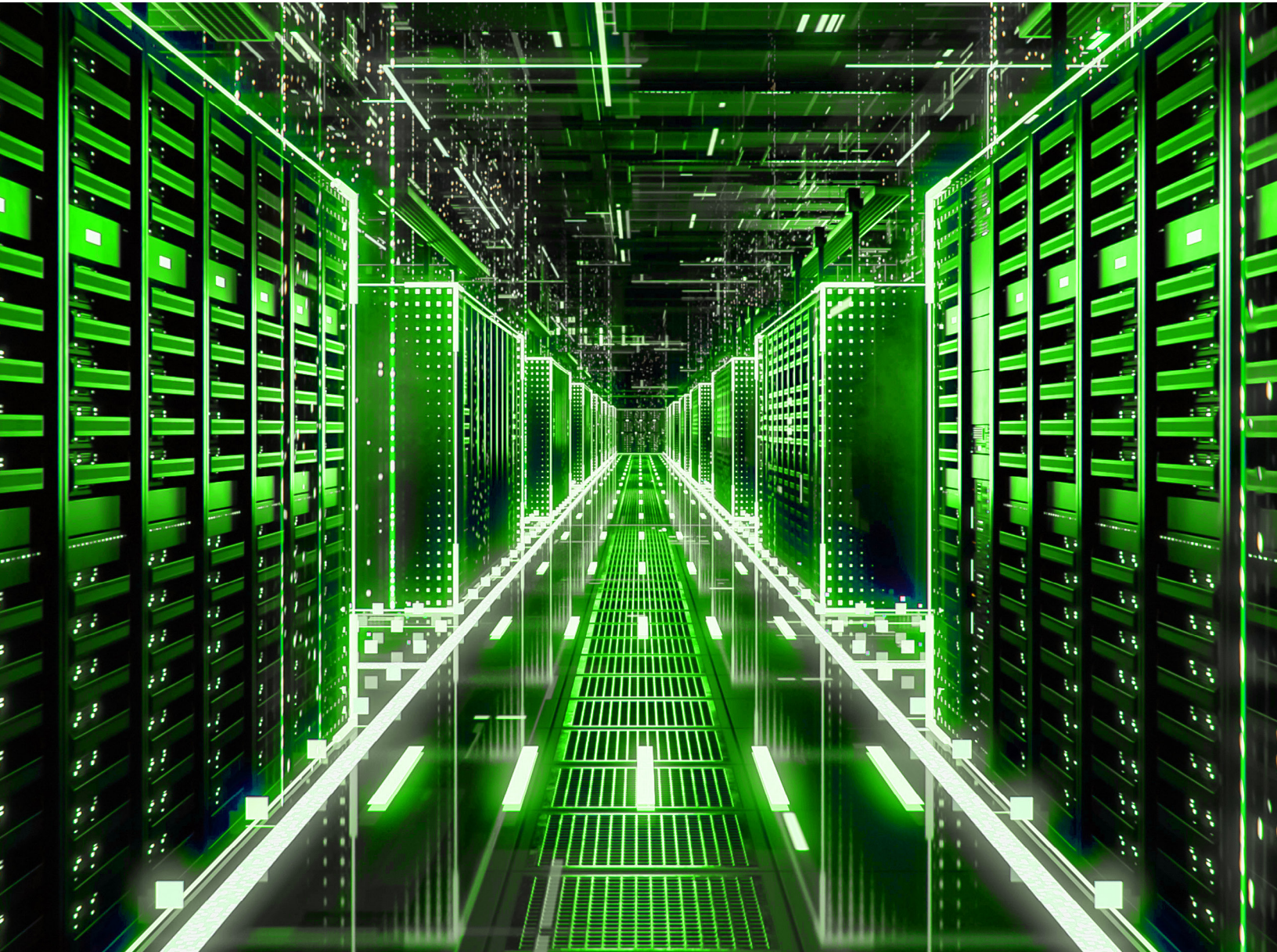# kyndryl.

Kyndryl's 2025 State of Mainframe Modernization Survey Report

Mainframe Modernization in a Hybrid World:
Trends & Insights

Contents

Executive summary

Modernizing IT environments has never been more challenging – or more urgent.

Economic volatility and inflation fears are raising the stakes for technological investments. Rising geopolitical tensions are affecting supply chains and leading to greater cybersecurity risks. In an increasingly fragmented global regulatory environment, business leaders are under added pressure to achieve demanding compliance and security goals. Meanwhile, AI and generative AI are rapidly transforming businesses. With all these pressures happening at the same time, organizations must be adaptive to survive and thrive.

At the center of this IT environment lies the mainframe. Long the backbone of the IT systems that keep the global economy running, the mainframe remains important to enterprises — adapting to new demands with resilience, scale and unmatched reliability and security. Over the past three years, Kyndryl has researched how the mainframe is used across the business landscape, examining strategies for successful modernization. In 2025, Kyndryl commissioned Coleman Parkes Research to undertake the third annual global survey of 500 senior leaders at enterprises that make use of mainframes (including IBM Z, IBM i, Fujitsu and other leading brands).

