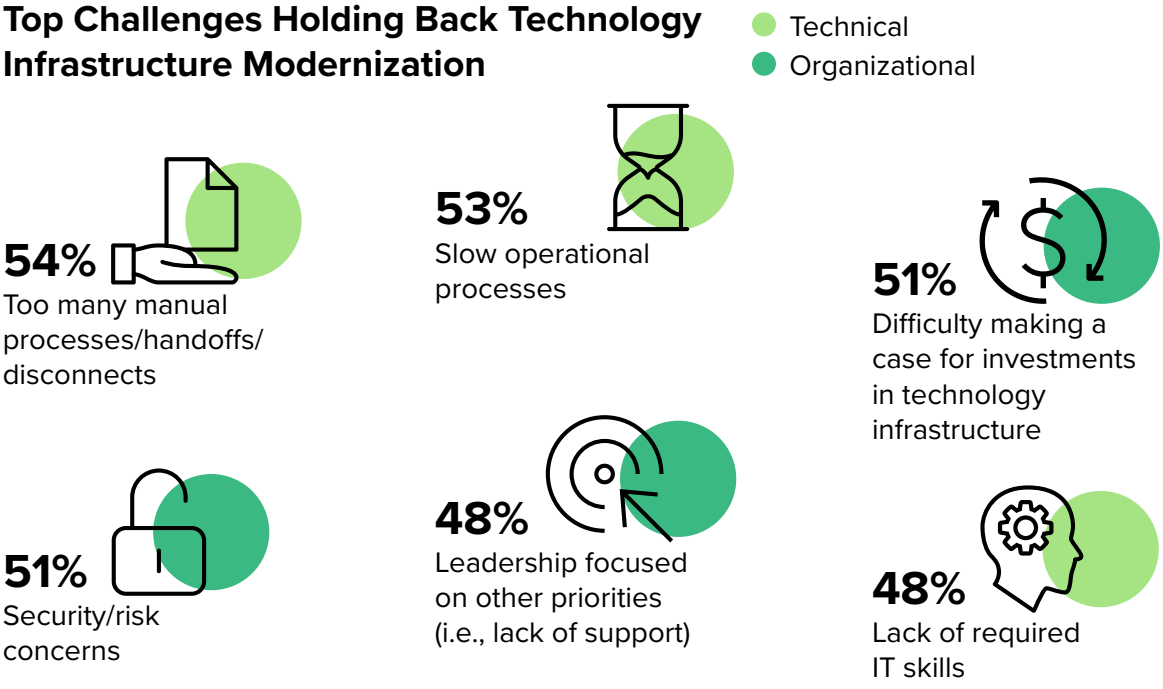
Keep Key Application Modernization Challenges In Mind

As business decision-makers chart their firms' application modernization course, there are core obstacles they need to identify and prepare for. Firms must upgrade and integrate key aspects of their technology infrastructure — strategy, process, and technology — to avoid competitive obsolescence and reap the fuller payoffs of modernization. These barriers currently stifle successful application modernization efforts across the business:

- **Manual processes slow down operations.** Over half of decision-makers (54%) said there are too many manual processes and disconnects when executing their technology infrastructure strategy (see Figure 3). Another 53% said operations are simply too slow at their firms to take the next step in their application modernization journey.

FIGURE 3

Top Challenges Holding Back Technology Infrastructure Modernization



Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Note: Showing top six responses
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

- **Security concerns inhibit application modernization.** Half of respondents said security and risk concerns are holding back their organization's attempts at technology infrastructure modernization. Uncertainties around vendor fit and how solutions and emerging technologies will integrate into existing systems leave leadership hesitant to commit to the type of investments required to achieve modernization.
- **Tech sprawl limits efficiency and cloud migration has been inconsistent.** Firms are also dealing with disconnected systems and the resulting siloed functions and inefficient operations across the business. Moreover, decision-makers report that their company's cloud migrations and integrations of emerging technology like genAI have been clunky and inconsistent. Respondents also said their organization struggles to adapt their technology infrastructure to changing business and customer needs. Poor agility and integration render many firms unable to even begin modernizing their applications, let alone infusing AI capabilities into existing applications to make them intelligent.
- **Lack of leadership buy-in and organizational alignment impedes transformation.** Half of decision-makers said their firm struggles to garner buy-in from leadership, as respondents also mentioned they're hamstrung by a lack of alignment between their technology strategy and business goals. Without executive support and clear objectives and timelines, organizations stumble to embrace application modernization efforts and consequently the flexibility to transform how the business operates.

