# Mainframes. Anomaly or Workhorse?

# Executive Summary

**Businesses are updating their infrastructure, in the face of growing data-centric activities, the rise of artificial intelligence and machine learning, as well as greater regulation of how data is collected and used.**

This is so they can better appeal to an increasingly digital marketplace and user community. Amid this considerable change to infrastructure, there are many organizations continuing to depend on and invest in their mainframe estate.

**Is the mainframe an anomaly in the modern world of digital transformation or is it truly the workhorse that simply keeps on delivering?** While everybody is looking to the cloud and adopting cloud first strategies, the mainframe can still play an integral role in your organization. While a cloud first strategy may reduce mainframe workloads, a hybrid strategy may be a better choice for your organization. This is especially true in traditional mainframe markets such as financial services, insurance and retail. Increasingly stringent regulations in these sectors have convinced organizations that the best place for sensitive customer data remains within a modernized mainframe environment.

However, it's not simply regulation that motivates the on-going use of the mainframe. Rather, it is a realization that the mainframe delivers reliable, efficient and effective data processing. Furthermore, when well planned, a mainframe does not prevent but rather enhances digital transformation efforts.

The results of Ensono-CIF research[1] provided an interesting insight into this. 46% of respondents cited that making any changes to legacy systems would mean major business disruption. This lends credence to the adage that "if it isn't broken, don't fix it" and that if it continues to deliver effectively, retain it. A further third (34%) simply pointed to a resistance to change, something that spreads from the C-suite to the front-line. It is clear that the mainframe is regarded as a reliable workhorse and is embedded within modern businesses as the chosen platform for business critical systems of record.

The Ensono-CIF research also included several hints as to why there has yet to be a wide-scale move away from the technology. One of the headline figures that stood out was the fact that over half (53%) of those businesses surveyed currently supports a mainframe estate. This number rose to almost two thirds (64%) among large organizations with more than 5,000 employees. These are not exactly the stats of a dying technology. Rather it is an illustration of how the growth of big data, automation, machine learning, and other data-centric transformational changes in today's business verticals, have validated the role of the mainframe more than ever.

## WHAT THE MAINFRAME IS FAMOUS FOR

**Mainframe computers have been used successfully by large organizations for decades to host business critical applications and process ever-increasing amounts of data. They are viewed as a safe pair of hands. Obtaining their name by the fact they were often found in large cabinets– or "main frames" – the term was later used to distinguish high-end commercial 'super computers' from less powerful CPUs.**

Mainframes are defined by high transactional throughput availability and security that have, in many ways, been the principal reason for their longevity, since they are typically used in applications where downtime would be costly or catastrophic.

Mainframes have long been considered the most secure platform available. Most organizations depend on mainframes to protect their most sensitive data, yet with new technical innovation comes new security threats. In the recent 2020 BMC Mainframe Survey, 63% of respondents considered security and compliance their top priority.[2] Customers are more concerned than ever about security and the protection of their personal information as well: In a recent Ensono survey, 68% of customers have stopped shopping with a specific retailer after a data breach.[3]

Across all verticals, where there is a need for near-continuous operation with minimal annual downtime, mainframes continue to hold the edge over other on-premise and cloud platforms. The mainframes' unmatched capability to simultaneously share and still protect data while enabling multiple users continues to evolve while remaining the foundation of modern business. The secure modern mainframe protects essential data with comprehensive encryption and access control, provides automated security intelligence and threat remediation, and reduces business risk by enforcing security policy and best practices.

**SURVEY RESULTS**

46%
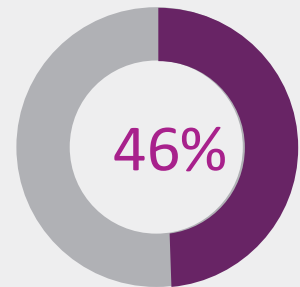
An Ensono-CIF study showed that 46% of respondents said that making any changes to legacy systems would mean major business disruption.[1]

63%
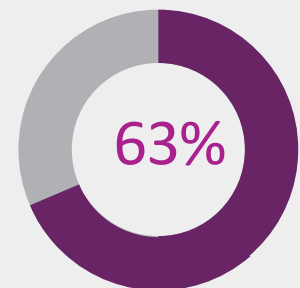
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## WORKING HARDER THAN EVER

**Despite the belief that mainframes would die out around the turn of the millennium, they have remained.** Their role has evolved and they are increasingly used to process and store the big data requirements that have enveloped society. As mobile operators were unprepared for the massive uptick in data usage caused by consumers' enthusiasm for text messaging in the late 1990s, numerous verticals, from retail to hospitality have been unprepared for the wealth of data being produced in their organizations.