The research found that while the mainframe continues to offer businesses a reliable, secure and high-performance platform for their core operations, enterprises are dynamically adapting mainframe modernization strategies in response to changing market opportunities. They are experiencing new realities such as the rapid emergence of new technologies, geopolitical shifts and an influx of new regulations. Eight in ten organizations (80%) reported that their modernization strategy has shifted in the past year, indicating widespread re-evaluation and a degree of agility not commonly associated with technology projects of such significant size, scope and complexity. In addition, they are also reporting lower costs for mainframe modernization projects and greater expected returns on investment.

This research also shows that organizations expect a strong return on investment from the deployment of AI and generative AI in their mainframe environment. The businesses surveyed collectively anticipate that AI will generate $12.7 billion in cost savings and $19.5 billion in increased revenues over the next three years. These are staggering figures. AI adoption continues to fundamentally change the scope of mainframe modernization projects.

Yet, a notable paradox emerges in this year's data: while the perceived strategic importance of the mainframe has declined by 11% year over year, the majority of respondents (56%) have increased their usage of the platform. We also found that the number of workloads moving off the mainframe has decreased by 8%.

This contradiction reflects the evolution of modernization strategies. As organizations make significant progress in migrating certain applications to other platforms, they are simultaneously discovering new, high-value roles for the mainframe. Technologies such as agentic AI, large language models (LLMs) and DevSecOps are driving renewed interest in mainframe capabilities, positioning the platform as a key component within increasingly dynamic and integrated hybrid environments.

Given that mainframe modernization requires in-depth knowledge of technologies including cloud, AI and security, this paper will examine organizations' strategies for addressing the ongoing skills shortage. This skills gap is aggravated by the speed of new technologies emerging and the continued retirement of employees with mainframe skills. We'll also discuss the influence of increased regulatory requirements on modernization plans and strategies.

In a hybrid world, the evolving capabilities of the mainframe allow it to remain central to IT strategies. In 2025, organizations continue to accelerate and steer their evolution, opening up a wealth of new possibilities.

Five major takeaways from our research

1. Businesses are embracing a surprisingly nimble approach to their modernization strategy. In fact, 80% of organizations have shifted their strategies in the past year. The reasons vary widely, including the success of previous projects, budget shifting to new technologies, or external factors such as geopolitical, macroeconomic and regulatory concerns becoming high priority. Regardless of the strategy employed, organizations see substantial and increasing ROI from mainframe modernization, ranging from 288% for those who modernize applications on the mainframe to 362% for those who move workloads from the mainframe to other platforms.

2. Deployment of AI and generative AI on the mainframe starts to pay off. Within the next three years, respondents collectively expect to achieve $12.7 billion in cost savings and $19.5 billion of increased revenues within their organizations as a result of using AI and generative AI in their mainframe environments. Top use cases include enhanced performance and resource allocation, fraud detection and security and threat assessment/detection.

3. The majority of businesses are increasing usage of the mainframe, despite respondents reporting a decline in the platform's importance to overall strategy. This decline (-11%) is perhaps to be expected, as many organizations have made substantial progress towards operating in a hybrid environment. With the advent of new technologies such as agentic AI, LLMs and newer approaches such as DevSecOps, a majority (56%) of organizations are increasing their use of mainframes and leveraging them in new ways within their hybrid environment.

4. Mainframe modernization requires a multi-skilled organization. It is no longer enough for organizations to have experts with skills in mainframe technology only. As mainframes are increasingly operated within hybrid environments, organizations also need experts with knowledge of cloud, security, AI and generative AI, as well as networking and edge computing. Seventy percent of respondents have had difficulties finding the right skills, and three quarters of respondents (74%) leverage external firms to help them modernize.

5. Regulatory compliance requirements have an outsized influence on modernization plans and strategies, while security remains a top concern. Ninety-four percent of respondents report that regulatory compliance strongly influences their organization's decision-making regarding mainframe modernization, causing organizations to accelerate timelines, increase collaboration across functions and design for compliance from the outset. Furthermore, 32% cite security as a reason why they kept an application on the mainframe.

80% of businesses embrace a surprisingly nimble approach to modernization

Mainframe modernization projects yield **288-362%** ROI

AI is expected to drive **$12.7B** in cost savings & **$19.5B** of increased revenues over the next 3 years

Mainframe importance drops by **11%**, but **56%** increased platform usage

70% have difficulties finding multi-skilled talents within their organization

94% report regulatory compliance influences decision-making & **32%** cite security concerns as reason to keep applications on mainframe

2025 top findings

1. Businesses are embracing a surprisingly nimble approach to their modernization strategy

Organizations typically approach mainframe modernization through three strategic paths: modernizing workloads on the mainframe, integrating with the cloud, or moving applications and data to other platforms. *Modernize on* efforts may involve activities such as rationalizing software portfolios, updating legacy code, adopting modern programming languages and applying emerging technologies to enhance operational efficiencies. Others pursue an *integrate with* path, connecting mainframe applications and data to the cloud or distributed systems in search of broader interoperability and access to data. In the *move off* approach, organizations migrate workloads to cloud platforms to enable faster time to market and innovation.

