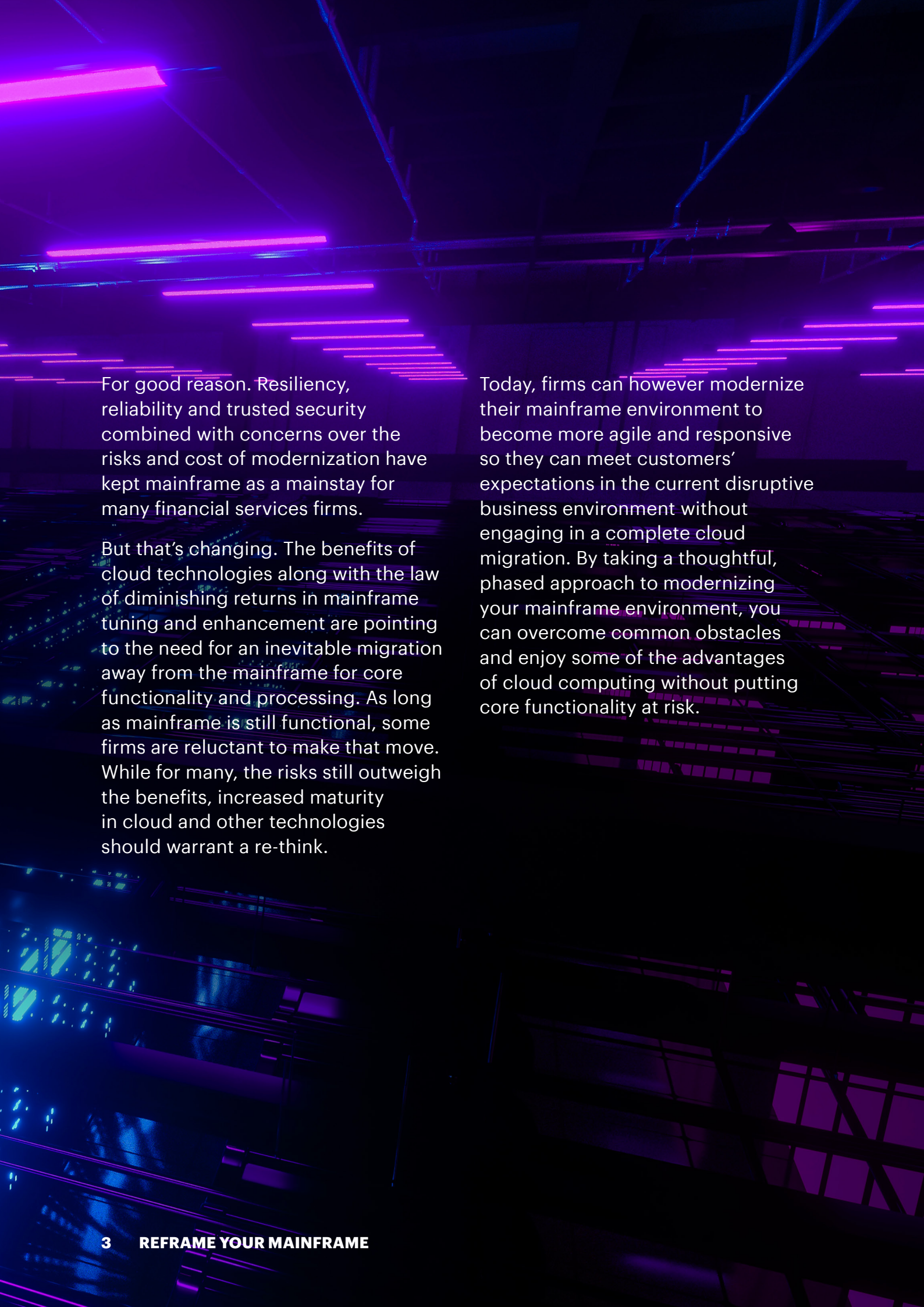
accenture

REFRAME YOUR MAINFRAME

Fast-forward functionality through cloud computing

While cloud native development might be considered the "new standard," mainframe still has a stronghold in the financial services industry.



For good reason. Resiliency, reliability and trusted security combined with concerns over the risks and cost of modernization have kept mainframe as a mainstay for many financial services firms.

But that's changing. The benefits of cloud technologies along with the law of diminishing returns in mainframe tuning and enhancement are pointing to the need for an inevitable migration away from the mainframe for core functionality and processing. As long as mainframe is still functional, some firms are reluctant to make that move. While for many, the risks still outweigh the benefits, increased maturity in cloud and other technologies should warrant a re-think.

Today, firms can however modernize their mainframe environment to become more agile and responsive so they can meet customers' expectations in the current disruptive business environment without engaging in a complete cloud migration. By taking a thoughtful, phased approach to modernizing your mainframe environment, you can overcome common obstacles and enjoy some of the advantages of cloud computing without putting core functionality at risk.

