The Role of the Mainframe in a Hybrid-Cloud World

EMA Research Report
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Summary

Technology has been at the center of the enterprise for decades. Companies that embrace and utilize technical advances can move from the small corner store to the names and logos people immediately recognize as part of everyday life. Nothing can be more critical to success than the computing power and capabilities.

One may believe that the days of the mainframe are part of this bygone era of computing: supplanted by cloud, Internet of Things (IoT), and mobile devices. However, just as these technologies have been born, created, and evolved to become important to business operations, so has the mainframe evolved to become an indispensable part of enterprise technology strategy, from almost every important and relevant technology facet.

This report addresses recent findings that demonstrate the relevance and resurgence of the mainframe as core part of hybrid IT strategy for leading business, providing unique advantages to those that make the proper investments in them: the advantages of adopting mainframe, how it integrates as part of an existing and evolving technology space, acquiring the talent to administer and maintain the environment, and the security advantages the mainframe brings to the enterprise. The mainframe has played a critical role for the enterprise for over 50 years, but the importance of the mainframe to the enterprise continues to drive adoption and maintenance resources—sometimes over flashier technologies.

This survey, conducted by Enterprise Management Associates, polled 207 individuals from organizations of 500 employees or more from over ten different industry verticals. Nearly all (91%) of the leadership of these organizations understands the importance of their mainframe environment and 93% were familiar with information security value provided by their mainframe environment in their organizations.

Key Findings – The Future State of Mainframe

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Technology Trends (Baselines)

86% see that the mainframe is critical or very important to the operation of their organization

87% consider the mainframe is an integral part of their cloud strategy

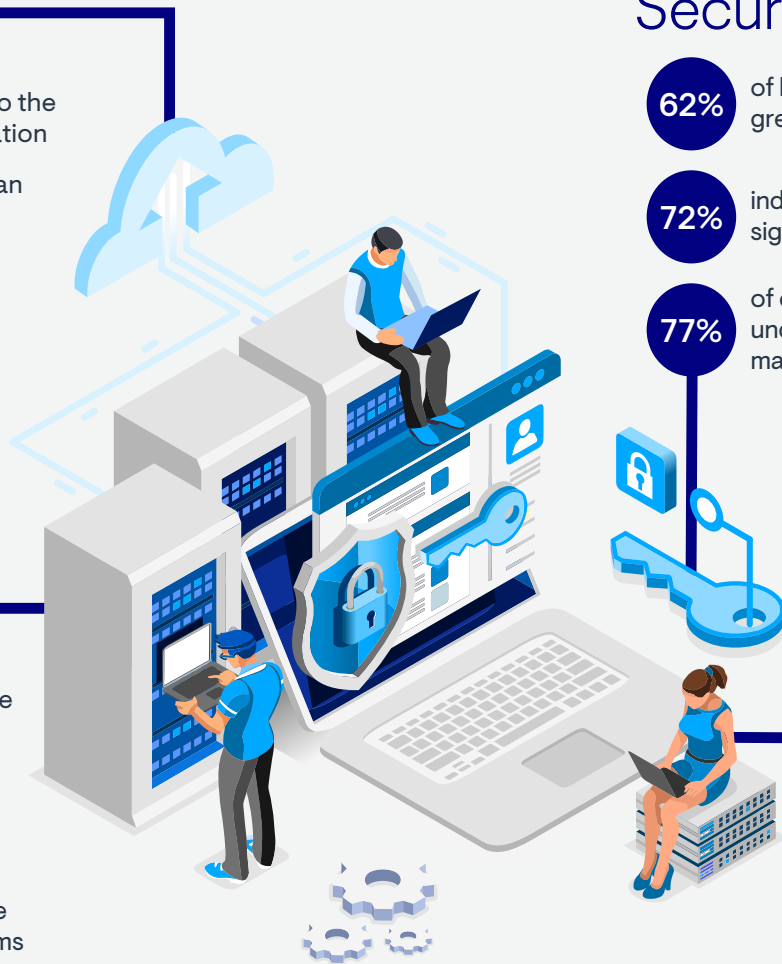**86%** view the mainframe as a competitive advantage

Role of the Mainframe

56% will continue to prioritize integration of the mainframe into their cloud strategy

88% project that the mainframe will have a continuing role for the next ten years

85% trust the mainframe to solve modern technology problems

Security

62% of business strategists believe security is the greatest value provided by mainframe

72% indicated that security/compliance was a significant motivator for moving to mainframe

77% of executive management/Board of Directors understands the cybersecurity value that the mainframe provides

Talent

86% can acquire the talent necessary for their mainframe environment

94% are able to find the talent necessary for their cybersecurity needs

70% provide continuing education and training for their mainframe engineers
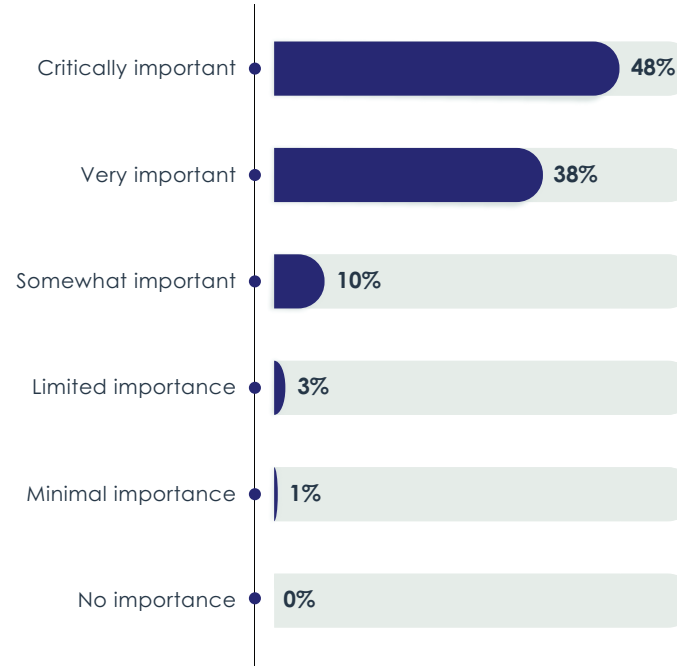
Enterprise Technology Trends

Analysis:

When starting with a survey of this type, it is always important to ask some baseline questions to get a sense of how the respondents view the topic. In this instance, 86% of the respondents believed that mainframe computing was either critical or very important to operations within their organization, with only 4% indicating that the mainframe was of limited or minimal importance.