While mainframes remain essential to core operations, many enterprises are also pursuing the flexibility and scalability offered by other platforms – making hybrid modernization the dominant model. Currently, 99% of enterprises operate in hybrid environments, where mainframes are modernized and integrated with other systems. In this model, organizations choose the most appropriate platform for each workload based on factors such as performance needs, cost efficiency and compliance requirements.

A flexible, iterative approach has become essential as modernization strategies evolve in response to both internal progress and external pressures. Eight in ten organizations (80%) report that their mainframe modernization strategy has shifted in the past year. This demonstrates that organizations are no longer taking a "big bang" approach to modernization but favor a pragmatic approach to transform in manageable phases and course correct as needed. This shift is especially apparent in sectors such as telecommunications & media, where 94% of respondents noted a change. Healthcare, retail and manufacturing also reported higher-than-average shifts, while industries such as insurance and travel have adopted a more measured pace.

Organizations cite a variety of reasons for these strategic adjustments. Some (11%) are reallocating budgets toward emerging technologies like AI, while others (10%) were encouraged by the success of early modernization projects and chose to accelerate their efforts. External factors also play a role, 21% of organizations have shifted their strategies this year due to geopolitical or macroeconomic developments and regulatory changes. Furthermore, 16% of respondents said their modernization projects shifted due to lack of budget, lack of skills or failed approaches.

Sustainability has also emerged as a driver of modernization. Legacy systems, often resource-intensive and inefficient, are being scrutinized through an environmental lens. Nearly a quarter of organizations (24%) say sustainability is a primary reason for moving applications off the mainframe, while 16% now factor environmental impact into their overall modernization decisions. When determining which applications to migrate, sustainability considerations now stand alongside traditional business and technical factors such as application complexity, performance and vendor support.

Among organizations that have shifted their approach, 43% say they are placing more focus on modernizing directly on the mainframe and 50% are moving more towards a hybrid strategy. That 50% is comprised of 34% prioritizing integration with cloud platforms, and 16% are increasing the pace of moving applications off the mainframe. This clear trend toward hybrid strategies blends on-platform modernization with enhanced cloud connectivity. Full-scale migration away from the mainframe remains relatively limited, reinforcing the platform's continued role in supporting mission-critical operations. In our survey, only 1 out of 500 respondents planned to move entirely off the mainframe.

Organizations report significant ROI across all modernization paths – 288% for modernizing on the mainframe, 297% for integrating with cloud and 362% for moving off the mainframe. These ROI figures are almost twice as high as the numbers in last year's survey, when returns ranged from 114% to 225%, and appear to be fueled by a combination of lower project costs and higher expected benefits. The lower project costs are mainly driven by reduced costs for software licensing/maintenance, hardware/maintenance and internal/third-party labor.

For example, the average cost of modernizing on the mainframe dropped from $9.1 million in 2024 to $7.2 million in 2025, while the ROI more than doubled. Similar patterns are evident for integration and migration strategies, as organizations spend less on modernization efforts while gaining greater business value in return.

These compelling outcomes are prompting enterprises to reassess and refine their strategies continuously, seeking a platform mix that supports their operational, technological, financial and sustainability goals. In today's dynamic environment, the ability to adapt is not just beneficial – it's essential.

Looking ahead, this adaptability will be even more critical. Over the next three years, most businesses plan to harness emerging technologies directly on the mainframe. Eighty-three percent have implemented or plan to implement large language models (LLMs), 82% are integrating development, security and operations practices (DevSecOps) and 78% are adopting agentic AI to develop, test and manage business applications.

> "Sustainability is also the reason to choose to move off the less critical applications, because reducing the load on the mainframe and offloading to more energy-efficient cloud environments contributes to our sustainability goals. Cloud providers often run on infrastructure powered by more renewable sources, and it helps us optimize energy use across the board."
>
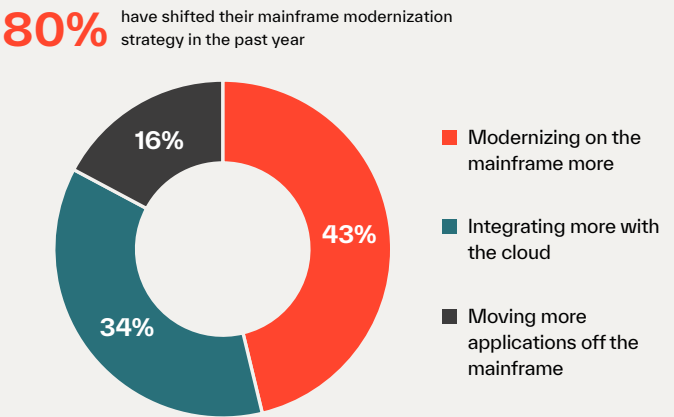> – CIO at a banking & financial enterprise in the UK

80% have shifted their mainframe modernization strategy in the past year

- Modernizing on the mainframe more
- Integrating more with the cloud
- Moving more applications off the mainframe