Decision-makers must be mindful of these challenges given they have trickle-down effects throughout the organization, collectively leading to:

- **More organizational risk.** Decision-makers said the top impact they experience from their application modernization challenges is increased security risk. Similarly, the third most common impact is increased risk of compliance/regulation issues, signaling that when firms fail to modernize their applications, they open themselves up to threats and leaks with few viable ways of combatting the risk.

- **Growing costs.** The second greatest impact is an increase in operational costs given prolonged inefficiencies and outdated systems. But simply improving legacy technologies isn't the quick fix some think. Firms that only invest in technologies and stop short of necessary improvements to people and process will only see costs soar, value fall flat, and challenges grow for the business — in addition to weaker innovation and stunted business growth.[6]
- **Digital platform setbacks.** The fourth most common negative impact decision-makers face is failure of platform performance (e.g., power outages, security breaches) (see Figure 4). These hazards hamper business agility, innovation, and efficiency, keeping firms in a vicious cycle that compromises the kind of competitive advantage they seek.

FIGURE 4

How Technology Infrastructure Challenges Negatively Impact Organizations

1 in 4

business decision-makers said their organization experiences digital platform failures because of their modernization challenges.

Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

Positive Shifts Show How Application Modernization Can Be Done Right

Business decision-makers have a desire for organizational efficiency and future-proofing the business (e.g., gaining competitive advantage and improving security measures). Leaders from our survey sense this opportunity and are allocating budget accordingly — 89% of decision-makers said their firm plans to increase or at least maintain their current application modernization investments over the next year to achieve key priorities and address modernization gaps.

Further, one in five respondents' said their firm has already begun to overcome foundational barriers in its application modernization journey to bring critical value back to the business. Below are a few of the positive shifts some organizations have made to support their modernization journey. It is Forrester's perspective that these changes are critical components for getting application modernization right:

- **Strategy.** Implementing a clear technology strategy built around AI and training. Today's application modernization strategy is a far cry from the five-year plans of yesterday. Organizations leading the charge with modernization efforts act to create a roadmap to experiment, fail fast, implement, and measure AI-related initiatives; improve digital/technical training and skills for employees (e.g., digital literacy, live workshops) throughout all departments; and embrace a product-oriented delivery strategy using modern teaming structures.

> "[We're increasing current modernization investment given] the need to improve digitization of the business and improve employee and customer satisfaction."
>
> **DIRECTOR, MANUFACTURING AND MATERIALS, UK**

- **Process.** Adopting modern application development practices. Beginning with agile development and DevOps and continuing through to platform engineering, modern software development practices have revolutionized applications delivery. Enterprises must socialize these practices and achieve organizational change management to realize the full benefits of digital transformation. Organizations that have successfully modernized support their technology infrastructure strategy by embedding AI into processes to make them more efficient and effective; improving alignment of key technology infrastructure metrics between functional silos (e.g., sales, marketing, product); and measuring technology infrastructure outcomes continuously.

> "Investing in the right tech infrastructure can help streamline operations and make our business run more efficiently."
>
> **MANAGER, TECHNOLOGY, UK**

- **Technology.** Upgrading technology stacks supported by strategic partnerships. Enterprises once empowered teams to resist infrastructure innovation. Today, platform engineering entails adopting a more facilitative role in formulating unified and flexible technology stacks. Organizations that have successfully modernized improve their technology stacks to support their technology infrastructure strategy and do so by expanding strategic vendor partnerships to drive innovation.

> "[We're increasing current modernization investments] to expand our operations and efficiency. As our organization is expanding, more tools are required to maintain and develop our position."
>
> **C-LEVEL EXECUTIVE, TECHNOLOGY, AUSTRALIA/NEW ZEALAND**

Adopting these practices has allowed firms to move rapidly in addressing internal gaps and overcome obstacles in the way of their application modernization goals. The business outcomes are telling; business decision-makers from firms that are experiencing modernization success revealed that they are more likely to achieve the following competitive benefits from their technology infrastructure investments:

- **Improved ability to extract insights to drive business decisions.** Data capable of illuminating business decision-making is often locked away behind complex and fragmented IT architectures. One of the key goals of digital transformation must be to unlock these assets to help deliver real-time analytics and enable the business to make informed decisions at speed.
- **Increased employee satisfaction and retention.** Although hiring pressures may wax and wane along with the current business outlook, better employee experience and satisfaction has become a critical factor in attracting and retaining key technical talent. Moreover, high employee satisfaction correlates with greater customer experience.
- **Improved ability to innovate.** Innovation can be inhibited by many factors, including discontinuities relating to technology, personnel, and process. Alignment of technology architectures, access to data, high employee satisfaction, and consistent organizational alignment all contribute to an enterprise's ability to innovate.