Commentary:

This question and data alone suggest the reason for the survey: mainframe computing is still extremely important to the day-to-day operations in most enterprises. Whether it is big compute or data crunching, most organizations acknowledge that their core operations run on the mainframe, making it a critical part of their overall technology strategy and vision.

How important is mainframe computing to your organization?

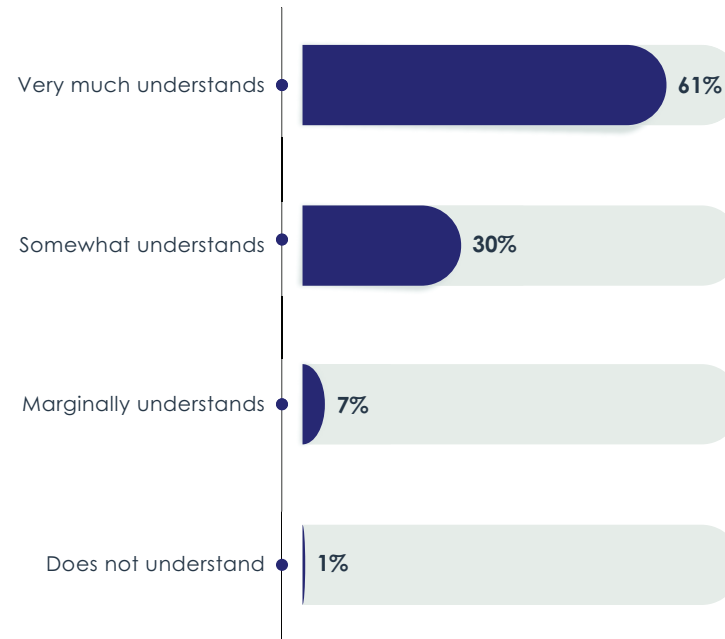| Category	Percentage
Critically important	48%
Very important	38%
Somewhat important	10%
Limited importance	3%
Minimal importance	1%
No importance	0%

Analysis:

While the overall impression is that the respondents overwhelmingly understand the importance of the mainframe to their organization, polling about the perspectives of executives and decision-makers often tells a different story—but not in the case of the mainframe. Ninety-one percent understand or somewhat understand the importance of the mainframe for their operations, while only 1% believed that their executives did not understand at all.

Commentary:

The "tone from the top" is always important because operators and practitioners may see value in a project or service, but the decision-makers (those often controlling the budget and resources) may have a different view and priority. In the case of the enterprise mainframe operations, the operators and executive management agree about the importance of mainframe for conducting daily operations, demonstrating alignment on allocating and prioritizing resources toward the mainframe environment.

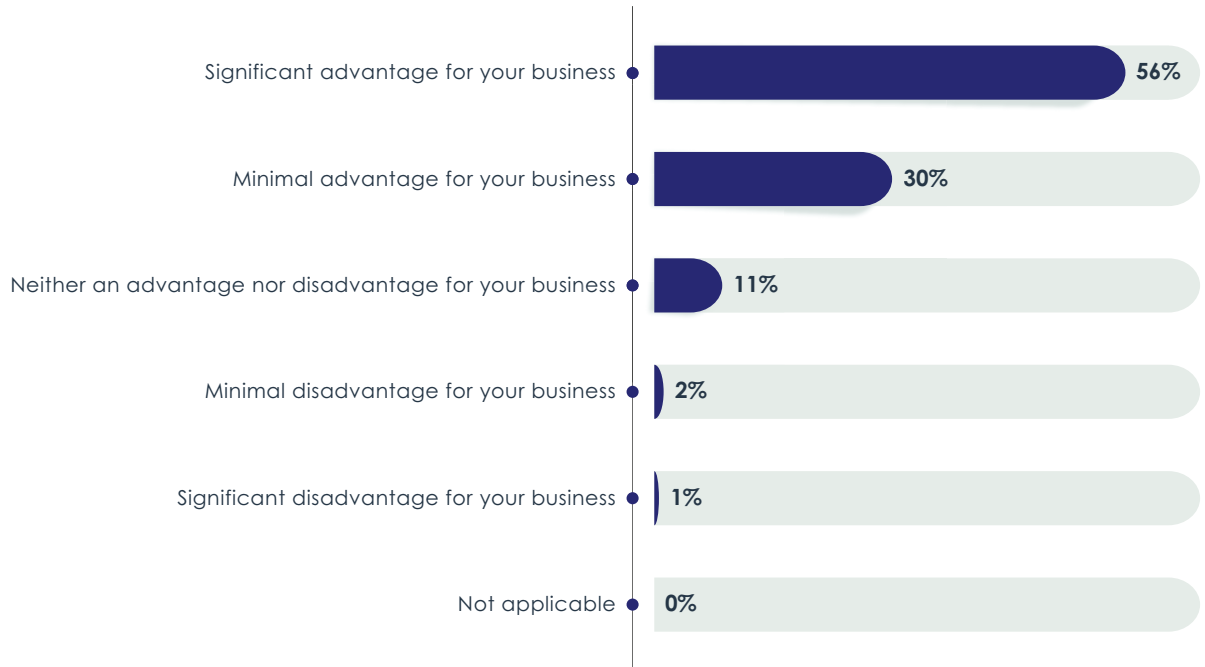### Does the executive management understand the importance of your mainframe environment?

Category	Percent
Very much understands	61%
Somewhat understands	30%
Marginally understands	7%
Does not understand	1%

Analysis:

In general, technology offers advantages to businesses through cost savings, automation, and ease of use. Sometimes, the technology is core to operating the business, meaning the business would not be able to function without it. In the case of mainframe computing, 86% of respondents identified the mainframe environment as being at least some competitive advantage to their business, setting them apart from other enterprises in the same vertical.