Figure 1: Share of respondents who have changed their mainframe strategy in the past year
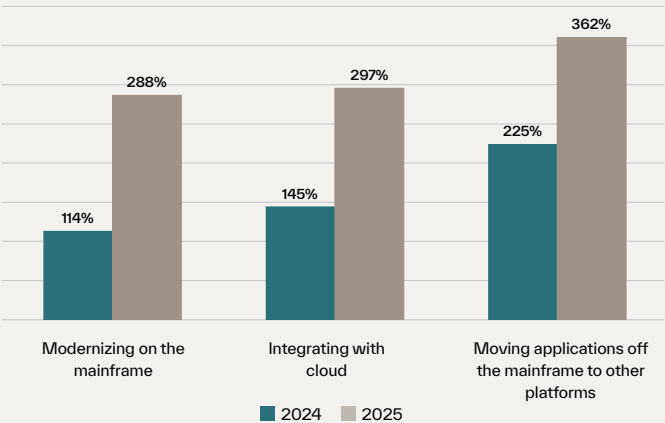

Figure 2: ROI for mainframe modernization approaches

> "Our mainframe modernization strategy has shifted; earlier, the focus was shifting to the cloud, microservices and a DevSecOps workflow. But now, we are looking at AI-powered automation and improving our scalability."
>
> – CTO at a U.S. government agency

2. Deployment of AI and generative AI on the mainframe starts to pay off

Last year, over a third of enterprises cited opportunities offered by AI, including agentic and generative AI, as a key influence on their mainframe modernization investment decisions. In 2025, confidence in the technology continues to grow. When deployed on the mainframe, AI and generative AI can help derive powerful insights from complex data, convert code, modernize applications and increase workforce efficiency. The organizations we surveyed expect to achieve a total of $12.7 billion in cost savings and $19.5 billion in increased revenues over the next three years as a result of using AI and generative AI on the mainframe.

AI adoption is moving quickly. Nearly nine out of ten organizations (88%) have already implemented or plan to implement generative AI tools in their mainframe environments. While in 2024 most organizations (80%) were still in the early or mid-stages of AI adoption, progress is accelerating – 15% of respondents have now completed or are nearing the final stages of AI integration versus just 4% last year. This momentum reflects not just growing technical maturity but also rising confidence in AI's potential to deliver measurable business value.

This enthusiasm for AI on the mainframe is shared across sectors. Telecommunications & media leads adoption, with 97% of organizations in the industry reporting plans or ongoing use of generative AI on the mainframe, followed closely by retail (96%). Even in traditionally more conservative sectors such as healthcare (82%), manufacturing (80%) and energy & utilities (77%), AI-enabled mainframe strategies are taking hold.

Industry adoption of AI on the mainframe

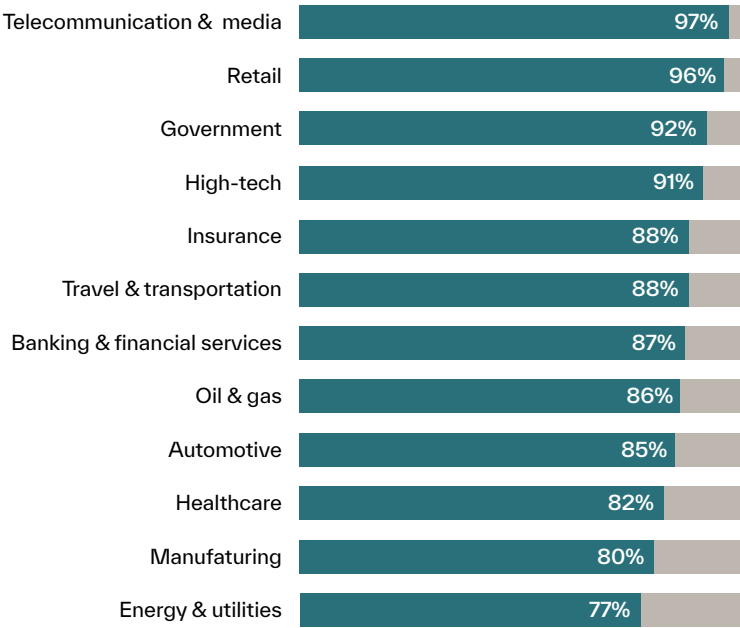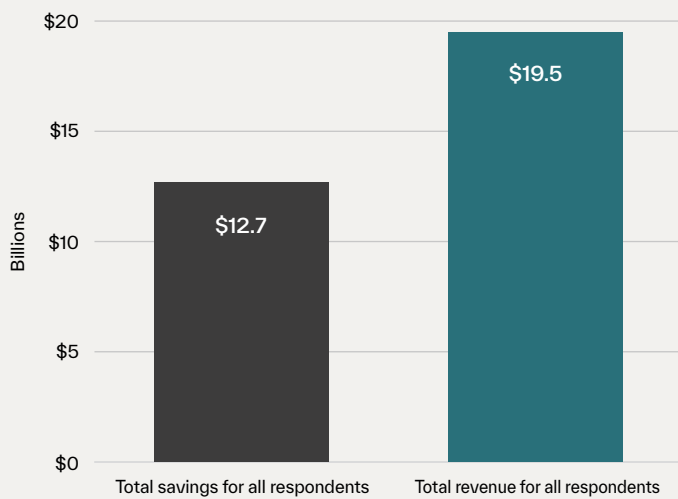| Industry	Adoption
Telecommunication & media	97%
Retail	96%
Government	92%
High-tech	91%
Insurance	88%
Travel & transportation	88%
Banking & financial services	87%
Oil & gas	86%
Automotive	85%
Healthcare	82%
Manufaturing	80%
Energy & utilities	77%