MORE ACTION IS REQUIRED TO ACHIEVE THE FULL PAYOFF OF APPLICATION MODERNIZATION

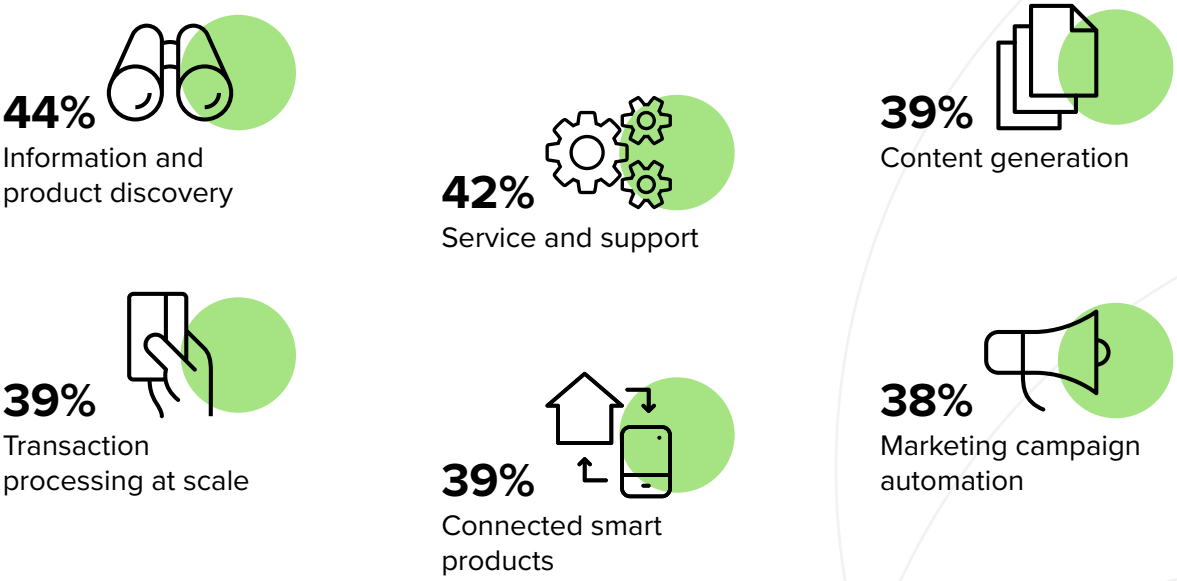
To succeed in application modernization, organizations need to make sure they are combining an integrated technology strategy, an aligned organizational strategy, and an effective personnel strategy together with a compelling business case focused on value expressed in business-relevant terms. It is through this holistic effort that they can prepare the business today to be agile enough to capitalize on imminent waves of AI transformation and innovation to grow the business. They must bear in mind:

- **Application modernization demands an effective organizational strategy.** Modernization is ultimately as much a political exercise as it is a technology exercise, requiring effective stakeholder management and convincing messaging. Enterprises must do better to link application modernization to tangible business benefits, particularly in those examples where the focus is on cost savings as a reaction to business weakness, so that they can garner executive support and organizational buy-in.
- **Cloud-first means more than just technology.** As firms shift to cloud-first architectures, they must bear in mind that this is about a different way of working, and not merely a different set of technologies.[7] This means firms must consider cloud-first technologies along with modernized practices and systems that will place and keep these technologies on the rails.
- **AI, including genAI, looms as a wild card.** Of the current AI technologies available, 61% of respondents said their firm plans to invest most in genAI as they prepare for the next evolution of genAI-infused applications. Half also said they plan to invest in automation, predictive analytics, and chatbot technologies as firms prioritize operational efficiency and preempt business decision-making. Over the next three to five years, decision-makers expect AI capabilities at large, including information and product discovery, service and support, and content generation to have the strongest impact on their organizations as new customer use cases emerge (see Figure 5).