Commentary:

While technology is not by itself a competitive advantage in most cases, the proper utilization of a technology service or suite can be a differentiator. In the case of mainframe computing, those surveyed identified their mainframes as something that set it apart from their competitors, giving them an advantage that either saves money and resources or generates income through a differentiated offering. In many cases, mainframes provide secondary advantages as well, like security, regulatory compliance, and stability considerations, to name a few.

Do you see mainframes as a competitive advantage/disadvantage in your business?

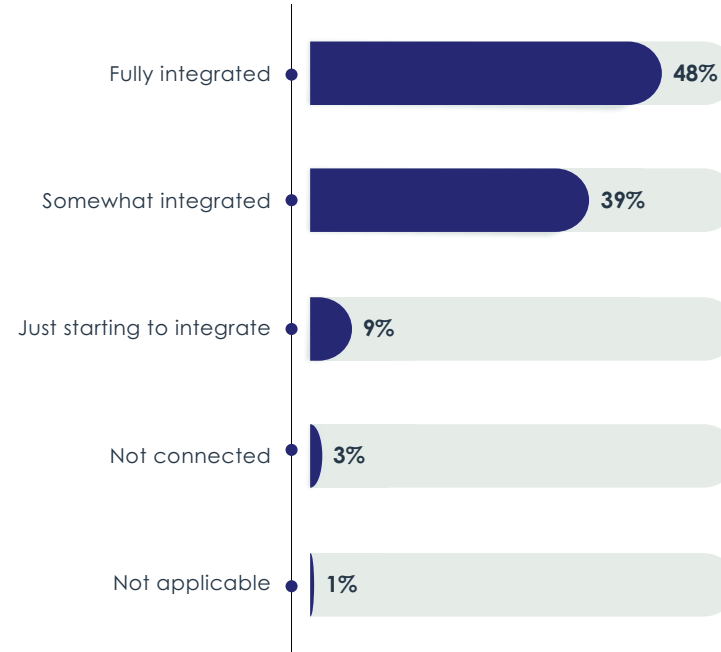| Category	Percentage
Significant advantage for your business	56%
Minimal advantage for your business	30%
Neither an advantage nor disadvantage for your business	11%
Minimal disadvantage for your business	2%
Significant disadvantage for your business	1%
Not applicable	0%

Analysis:

Most organizations, regardless of size, have at least started an evaluation of cloud computing resources. For the organizations surveyed, 87% had either completed or were in the process of integrating their mainframe environments with their cloud computing strategy. Only 3% indicated that the mainframe would not connect to their cloud environment.

Commentary:

When reviewing the importance of the mainframe to the operations of most of those surveyed, it is not surprising that those same organizations are working to integrate their cloud computing efforts with their mainframe. The important takeaway is that they are not abandoning their mainframes for the cloud, but making the mainframe an integrated part of their future technology visions. Companies are evaluating and adopting the latest technologies, but the mainframe still serves as the critical core of their technology vision.

To what degree is mainframe a part of your cloud strategy?

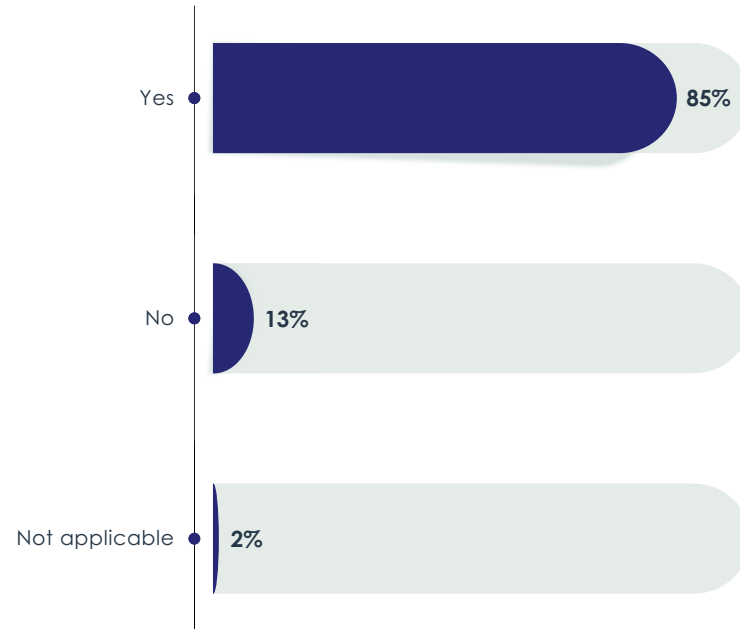| Category	Percentage
Fully integrated	48%
Somewhat integrated	39%
Just starting to integrate	9%
Not connected	3%
Not applicable	1%

Role of the Mainframe

Analysis:

Much of the marketing efforts of the technology companies revolve around demonstrating the technical capabilities of their products or solutions. For mainframe providers, there is an additional element of dispelling the notion that mainframes are somehow antiquated and no longer able to be used to solve contemporary technical challenges. Eighty-five percent of those surveyed understand that the mainframe is used to solve these modern technology challenges.

Commentary:

Most technology companies do not have to spend valuable resources convincing potential customers of their ability to solve modern problems such as powering DX customer experiences with cross-platform applications and protecting the enterprise from modern threats, but there is a legacy component to mainframes that requires them to make that kind of assertion. The customers who are already using and benefiting from their mainframe environment understand the many applications and use cases for mainframes, but there are still plenty of technology professionals who believe that the days of the mainframe are over (it is all about the cloud). Overcoming this attitude is yet another challenge for the mainframe marketing teams, but the use cases and advantages of the modern mainframe make their story extremely compelling.