From the seemingly unstoppable internet of things (IoT), as well as the industrial internet of things (IIoT), automation and machine learning are sweeping through the workplace.

Moreover, the increase in transactions hitting the backend as a result of changing user habits and increased use of mobile applications has had a profound impact on the mainframe, highlighting the relevance and importance of the platform in volume transactional data scenarios. People check their bank balances far more often than they used to thanks to mobile devices. Each one of those look-ups is a transactional hit. The same applies for things like preloading retail baskets as well as mobile payments and casual messaging. This growth in the kind of data that mainframes were built for is at the core of why the mainframe is thriving in this new mobile-centric business world.

## MAKING THE MOST OF THE MODERN MAINFRAME

**Mainframes are often viewed as a barrier to digital transformation,** as evidenced in the Ensono-CIF research. The data revealed that 89% of respondents view legacy technology as an explicit barrier to digital transformation efforts. This though, is to misunderstand the nature of transformation. There are a number of barriers to modernizing legacy mainframe environments, most notably the scale of the existing systems and their criticality to the operations of the business, as well as simple inertia within these environments. Therefore, modernizing the mainframe environment to enable it to become part of the transformation, rather than an obstacle, is the logical desired outcome.

This creates urgency and pressure on IT teams to reduce complexity in IT environments and accelerate their pace of digital transformation. Mainframe modernization helps clients improve agility, reduce technical debt and skills risks, and generate new revenue, integrating those new capabilities into the enterprise's broader IT strategies.

## MAINFRAME MODERNIZATION STRATEGIES

When considering mainframe modernization, look for a partner whose approach translates into distinct strategies that are powered by modern platform capabilities, modern application code and data constructs, and the secure connectivity in between. **Mainframe modernization doesn't just mean "migration to the cloud."**

### SURVEY RESULTS

**89%**
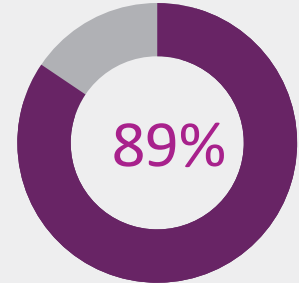
An Ensono-CIF survey showed that 89% of respondents view legacy technology as an explicit barrier to digital transformation efforts.[1]

"Mainframe modernization doesn't just mean "migration to the cloud.""

Best-in-class vendors' approach to mainframe modernization should include data-centric value paths that will:

- Enable modern mainframe capabilities by using modern APIs, AI and hybrid data analytics

- Convert and consolidate code and data, cutting costs in software and compute by reducing sprawl

- Migrate select applications to the cloud by moving workloads to the right platforms

- Optimize capacity, performance, throughput and security

## REDUCE BARRIERS TO INNOVATION AND AGILITY

**This translates into specific approaches that will propel transformation, and reduce barriers to innovation and agility by putting the right workload on the right platform,** based on an organization's needs and targeted outcomes. These approaches will allow an organization to:

- Develop once, deploy anywhere: Application and data modernization will accelerate innovation and deliver an exceptional customer experience, whether for mainframe, cloud or both

- Access data wherever it lives to power insights and outcomes: Give data scientists and developers access to Z data with new tools to derive new insights that drive decision-making in real time

- Provide frictionless and secure integration between the mainframe and non-mainframe capabilities with API connectivity

- Make mainframe an integral part of the existing DevOps pipeline and agile process

Using these approaches for mainframe modernization, organizations can retain many of the resiliency, performance/scale and security features associated with the mainframe while still benefiting from modern agile OS features. This can also provide "quick wins" for the organization, which demonstrates progress, and can fund and propel the next step and future transformation.

IBM suggests that the best approach to mainframe modernization is to identify small steps based on improving the performance of specific business processes and to modernize the mainframe in line with these. Furthermore, the most effective organizations identify specific business processes, then interface modernized mainframe processes into more transformational technologies using APIs to enable a more rapid realization of the benefits of transformation.

Today, digital technologies and applications are continuously being reinvented to match shifting industry landscapes born out of changing consumer demands. However, this digital transformation varies between industries, with some far surpassing others in their transformation. There are also variances within every industry too, where we find digital beginner companies, the digitally mature, and everything in between. Mainframes tend to occupy a place at the core of larger established organizations but are the very heartbeat for many of these organizations and, therefore, must be encompassed within any digital transformation strategy.

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Ensono believes that the legacy technology in these organizations is what made them great, and to simply disregard them in any transformation journey is to ignore the very DNA of the organization. IBM concurs on this point, noting that a rip and replace solution for mainframes is a very high risk approach and one that has often failed.