> "Since AI is becoming more and more powerful through the years, we feel like we need to improve the security of our IT infrastructure so that we can prevent ourselves from being hacked."
>
> **MANAGER, TECHNOLOGY, AUSTRALIA/NEW ZEALAND**

FIGURE 5

“Where do you expect AI capabilities to have the most impact on your organization over the next three to five years?”



Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Note: Showing top six responses
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

Application Modernization Can Unlock Competitive Advantage

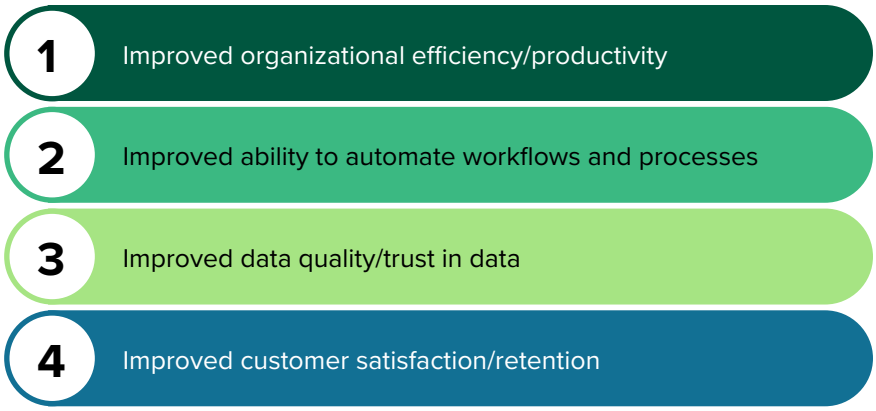
Overcoming modernization hurdles stands to bring transformational opportunity. As firms address key capability and process gaps, they ultimately position their organizations to reap valuable payoffs linked to differentiated growth and competitive advantage. Over the next year, decision-makers expect their application modernization-related improvements to bring:

> "[Our organization needs to] enhance operational efficiency, improve scalability, and stay ahead in a rapidly evolving digital landscape."
>
> MANAGER, TECHNOLOGY, US

- **Improved efficiency and agility.** Respondents are laser-focused on improving operational efficiency across the business. The top outcome that respondents expect from technology platform improvements is a boost in organizational productivity (see Figure 6). Next, decision-makers foresee an improved ability to automate key workflows and processes from investing in modernization efforts. Not only do stronger automation capabilities catalyze further efficiencies but they free up employees from manual workloads so that they can focus their efforts on delighting customers and driving added value for the business.

FIGURE 6

Expected Outcomes From Investing In Technology Infrastructure Modernization Over The Next Year



Base: 611 IT and business decision-makers at the manager level or higher at global enterprises
Note: Showing top four responses
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, December 2023

- **Stronger data quality.** By updating key technologies and the way systems and processes are orchestrated throughout the organization, respondents also expect to receive better quality data and increase trust in that data. This is a direct result of both modernized applications and the right kind of internal processes that, when coordinated across the business, facilitate connected data repositories, provide a shared understanding of the customer, and offer consistent governance and compliance standards. Better data sourced from cloud-first technologies also arms the organization with solutions that lead to improved innovation.[8]
- **Greater customer satisfaction.** Importantly, stronger data and trusted data lead to more complete 360-degree views of the customer and stronger conviction in strategic decision-making. This positions firms to better attract, serve, and retain customers. To that end, respondents expect their firms' application modernization efforts to lead to improved customer satisfaction, owing to more tailored customer engagement and value-added experiences.

Key Recommendations

Success delivering on application modernization activities to drive digital and AI transformation plans entails a variety of initiatives spanning both organizational and technical parameters. Forrester's in-depth survey of 611 IT and business decision-makers yielded several important recommendations:

View cloud migration as a means, not an end in itself.

Cloud migration by itself can confer significant benefits, such as reduced demands on facilities and infrastructure. But the story doesn't stop there. Inevitably, cloud migration discussion will become a modernization discussion at some point in time. Be ready for it.

Make sure application modernization discussion is business-led.