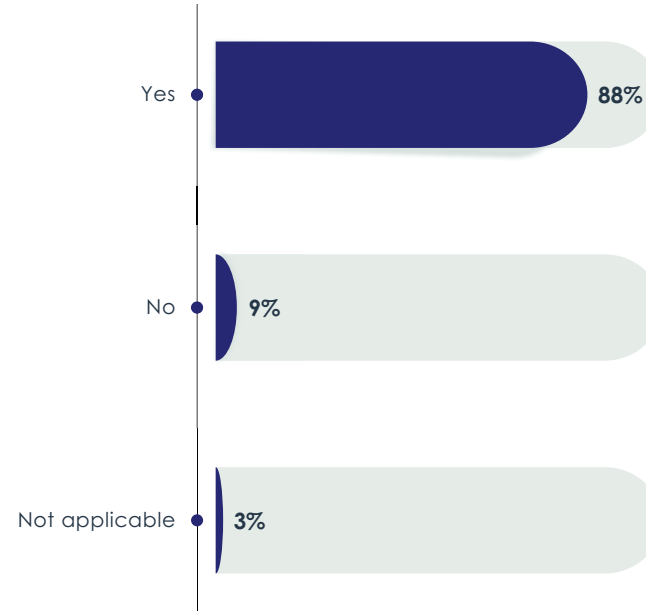### Does the mainframe solve modern technology problems?

Yes   85%

No   13%

Not applicable   2%

Analysis:

Mainframes are often the best resource available to solve modern problems and will likely be the best resource for the next decade. Of those surveyed, 88% thought that there will be a continued role for their mainframes for the next ten years.

Commentary:

Not only does a mainframe solve contemporary issues, but it continues to evolve, adapt, and integrate with other modern technologies to remain critical and relevant. Ten years is a very long time to continue to use a technology (most technology depreciates after 5-7 years) and the mainframe providers are continually innovating their solutions—as they have for 50 years—to make them relevant for the next generation of enterprises to use their services.

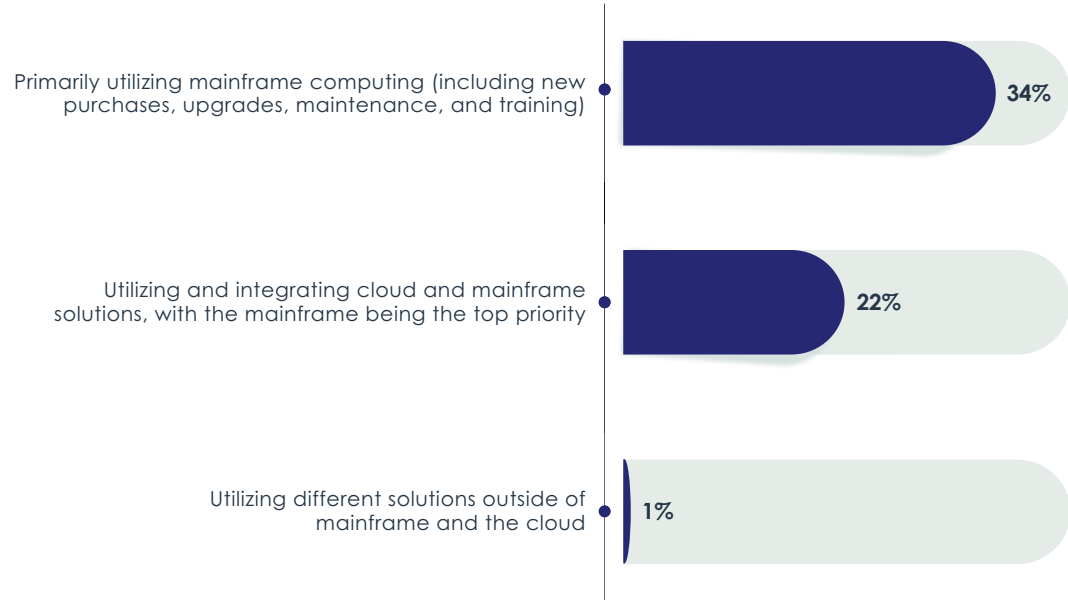### Is there a continuing role for the mainframe in the next 10 years?

Yes — 88%

No — 9%

Not applicable — 3%

Analysis:

There is no question that cloud computing will be utilized by many enterprises. Still, it is important to note that while using the cloud for some workloads, 56% of respondents indicated that mainframe will be the top priority when considering how resources will be prioritized when the top priorities (stand alone and cloud computing) are combined.

Commentary:

Cloud will continue to gain traction in the technology space—it solves many issues that CIOs are looking to address with cheap and immediately available compute. When looking for reliable production workloads or those with security as a primary consideration, the CIOs are still relying on the mainframe for the next decade to address those challenges.

How will your organization prioritize technology resources over the next 10 years?

Primarily utilizing mainframe computing (including new purchases, upgrades, maintenance, and training) — **34%**

Utilizing and integrating cloud and mainframe solutions, with the mainframe being the top priority — **22%**

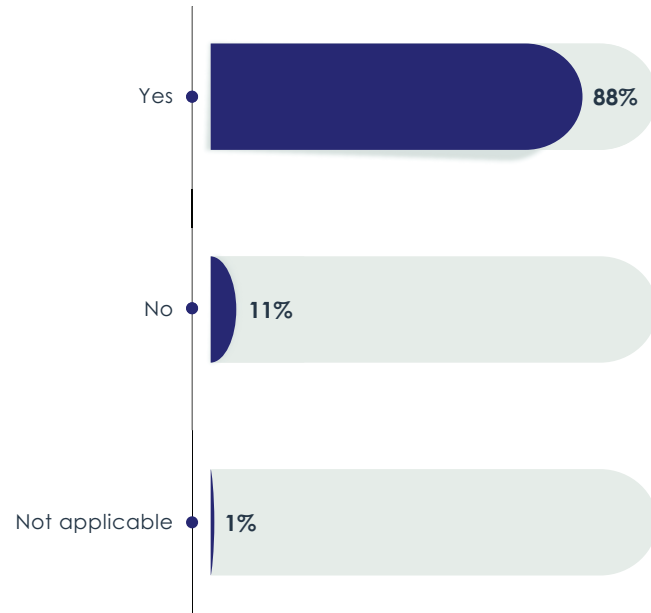Utilizing different solutions outside of mainframe and the cloud — **1%**

Analysis:

Earlier in this report, EMA discussed how management understands the importance of the mainframe to their enterprise. This question focuses on the value of the mainframe: total cost of ownership (TCO), required resources, return on investment (ROI), stability, security, and reliability. Of those surveyed, 88% believe and understand that their executives comprehend the value that the mainframe brings to their organization.