Figure 3: Industry adoption of AI on the mainframe

Figure 4: Savings and revenue from mainframe-related AI and generative AI initiatives over the next three years

Top 3 AI use cases

Optimize performance and resource allocation	33%
Improve fraud detection	29%
Support better security testing and assessment	26%

Top 3 desired outcomes of AI

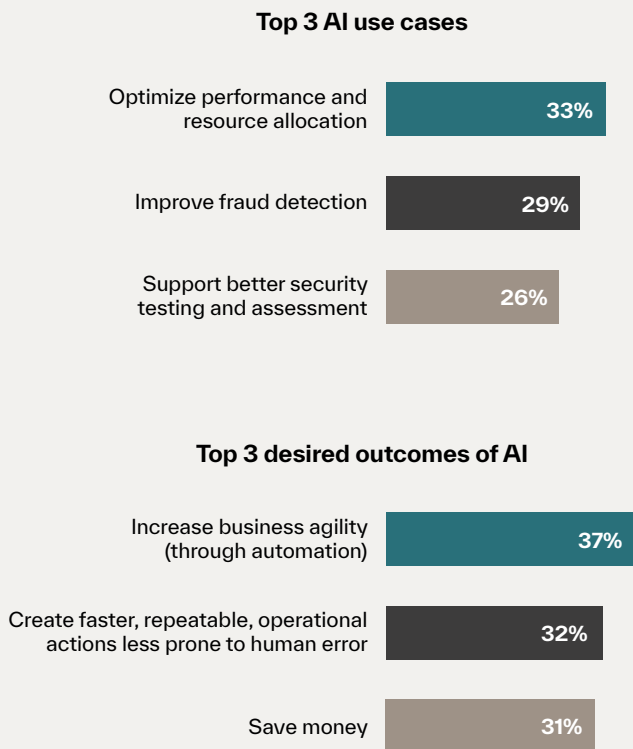|	
Increase business agility (through automation)	37%
Create faster, repeatable, operational actions less prone to human error	32%
Save money	31%

Figure 5: Top use cases and outcomes of AI

With firsthand experience of the generative AI capabilities, organizations are committing significant investments to scale their efforts and expect substantial returns. When the aforementioned aggregate ROI numbers are broken down to an organizational level, they remain impressive. On average, those investing in AI plan to spend $15.9 million on AI and generative AI initiatives tied to their mainframe strategies over the next three years. In return, they anticipate approximately $29.1 million in savings and $44.6 million in new revenue per organization. Collectively, this means that respondents anticipate saving $12.7 billion over three years and expect to generate $19.5 billion in revenue from AI initiatives.

Enterprises are turning to AI and generative AI for a wide variety of use cases. A third of respondents (33%) report that they are using AI to optimize performance and resource allocation. Twenty-nine percent are using AI to improve fraud detection, and a quarter of respondents (26%) are using it to support better security testing and assessment. Respondents hope that using AI and generative AI on the mainframe will increase business agility (37%), create faster, repeatable operational actions that are less prone to human error (32%), and save money (31%).

> "A major part of our AI and GenAI implementation has been focused on improving our operational efficiency and customer experience. Through AI, we are building an adaptive and scalable retail ecosystem."
>
> – CTO at a retail enterprise in the US

Despite the possibilities, some enterprises remain reluctant to deploy these emerging technologies. Twelve percent are not yet planning to make use of AI and generative AI. The main barriers include security protocols that limit access to mainframe data (47%), the perception that generative AI technology lacks maturity (41%) and mainframe-specific technical barriers (40%). For instance, a CTO at a manufacturing enterprise in Brazil said: "I believe that mainframes weren't built with this type of workload in mind, and forcing AI workloads into that ecosystem could lead to performance issues or integration headaches that just aren't worth it. We are not against AI, we are actually exploring GenAI quite actively across other parts of the business but when it comes to the mainframe, it's still serving its purpose well, like handling high-volume, transaction-heavy operations reliably. We are keeping those environments stable and focusing our AI efforts on platforms that are built to handle that kind of processing and experimentation."

3. The majority of businesses are increasing usage of the mainframe, despite respondents reporting a decline in the platform's importance to overall strategy

While mainframes remain essential for core business functions, the way organizations are leveraging them is evolving – particularly in the face of advances in agentic AI, large language models (LLMs), blockchain and DevSecOps. This transformation reflects a broader shift toward hybrid IT environments, where flexibility, performance and security are balanced across platforms.