Many organizations struggle to assign tangible value to modernization activities, particularly business benefits. But the reality is that refusal to address technical debt can not only have dire consequences, including security exposures and potential ransomware attacks, but also embarrassing publicity stemming from systems failures.

Embrace a holistic view of automation and AI.

GenAI has taken top billing in the automation landscape for good reason. It has the potential to yield dramatic gains in productivity and redefine work patterns significantly. However, even genAI can't do it all by itself. Make your organization's approach to automation a multivaried one.

Ensure that both organizational units and technical stacks are well aligned.

Elimination of unnecessary silos in organizational structure is critical to achieving digital transformation. A slight majority of respondents said their enterprises are actively seeking to reconcile siloes within their organizations. In doing so, they are enhancing their prospects of success. As far as

technology is concerned, enterprises should select technology stacks with an eye toward consolidation and reinforce their choices with strategic partnering efforts.

Address the digital side of digital transformation.

Streamlining technology stacks is one side of the coin, but data is the other. Whereas application modernization used to take top billing, it now shares that billing with modernizing data structures and organization, so that enterprises have greater confidence in the consistency of data, its governance, and conformance with compliance standards. This is particularly important for genAI.

Appendix A: Methodology

In this study, Forrester conducted an online survey of 611 IT and business decision-makers to evaluate application modernization efforts at global organizations. Survey participants included respondents at the manager level and above who have influence or decision-making ability over technology strategy at their organization. Questions provided to the participants asked about technology infrastructure priorities, challenges, and benefits. Respondents were offered a small incentive as a thank-you for time spent on the survey. The study began in November 2023 and was completed in December 2023.

Appendix B: Demographics

REGION	
APAC	**34%**
North America	**33%**
EMEA	**33%**

COUNTRIES	
US	**33%**
China	**18%**
Australia/New Zealand	**17%**
France	**11%**
Germany	**11%**
UK	**11%**

RESPONDENT TITLE	
C-level executive	**19%**
Vice president	**30%**
Director	**29%**
Manager	**23%**

RESPONSIBILITY LEVEL FOR TECH INFRASTRUCTURE STRATEGY AND INVESTMENTS	
Final decision-maker	**54%**
Team of decision-makers	**28%**
Influence decision-making	**18%**

COMPANY SIZE (EMPLOYEES)	
20,000+	**8%**
5,000 to 19,999	**25%**
1,000 to 4,999	**56%**
500 to 999	**7%**
100 to 499	**3%**

TOP INDUSTRIES	
Retail	**15%**
Technology	**14%**
Financial services	**9%**
Telecommunications	**9%**
Manufacturing and materials	**7%**

TOP DEPARTMENTS	
IT	**53%**
Finance/accounting	**16%**
Operations	**13%**
Sales	**9%**
Human resources/training	**4%**

DECISION-MAKER TYPE (BUSINESS OR IT)	
BDM	**34%**
ITDM	**33%**
IT and BDM	**33%**

Note: Percentages may not total 100 due to rounding.

Appendix C: Supplemental Material

RELATED FORRESTER RESEARCH

The State Of Digital Workplace Services, 2024, Forrester Research, Inc., February 14, 2024

Master The MSP Partner Programs Of Your Cloud Providers, Forrester Research Inc., February 1, 2024

Forrester's Essential Research For Selecting Cloud Technologies And Services, Forrester Research Inc., January 31, 2024

Your Next-Generation Cloud Strategy Model, Forrester Research Inc., January 2, 2024

ADDITIONAL RESOURCES

Lee Sustar, The Era Of Cloud-Native Transformation Is Here, Forrester Blog

Appendix D: Endnotes

[1] Source: The Application Modernization And Migration Services Landscape, Q4 2023, Forrester Research Inc., November 1, 2023.

[2] Source: Quick Moves To Solve Your Cloud Challenges, Forrester Research Inc., January 3, 2024.

[3] Source: The Forrester Wave™: Application Modernization And Migration Services, Q1 2024, Forrester Research Inc., March 18, 2024.

[4] Source: How To Modernize Core Applications With Cloud, Forrester Research Inc., December 5, 2023.

[5] Source: High-Performance IT: The Essential Technology And Practices, Forrester Research Inc., January 16, 2024.

[6] Source: Modernize With Cloud And New Computing Architectures, Forrester Research, Inc., January 2, 2024.

[7] Ibid.

[8] Ibid.

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