Commentary:

Practitioners often view the value of a technical solution or resource on differing criteria than their executive management. This makes it often critical to gauge the views of executives on technical solutions, and the mainframe has tremendous value from a management perspective. An overwhelming majority of executive managers understand the importance and value of the mainframe, and—because of this—will prioritize and direct resources to further mainframe development and uses cases.

Does executive management understand the value that the mainframe provides?

Yes — 88%

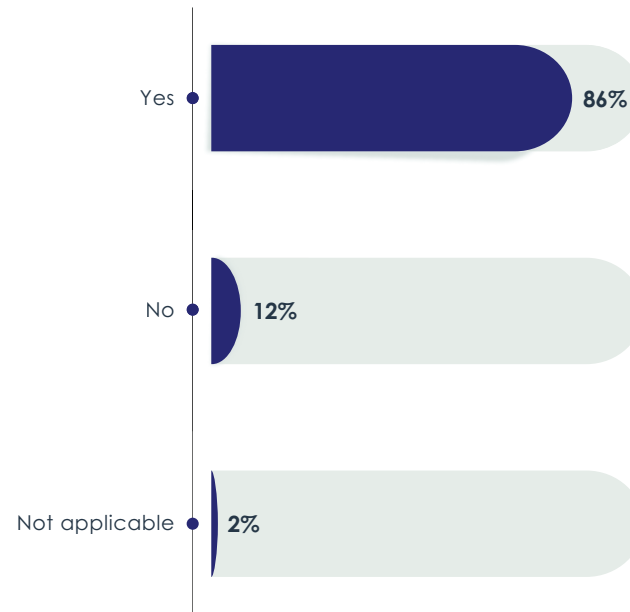No — 11%

Not applicable — 1%

Talent and the Mainframe

Analysis:

Technology talent is often difficult to find, and finding those with the necessary experience is more difficult. In the world of the mainframe, organizations needing to fill headcount for mainframe roles seem to have success. Eighty-six percent of those surveyed indicated that they were able to find the talent necessary for their mainframe environments.

Commentary:

Organizations have become more proactive in finding and training technology professionals. The mainframe industry is also aggressively providing training for their customers and resellers to ensure that there is not a significant talent gap. That training appears to be working for mainframe professionals.

Is your organization able to acquire the necessary talent for your mainframe environment?

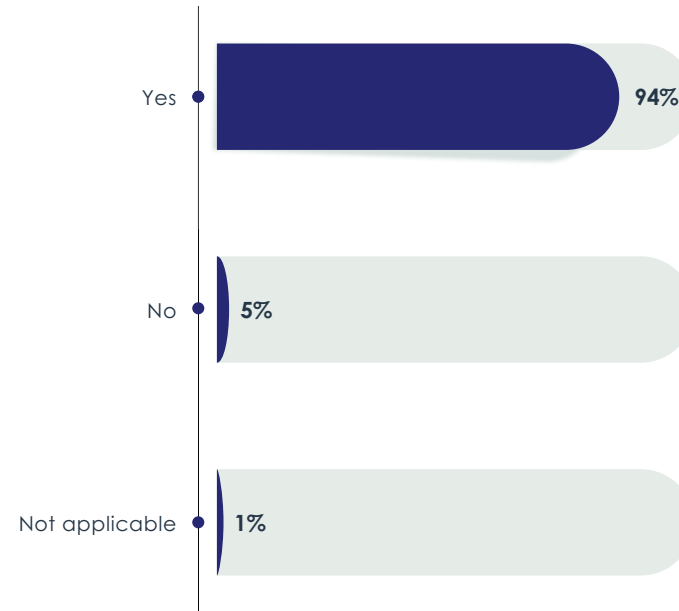| Response	Percentage
Yes	86%
No	12%
Not applicable	2%

Analysis:

Despite many reports to the contrary, those surveyed believe that their organization is able to hire the technology professionals necessary to address their cybersecurity-related concerns. Ninety-four percent believed that they could find cybersecurity talent for their organization.

Commentary:

There has been a great deal of talk in the security industry about the apparent lack of security talent. For the organizations surveyed, this does not appear to be the case. One possible explanation is that the pandemic has made geolocation of security talent far less of a concern, since most technology companies were still working remotely when the survey was taken. There was a dramatic uptick in talent acquisition during the pandemic in locations that were previously not explored for security professionals.

Is your organization able to acquire the necessary talent in cybersecurity?

Yes **94%**

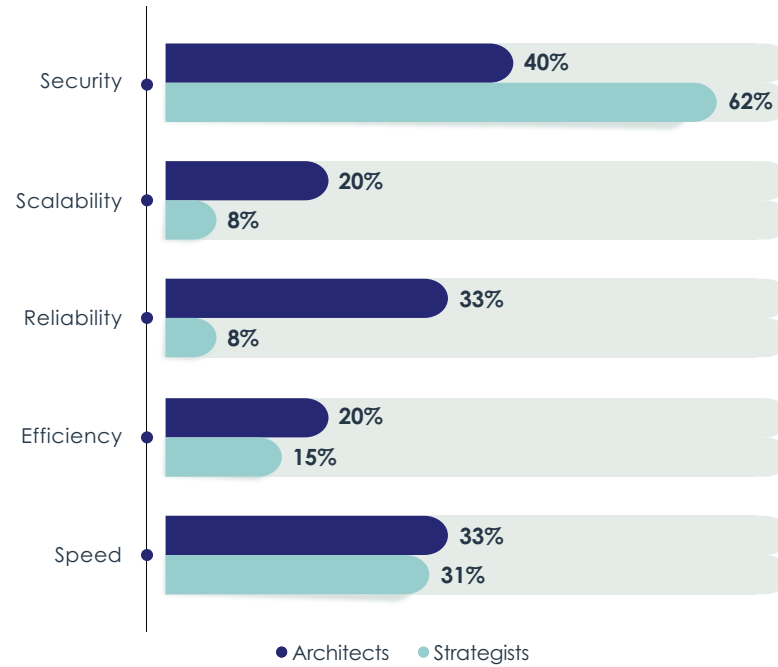No **5%**

Not applicable **1%**

Security and the Mainframe

Analysis:

Technical architects and business strategists tend to look at the business from different perspectives. It is nearly always interesting to examine what is important to one group compared to the other. In this survey, technical architects believed that the greatest value of the mainframe was in the security solutions that it provided, while business strategists believed that it was the reliability the mainframe provided.