Notably, the perceived business importance of the mainframe is shifting in complex ways. Organizations that consider the mainframe very or extremely important to their business dropped by 11% this year compared to last year and now sits at 78%. However, those same organizations reported an 8% increase in the number of workloads they are keeping on the mainframe. This underscores a key insight: while strategic attitudes may be evolving, operational reliance on the mainframe continues to grow. Furthermore, almost all respondents (95%) have reported their mainframe usage has increased (56%) or stayed the same (39%) in the past 12 months– suggesting continued value even as modernization strategies diversify.

Approaches to mainframe modernization are also evolving year-over-year. In 2025, more businesses are modernizing workloads on the mainframe or integrating them with the cloud, rather than moving off the platform altogether. Fifty-six percent of respondents saw increased mainframe usage in the past year, and 54% expect it to increase further over the next 12 months. The telecommunications & media sector is leading the way, with 72% of organizations reporting increased usage last year and 78% anticipating continued growth. In contrast, sectors like travel & transportation and oil & gas have been more balanced or cautious. For example, while 50% of travel & transportation firms reported increased usage last year, only 35% expect further growth. These trends suggest that while mainframe usage is broadly on the rise, sector-specific requirements and modernization strategies are influencing the pace and scale of adoption.

Ninety-eight percent of respondents are moving some of their application portfolio off the mainframe, but respondents report that they are moving fewer applications off the mainframe in 2025. Last year, businesses reported plans to migrate 36% of applications off the mainframe; this year, that figure declined to 28%. This shift could suggest an ongoing reliance on the mainframe, or it may reflect that many organizations have made significant progress by having already moved a portion of their applications previously. At the same time, respondents also reported that the percentage of their mission-critical workloads on the mainframe remained steady at 56%.

Application migration

98% of respondents are moving some of their application portfolio **off the mainframe**

28% On average, organizations are moving **28%** of their applications **from the mainframe to other platforms**
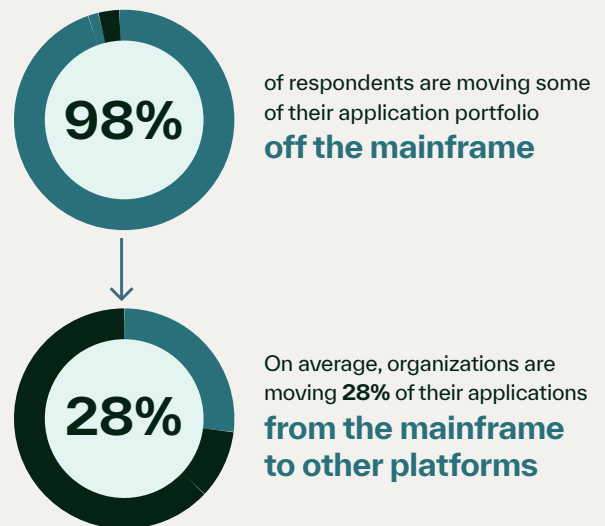
Figure 6: Percentage of organizations that are moving applications from the mainframe to other platforms, and percentage of applications they expect to move

Monitoring hybrid environment

Business benefits of having a single dashboard

92%

of respondents consider it to be **important** to have a **single dashboard** to monitor their hybrid environment

Cost optimization	45%
Operational stability	41%
Executive visibility	36%
Increased operational efficiencies	35%
Increased profitability	31%
Risk mitigation	28%
Improved employee satisfaction	22%
Faster time to market for products / services	19%

Figure 7: Organizations expect to receive myriad benefits from a single dashboard

Each modernization pattern has its own advantages. Respondents name their top three motivations for modernizing on the mainframe to be increased security and resilience (33%), the utilization of AI (30%) and increased flexibility (23%). The top three reasons to integrate the mainframe with other platforms are data accessibility (34%), the use of AI (25%) and cost savings (24%). Respondents are choosing to move off the mainframe to use AI (28%), increase flexibility (26%) and improve sustainability (20%).

However, hybrid IT modernization – where mainframes are modernized and integrated with other platforms – appears to be the preferred approach for many. For example, a Chief Enterprise Architect at an automotive company in Germany explains:

"We still rely on IBM Z systems for some of our most mission-critical workloads. These systems are deeply optimized and integrated into our operations, and frankly, they deliver the kind of resilience, throughput and security we need at scale. If we try to replatform those right now, it will introduce too much operational risk. So instead, we are refactoring components, introducing APIs and applying DevOps practices, basically bringing cloud-like agility to the mainframe without moving off."

As organizations adopt hybrid IT models, the need for comprehensive operational visibility becomes more urgent. Company-wide insights are key to running with strategic precision, yet observability across a mixed environment remains a significant challenge. Nearly all enterprises (92%) say it is important to have a unified dashboard to monitor their hybrid landscape – one that includes mainframe data to ensure a single source of truth. Still, 77% report difficulties in achieving full end-to-end observability across their hybrid environments, particularly when it comes to incorporating mainframe insights.

According to respondents, the most critical observability priorities are monitoring security and regulatory compliance (47%), integration with IT service management (ITSM) systems (43%) and tracking infrastructure performance (41%).

"Without having a single dashboard view, things can spiral out of control pretty quickly. We have got applications that are partially hosted on the mainframe, partially on AWS, some with Azure, and a few legacy systems still sitting in private data centers. Before we acquired a single dashboard we had to jump between five or six different dashboards to monitor performance, availability, security events and cost metrics. We would never be able to react fast enough or accurately enough to act upon real-time issues."