Making the case for mainframe modernization

Despite cloud native development being touted as the "new standard," abundant research demonstrates the mainframe is still a core and valuable technology for many enterprises.

That research indicates a significant portion of enterprise business logic and data still resides on the mainframe. This is especially true for financial services. In fact, as of 2017, 92 of the world's top 100 banks relied on IBM Z® mainframes for transaction processing.[1] And with good reason. Mainframes are very resilient and are proven to handle the exceptional volumes associated with core banking processes.

However, with MIPS (millions of instructions per second) growth outpacing revenue growth, this proprietary platform is becoming increasingly difficult to sustain. Mainframes also impose some serious business constraints. Their highly complex, interdependent and tightly coupled architectures often can't address today's business challenges with the agility that's needed to meet customer expectations. Delivering change to the mainframe in today's world involves multi-week regression testing cycles that undermine the business benefit of delivering new features in a volatile market. Though DevOps (and the associated tooling) is available within a mainframe environment, the investment in Continuous Integration/Continuous Delivery (CI/CD) tooling is focused toward non-mainframe platforms. Furthermore, the flexibility and versatility of the cloud is more conducive to today's disruptive digital environment.

From a cost perspective, mainframes have historically been costly and offered minimal financial flexibility. While this is changing, cloud can offer economies of scale and new functions that are not available through mainframe computing.

A changing workforce is also having an impact on mainframe computing. Hardcore mainframe architecture and engineering skills are becoming rarer in the market. Instead, the focus for college graduates and trainees is on new, "more exciting" technologies. Experienced staff are exiting the workforce, sometimes leaving behind little in the way of documentation and with unclear succession plans. This can leave mainframe environments vulnerable to a shrinking skills base and a material loss in knowledge about how these legacy systems actually work.

Matching wants to methodology

Financial services firms want to materially increase agility, enhance productivity and reduce costs so they can remain competitive in a digital world.

In support of those objectives, firms are looking for ways to manage complex architectures that can support microservices for enhanced performance and to have access to (and leverage) the large volumes of customer and transactional data they hold. One-to-two-week development sprints, easy application upgrades and automated regression testing are the objectives, but it is not a short route to goal.

By leveraging cloud's scalability and flexibility, firms can "right size" to meet their computing needs at any given time. Current market skills are trending toward more people who are well versed in agile methodology and prepared for a cloud environment. This is the market firms are going to draw from and rely on into the future.

It makes sense that many firms are reluctant to abandon their mainframe environment entirely, given the well-understood benefits mainframe computing is known for and continues to deliver. Any move to the cloud should be a business decision, not just an IT decision. That decision should be based on a holistic strategic view that creates a strong business case around improving the customer journey and considers all aspects of cost, including:

- Run cost of the new architecture
- Cost to achieve
- Opportunity cost of not modernizing (or missing out on delivering new features to customers)

It's clear that firms should at least take steps to modernize their mainframe environment to meet current market conditions and customer expectations. The question is, how to do it and what might be getting in the way?

The ins and outs of mainframe modernization

There are three issues that represent common barriers firms face when contemplating making the move to modernize their mainframes...or take the larger leap to cloud:

There is zero room for error. Any outage during a migration could have devastating consequences in terms of disrupting mission critical operations.

Mainframes have proven functionality. Mainframes are famously stable, reliable and able to handle massive transaction volumes. They have strong disaster recovery resilience and well-proven security capabilities. These are very valuable factors to the financial services industry. Mainframes have a "comfort zone" factor too. They've always been there and they've always worked. This is an attractive value proposition that's difficult for a traditionally risk-averse industry to let go of.

International Business Machines Corporation (IBM) offers a "modern" mainframe. Firms currently have the option of leveraging a mainframe solution from IBM that features tailored fit pricing, enhances MIPS and offers mainframe apprenticeships to address skill shortages.[2] Adopting the new IBM commercial constructs in the mainframe space could be a less-daunting prospect than undergoing a multi-year, full-scale mainframe modernization journey.

Decouple to overcome common obstacles

Firms can overcome these common obstacles by avoiding risky "big bang" conversions.

Phased migrations from existing mainframe IT to microservices are a good way to maintain business continuity, information security and uptime while modernizing your mainframe or migrating to the cloud. Begin with use cases that increase business value through improved agility and flexibility. Your efforts should gain credibility based on smaller, successful initiatives.

However, firms should note that decoupling requires a true hollowing out at the core in order to eventually eliminate the ongoing reliance on the mainframe. This effort involves deep analysis into which applications to begin with and should be based on a decision-making process that considers talent, cost, pain points, value delivered and return on investment.

Many modern use cases require real-time data access while legacy systems typically provide data on an asynchronous or batch basis. Replicating data, using a change data capture process, to a more accessible data lake (or similar) can provide the foundation for event-based architectures.