Commentary:

Technical architect and business strategists often have competing priorities. When looking at the values provided by the mainframe, security and reliability were significant differentiators between the two groups. That being said, they were unified on things like the value of speed and the efficiencies provided by the mainframe. Also notable: despite their differences, both groups saw that security provided by the mainframe was the most important value, even considering the other competing values.

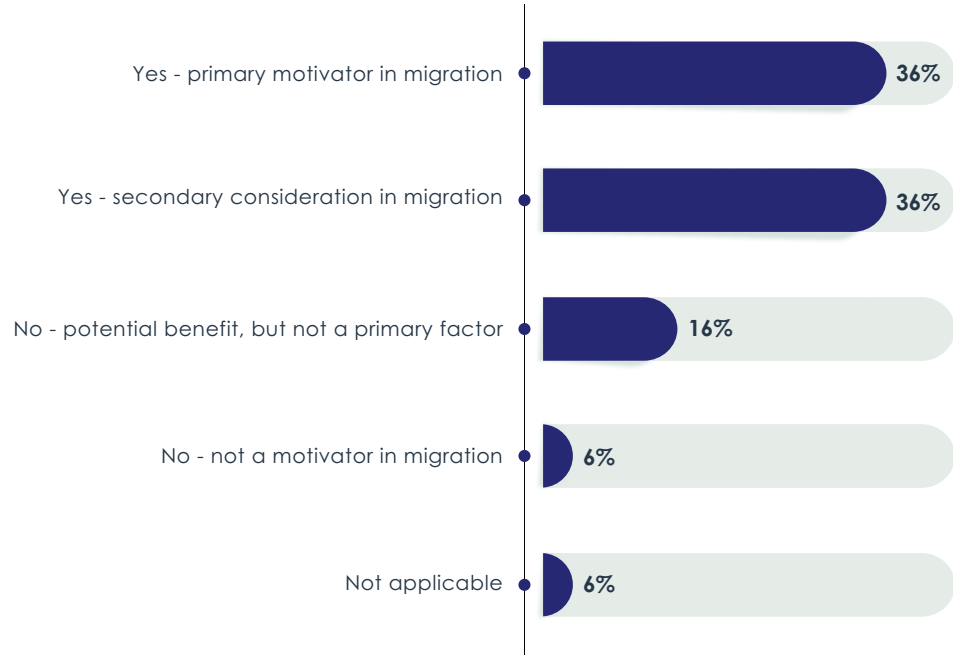### What's the greatest value of the mainframe to your organization?

Category	Architects	Strategists
Security	40%	62%
Scalability	20%	8%
Reliability	33%	8%
Efficiency	20%	15%
Speed	33%	31%

● Architects ● Strategists

Analysis:

When considering how to prioritize technical ini-
tiatives, the impact on existing regulatory controls
is nearly always a factor. When looking at the moti-
vators for moving workloads to the mainframe,
security and compliance considerations were a pri-
mary or secondary consideration 72% of the time.

Commentary:

Compliance drives a majority of security spend-
ing, and considering the importance of security
when looking at workloads on the mainframe, it
is obvious that organizations consider security
and compliance-related priorities when invest-
ing in their mainframe infrastructure. Compliance
spending is not likely to decrease in the fore-
seeable future, and if mainframes make the
regulatory controls easier to manage, it is likely
that more organizations will invest critical busi-
ness resources in workloads on the mainframe.

Is security/compliance a motivator in migrating to the mainframe?

Yes - primary motivator in migration	36%
Yes - secondary consideration in migration	36%
No - potential benefit, but not a primary factor	16%
No - not a motivator in migration	6%
Not applicable	6%

EMA Perspective

Many technology professionals came across this report and asked, "Mainframes? Those old, antiquated dinosaurs my father (or grandfather) used to maintain? Why should I care about those?" The lead researcher for this report often believed the same thing at some point in his career. However, that was an uneducated response, buying into the hype of emerging technologies looking to supplant the incredible advantages and capabilities of the bedrock technology of the enterprise.

The truth is, mainframes make the enterprise successful, and have done so for decades. After reviewing the data from this research project, it is obvious that mainframes will be critical for the decades to come.

- **Competitive advantage:** Enterprises that are reliant on technology are always looking for ways for their technical investments to give them a competitive advantage. Eighty-six percent of those surveyed indicated they have found that competitive advantage in their mainframe: the reliability, the security advantages, the stability, the ability to integrate with nearly every kind of system and environment, plus the ability to maintain those advantages even when integrating with all of those environments. It's something very few (if any) other technologies can do. Regardless of the latest technical advances, the mainframe adds value to the enterprise and their customers in ways with which other technologies cannot compete.

- **Part of cloud strategy:** Most companies are developing their cloud strategies around mainframe integration instead of a "cloud first" priority. Managers and decision-makers are still planning on heavy investment in their mainframe infrastructures for years to come and are focused on developing harmonies with the cloud environments. This isn't to say that they are not going to implement cloud computing to take advantage of the benefits that cloud has to offer, but there will be careful considerations of which critical enterprise workloads can move to the cloud and which need to remain as part of the mainframe. This balance will change over the years as cloud continues to mature, but the incumbent will always be the battle-proven mainframe for mission-critical processes and workloads.