– CIO at a banking & financial enterprise in the UK

4. Mainframe modernization requires a multi-skilled organization

Once again, respondents report that a skills shortage is hindering mainframe modernization. In 2025, seven out of ten organizations (70%) reported difficulty finding the skilled talent needed to effectively modernize their mainframes. The extent of the challenge varies significantly by sector. Telecommunications & media organizations report the highest difficulty, with 88% struggling to find the right talent. In contrast, government (63%) and insurance (65%) organizations report relatively less pressure, though a majority still face notable skills gaps.

In particular, the emergence of technologies such as AI is met with a significant skills challenge. Enterprises state that the top three areas where a skills shortage remains an issue are AI (42%), cloud (37%) and systems integration (33%). Interestingly, mainframe skills – often presumed to be the biggest gap – rank lower, with only 23% citing a lack of legacy programming language skills. This suggests that organizations are increasingly looking to the future, focusing on integrating the mainframe into broader digital ecosystems rather than simply maintaining legacy systems.

In the struggle to nurture a skilled workforce, employers face three key challenges. Newcomers to the workforce do not have mainframe skills (46%), employees don't want to learn new mainframe skills (42%), and staff are retiring and taking mainframe skills with them (39%). The mainframe skills that are proving most difficult to hire relate to security (45%), AI (25%) and applications (19%).

To bridge these capability gaps, organizations are adopting a range of talent strategies. Upskilling existing employees is the most common approach (44%), followed by automating processes to reduce dependency on specific skill sets (40%), hiring new employees (36%) and leveraging AI to supplement human expertise (35%).

Investment patterns reflect this forward-looking orientation. Organizations are putting money into cybersecurity and compliance training (43%), AI and analytics (39%), application development frameworks (37%) and cloud certifications (35%). These investments are not only aimed at closing current skills gaps but also at preparing teams for the next generation of mainframe modernization, which increasingly includes deploying AI tools. However, 35% of those already working with AI on the mainframe say skills gaps are hindering progress, further reinforcing the need for a multi-skilled approach.

Faced with a lack of skills within their internal teams, three-quarters of organizations (74%) are using external providers to support their mainframe modernization projects.

> "Mainframe modernization is not something you can tackle with just internal capabilities, especially at the scale at which we operate. Our internal teams know our systems pretty well, but when it comes to transforming legacy COBOL applications, optimizing for cloud integration or managing compliance and auditability across hybrid platforms, bringing in external expertise really accelerates the process."
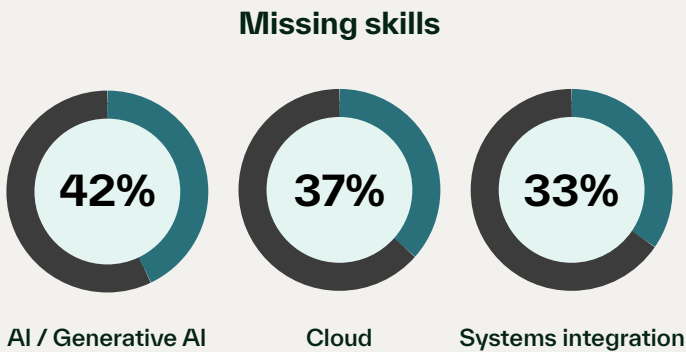>
> – CTO at a manufacturing enterprise in Brazil

Missing skills

42%	37%	33%
AI / Generative AI	Cloud	Systems integration

Figure 8: The skills shortage related to mainframe modernization projects

Talent strategies to address mainframe skills

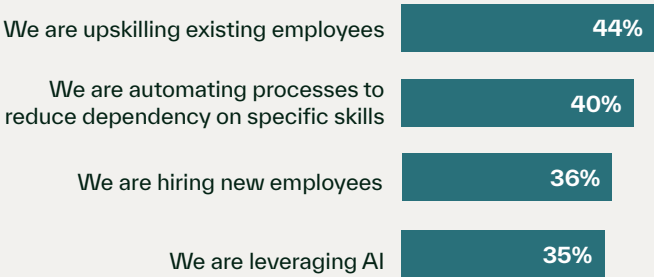|	
We are upskilling existing employees	44%
We are automating processes to reduce dependency on specific skills	40%
We are hiring new employees	36%
We are leveraging AI	35%

Figure 9: Use of external partners to modernize applications

5. Regulatory compliance requirements have an outsized influence on modernization plans and strategies, while security remains a top concern

Mainframes are a critical repository of sensitive data, and an influx of regulatory compliance requirements is having an outsized influence on mainframe modernization strategies. Regulations – such as the EU's 2025 Digital Operational Resilience Act (DORA), India's 2023 Digital Personal Data Protection Act and the EU's 2024 AI Act – are influencing organizational decision-making around mainframe modernization for 94% of businesses.