There are many examples across all industries where rapid digital transformation is changing everything. For example, retail is one of the most rapidly changing sectors in the world and needs to be at the forefront of technological advancement to keep pace with the evolving needs of an always-on customer base. Retail also exists as one of the bigger traditional mainframe user verticals, employing their use both centrally as well as within larger locations such as larger stores and distribution points.

## CREATE AN INTENTIONALLY BUILT IT FRAMEWORK

**CIOs are under more pressure than ever to optimize IT to both support new revenue and reduce costs.** Research says that 83% of IT leaders cite infrastructure as the main challenge to meeting business demands[1], throttling progress with legacy interfaces, integrations and development methods. This creates urgency and pressure on IT teams to reduce complexity in IT environments and accelerate their pace of digital transformation. Mainframe modernization enables IT teams to meet and exceed financial, operational and functional business demands by improving agility, reducing technical debt and skills risks, and generating new revenue.

Companies like Ensono have created an intentionally built framework that considers the full art of possible in modernizing the workloads and the platforms they run on. **It's more than just migrating applications to a cloud environment – it's transforming legacy code and data to run anywhere, enabling and integrating modern platform capabilities, and taking out cost and risk.** This solution delivers new capabilities for clients with mission-critical mainframe environments including:

- Cloud native functions that enhance mainframe workloads

- Targeted application assessments and migrations that can rehost, replace, refactor, or retire apps that have lived on the mainframe but are better suited for cloud

- Data connectivity that brings together business-critical data wherever it is, in real time, without the cost and risk in moving it

- API connectivity that provides frictionless and secure integration between the mainframe and non-mainframe capabilities

"Over the past years, mainframe modernization was just starting to become part of the strategic transformation conversation," said Lisa Dyer, vice president of product management at Ensono. "The conversation has accelerated to a key IT objective because enterprises expect effortless, quick digital experiences knowing that data powers innovation and that apps of engagement connecting to the mainframe aren't built for today's demands. This solution is more than just migrating to the cloud. It's about understanding the business outcomes our clients need, uncovering what's impeding them today, and providing application and data-centric value paths to achieve those business outcomes on the right platforms."

"...Rapid digital transformation is changing everything."

**SURVEY RESULTS**

83%
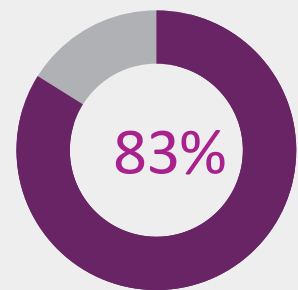
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## OPTIMIZING FOR TOMORROW

Mainframes have and continue to deliver significant compute performance across many sectors. They operate at the core of many organizations to reliably, consistently and securely process data and transactions. In the current world of digital transformations, these workhorses need to be included as an integral element of the digital transformation journey. They are simply unbeatable for ingesting terabytes of data, processing millions of complex transactions in a second (no cloud platform can achieve that throughput) and securing the data from end to end. Mainframes should be embraced as core components rather than viewed as a legacy that must somehow be overcome.

Change can be delivered rapidly and effectively through a process of conducting an examination of core mainframe operations and then improving them through small, incremental steps, while in parallel, taking advantage of new technologies to build new digital eco-systems around them. Mainframe skills may be in short supply, but recognizing the value of these systems and building a strategy that places them firmly at the core will help drive a new generation of technologists in this direction and assist in alleviating a shortage of skilled practitioners in the long-term.

Sources:
[1]Connecting the Business – Unlocking Digital Transformation Success, Ensono-CIF, January 2018
[2]2020 BMC Mainframe Survey, October 2020
[3]Ensono Security Survey, October 2020

## ABOUT THE CO-AUTHORS

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Kevin has substantial practical experience as CTO of a broad multi-billion $ portfolio of software and hardware products and technologies spanning development, runtime and operations, with IBM. His deep experience across a wide variety of hardware platforms from embedded systems to mainframe, is coupled with strong communications skills, and a knack for connecting with diverse audiences. He is a strategic thinker, tempered with a grounding in practicality.

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Simon is an established thought leader and innovator, and has served as a Virtual CIO, CIO Advisor and Leadership Mentor for a wide variety of organizations before joining Ensono. As Principal Advisor, Ensono Consulting and Advisory, Simon is an IT evangelist capable of promoting the value of IT within organizations by developing a single strategic vision that unites business and the IT department. Simon holds degrees from the University of Cambridge and is a trained psychologist and former finance director.

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