- **Value and importance:** Executive management for the organizations surveyed saw the importance and the value of the mainframe, and both are key metrics to determining the longevity of the mainframe infrastructure. The mainframe organizations have done an outstanding job of making their customers aware of general mainframe concepts, and this translates to executives making more informed decisions about allocating resources and giving priority to the mainframe. The TCO and ROI of mainframe has proven year after year after year to be of significant value to the enterprise, and while this does not mean that there will not be other investments in technology solutions, prioritizing mainframe spending will likely continue to be at the top.

- **Security and compliance:** Key among the differentiators for the mainframe is the security and compliance-related advantage. One of the primary reasons that enterprises continue to invest in the mainframe is the security advantage they receive from their mainframe environment. The most important workloads in an enterprise are hosted on mainframe computers, with strict, well-established security controls and procedures. Arguably, security has been at the center of mainframe computing since its inception—long before cybersecurity became trendy or stylish. As new controls are created and existing standards are modified to deal with technical advances, the stability and reliability of the mainframe offers compliance continuity, which results in tangible savings. Security and compliance considerations may not be the primary motivator for keeping/moving workloads to the mainframe, but it is an additional benefit that makes the mainframe hard to ignore from a business perspective.
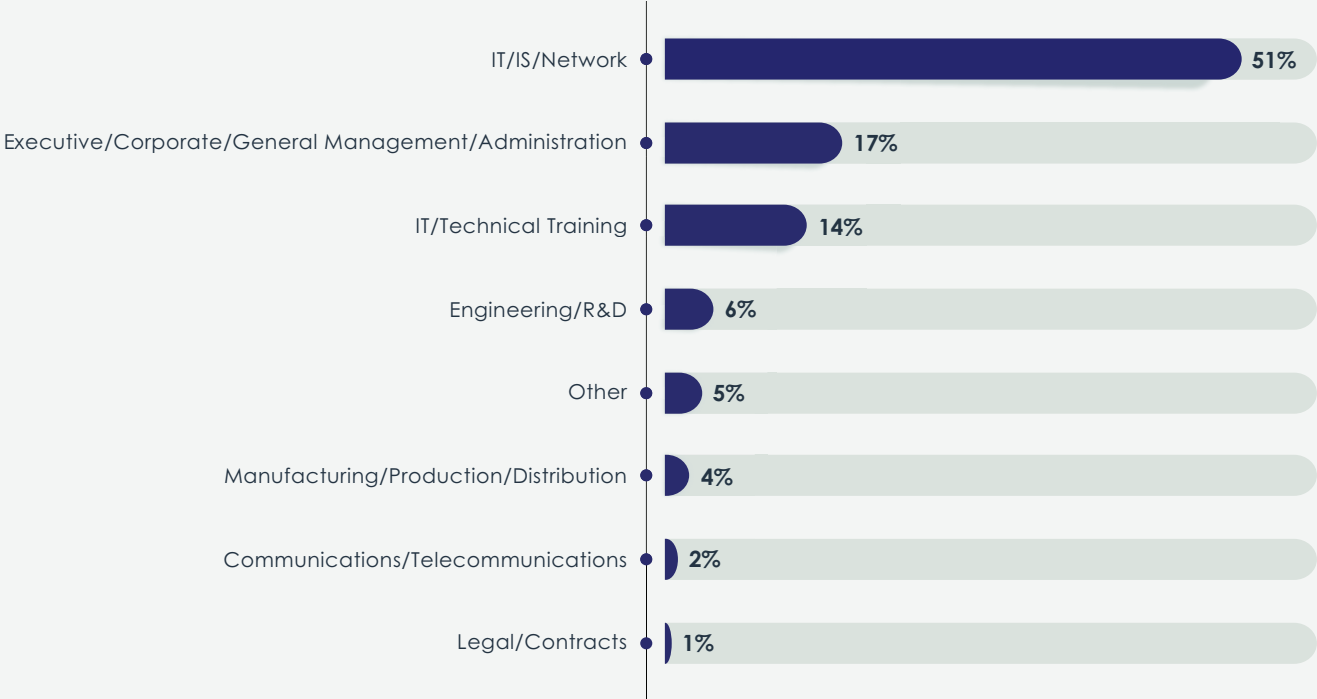
Just like every technology, mainframes may not be the best fit for some organizations. However, organization that are the right size, the right level of maturity, and with a need to scale compute resources in a reliable way not found in the cloud would be wise to investigate how mainframe computing could benefit them. Getting past the inherent barrier of "dinosaur" technology is easy once you put preconceived (and unfounded) notions aside and evaluate the true potential of modern mainframe computing.
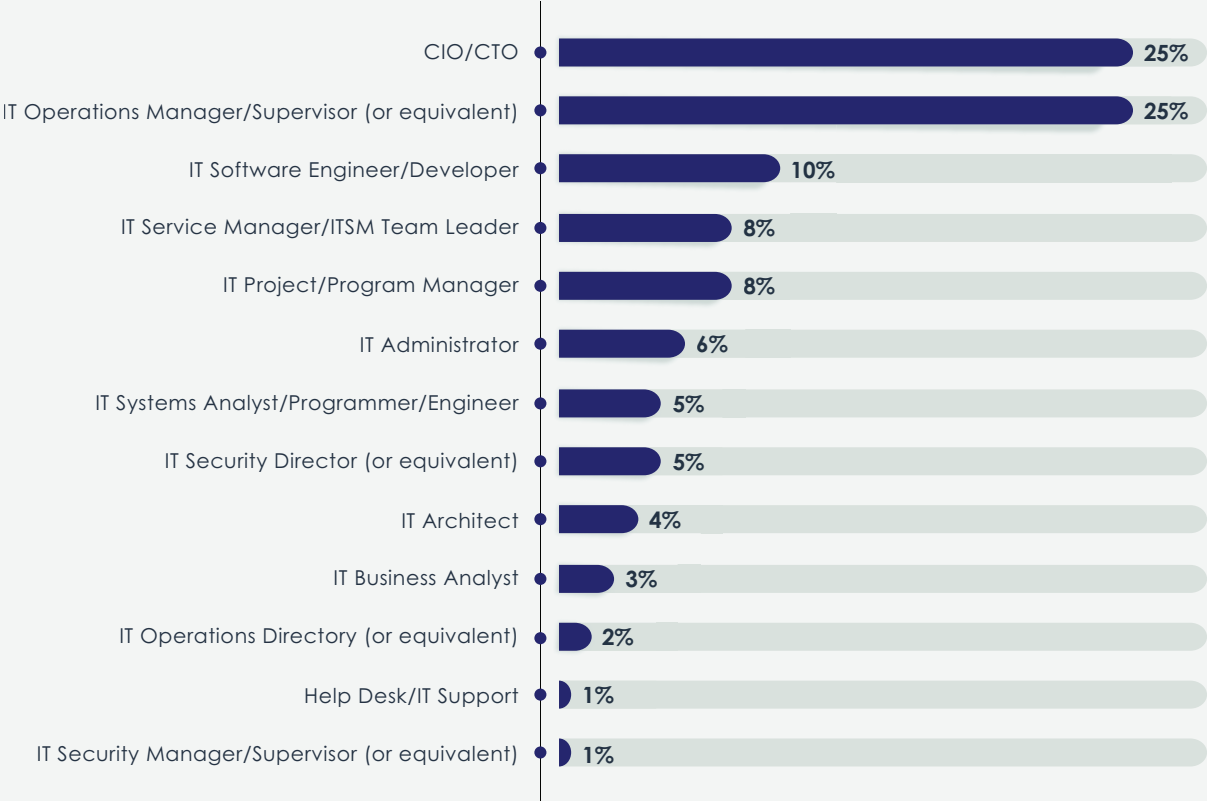
Demographics and Research Methodologies