The influence of regulation is leading to a range of operational and strategic adjustments. This means that organizations are thinking beyond technology: they are expanding collaboration between IT, security and compliance teams, reprioritizing budgets and accelerating modernization efforts to stay ahead of regulatory timelines. Cloud adoption and hybrid infrastructure decisions are increasingly being shaped by the need to meet new compliance standards, and many businesses are now incorporating third-party supply-chain preparedness and technology selection criteria into their modernization plans with regulation in mind. In some cases, organizations are even slowing down or pausing modernization initiatives to reassess their compliance posture.

Again, we see that responses vary by industry. Healthcare leads in fostering collaboration between IT, security and compliance teams (57%), while telecommunications & media is most likely to accelerate modernization timelines (48%). Retail organizations in particular are placing stronger emphasis on protecting customers and transactional data, with 42% highlighting data protection as a primary concern.

Security is deeply intertwined with regulatory compliance priorities, serving as both a foundation of mainframe reliability and a key consideration in modernization strategies. Nearly half of organizations (49%) cite security as one of the most valuable features of the mainframe, while security risks are the most frequently mentioned factor (36%) influencing modernization decisions.

"We have to pay attention to regulatory requirements around cyber security, privacy and evolving AI guidelines; all of these are more of a baseline we need to meet, rather than the main driver behind our modernization strategy. We modernize because we face increasing technical debt and inflexibility in our existing systems. Updating our core platforms lets us improve speed, scalability and integration with modern applications, which allows us to better respond to customer needs and market changes. Compliance is definitely a non-negotiable aspect, so we ensure that every new system or change adheres to current regulations like DORA for cyber resilience or privacy mandates such as APP (Australian Privacy Principles)."

– CTO at an insurance enterprise in Australia

In hybrid environments, security, compliance and data sovereignty are critical factors. As AI adoption gains momentum – with 88% of organizations in our research either deploying or planning to deploy AI tools on the mainframe – security remains a top priority. Over a quarter of organizations see improved security testing (26%) and advanced threat detection (24%) as key AI use cases on the mainframe. Yet, significant barriers persist: 47% cite restrictive security protocols that limit access to mainframe data, and 37% highlight regulatory and compliance requirements as major hurdles to AI implementation on the mainframe.

Despite technical hurdles, skills gaps and cost constraints, organizations are moving forward. Increasingly, businesses recognize that modernization is not just about cost savings or technological advancement. It is about future-proofing their infrastructure in a way that is resilient, secure and compliant. The modernization mandate has evolved – regulation and security are no longer side considerations but foundational pillars of the transformation journey.

Conclusion

We have entered a transformative era of mainframe modernization. Organizations are increasingly seeing the impact of AI use on the mainframe, benefiting from greater flexibility of mainframe strategies, accelerating innovation in a hybrid IT environment and anticipating substantial financial gains related to modernization projects.

In 2025, mainframe modernization has become more financially rewarding, driven by a sharp reduction in project costs and stronger profitability gains across all strategies. Average costs fell by over $2 million compared to last year – dropping from $9.1 million to $7.2 million for modernizing on, from $8.9 million to $6.8 million for integrating with, and holding flat for moving off. These savings, coupled with greater anticipated business benefits, have significantly boosted ROI. Returns increased from 114% to 288% for modernize on strategies, from 145% to 297% for integrate with strategies and from 225% to 362% for moving off strategies. This dual dynamic – doing more with less – underscores why organizations are accelerating their modernization efforts and rethinking their long-term platform strategies.

As enterprises gain expertise in AI and generative AI, they have identified these emerging technologies as a significant driver of cost savings and increased revenues. AI is even being used to alleviate mainframe modernization skills shortages across the workforce.

Whether through the adoption of LLMs, DevSecOps or agentic AI, mainframe use is evolving quickly. The vast majority (99%) of organizations are operating in a hybrid environment, with a smaller share of workloads moving off the mainframe compared to 2024. Changing geopolitical environments, market forces, regulatory pressures and shifting internal priorities are proving to be a significant influence on modernization projects. As enterprises adapt to these challenges, the mainframe continues to serve as the backbone of many organizations' most vital technological capabilities.

About the survey

The 500 leaders surveyed include senior IT decision-makers and line-of-business leaders working in enterprise and mid-market organizations with an average global revenue of USD $3.6 billion. They work for organizations based in North America (26%), Latin America (25%), the Asia-Pacific region (24%) and Europe (25%). The leaders work in 12 sectors: high-tech, banking & financial services, manufacturing, healthcare, retail, insurance, telecommunications & media, oil & gas, automotive, energy & utilities, travel & transportation and government organizations. They hold roles such as VP/Director/Head of IT, Chief Information Officer, Chief Technology Officer, and line-of-business positions within areas like operations and management.

Kyndryl is a leading provider of mission-critical enterprise technology services offering advisory, implementation and managed service capabilities to thousands of customers in more than 60 countries. As the world's largest IT infrastructure services provider, the company designs, builds, manages and modernizes the complex information systems that the world depends on every day. Kyndryl helps organizations take a holistic approach to mainframe modernization by determining the right workload on the right platform, leveraging its decades of mainframe experience and more than 7,000 skilled mainframe professionals.

Learn more at Kyndryl Mainframe Modernization.

kyndryl.