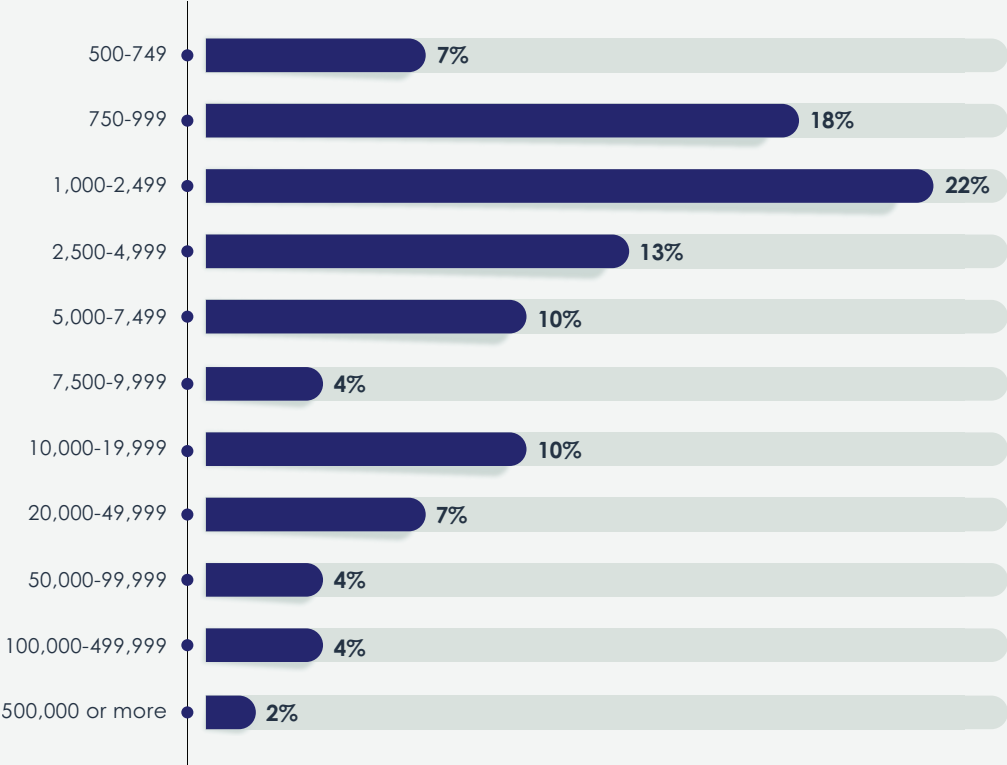## Which of the following best describes the department or area in which you work?

Department	Percentage
IT/IS/Network	51%
Executive/Corporate/General Management/Administration	17%
IT/Technical Training	14%
Engineering/R&D	6%
Other	5%
Manufacturing/Production/Distribution	4%
Communications/Telecommunications	2%
Legal/Contracts	1%

Sample Size = 207

Which of the following BEST describes your specific IT role?

Role	Percentage
CIO/CTO	25%
IT Operations Manager/Supervisor (or equivalent)	25%
IT Software Engineer/Developer	10%
IT Service Manager/ITSM Team Leader	8%
IT Project/Program Manager	8%
IT Administrator	6%
IT Systems Analyst/Programmer/Engineer	5%
IT Security Director (or equivalent)	5%
IT Architect	4%
IT Business Analyst	3%
IT Operations Directory (or equivalent)	2%
Help Desk/IT Support	1%
IT Security Manager/Supervisor (or equivalent)	1%

Sample Size = 105

How many employees are work in your organization?

Range	Percent
500-749	7%
750-999	18%
1,000-2,499	22%
2,500-4,999	13%
5,000-7,499	10%
7,500-9,999	4%
10,000-19,999	10%
20,000-49,999	7%
50,000-99,999	4%
100,000-499,999	4%
500,000 or more	2%

Which of the following best describes your organization's primary industry?

Industry	Percentage
Computer/Technology Software	17%
Computer/Technology Services	12%
Healthcare/Medical/Pharmaceutical	11%
Finance/Financial Services/Banking	10%
Manufacturing	10%
Computer/Technology: Other	6%
Government	6%
Insurance	5%
Retail/Wholesale/Distribution	5%
Other	5%
Computer/Technology Hardware	4%
Telecommunications	3%
Travel/Transportation/Airlines/Trucking/Rail	2%
E-Commerce	1%
Utilities/Energy	1%