The 6 Rs framework—our approach to mitigating mainframe migration challenges

Accenture recognizes that every single client's mainframe ecosystem is unique and has evolved differently over the last 20 to 30 years. As such, there is no silver bullet to mainframe modernization.

Accenture has developed a "6 Rs" framework to help firms identify the right treatment strategies for their mainframe applications while mitigating the risks that hold so many firms back. This framework can vary slightly, depending on geography or project, but it provides some basic principles that are useful for any mainframe modernization initiative.

Begin your mainframe modernization with a discovery phase in which you evaluate each application and choose the appropriate strategy, as follows:

1. **Retain for its useful life, remediating any specific pain points and moving development and test environments to a cloud infrastructure to increase agility and reduce costs.**

2. **Replace with a package (including commercial-off-the-shelf [COTS] or Software as a Service) that offers improved functionality; extract and migrate data to a new system to reduce complexity and costs.**

3. **Re-host to a less-expensive location without changing the code, to gain cost benefits without the risk that can result from programming language changes.**

4 **Re-platform** to a different platform/operating system, without changing the programming language, and thus permit applications to run in the cloud.

5 **Re-factor** from legacy code to a modern programming language, using (semi) automated tooling to mitigate risk relating to legacy skills, increase agility and reduce costs.

6 **Re-imagine** the business: Rewrite the application based on newly developed requirements, using domain-driven design. The resulting application is not based on current capabilities and therefore not only allows technology modernization but also modernization of what were likely outdated business processes.

The strategic imperative for leaving the mainframe ecosystem

While there has been a 20-year effort to improve mainframe usage and consumption, that effort now has diminishing returns.

For many firms, the cost of maintaining a mainframe ecosystem is outpacing revenue growth. MIPS usage is expected to increase without generating additional revenue to cover the costs. But there are costs beyond financial considerations. The need for agility and responsiveness is a key motivator behind the strategic imperative to migrate away from the mainframe. Firms that cannot keep pace with change could be left behind. Furthermore, despite mainframe apprenticeship programs to address a waning skills pool, availability of mainframe architecture and engineering skills should continue to reduce.

These developments indicate the mainframe might become an unsustainable platform, for the long term. While an eventual full migration to the cloud could prove to be a favorable way to address changing customer expectations and stay ahead of the competition, fully modernizing the mainframe ecosystem is a multi-year journey. By modernizing low risk, low complexity applications first, you can build the credibility and confidence to establish and maintain momentum through to completion.

Moving to the cloud when it's about money: the 50% business case

Every business has its reasons for migrating to the cloud. Increased agility, and the benefits that it brings, are a key strategic consideration. Your migration strategy depends on your business objectives. That being said, and based on our experience, for many firms, cost accounts for about 50% of the motivation to move to the cloud. Take these steps to assess the viability of your mainframe-to-cloud cost business case to make sure your migration is truly cost-effective:

1. Analyze current mainframe costs (include hardware, software and headcount). Note: Analyzing recharge costs only rather than true mainframe spend can be misleading.
2. Define the target state architecture and calculate the run cost (include solution components, providers, software and internal headcount).
3. Add transformation costs (include treatment strategies, third parties, internal changes and any dual run costs).
4. Evaluate the results of steps 1-3 to understand the cost-effectiveness of your migration.

Beginning your mainframe modernization journey

Mainframes have been a proven, resilient mainstay technology for the financial services industry for decades.

However, in an era of disruptive innovation and cloud computing, modernizing your mainframe into a simpler, more agile architecture is a business-critical strategic imperative and an inevitability.

There is no one-size-fits-all strategy for mainframe modernization. Every business is unique. There are many options. Modernizing your core platforms begins with a focused analysis that determines the right strategy for meeting your enterprise's needs.

Mainframe modernization also takes time. It's a thoughtful, well-planned, journey that results in a simpler, more agile architecture that can help you keep pace with the competition and adapt to changing customer expectations. Let us help you. We have numerous ecosystem relationships, assets and accelerators to assist our clients in effectively executing their mainframe modernization journey.

We recommend a short, 6-week consulting engagement to kick start a mainframe modernization journey, focused on driving out appropriate treatment strategies and meaningful modernization recommendations.

Specifically, reviewing the IT strategy, and understanding the mainframe (and wider) ecosystem helps define the target state. Hypothesis-led workshops help firms to arrive at a set of treatment strategies which are then used in the Business Case calculations for securing buy-in from leadership.

Why Accenture?

We believe application modernization is a way to unlock the value in the data residing in legacy systems, while at the same time paving the way to fully transform applications with new technologies and digital capabilities that can help grow your business.

With a solid reputation in application modernization services and a "best-in-class" vision and strategy, we take a proactive, consultative approach backed by extensive technical knowledge to help our clients define a mainframe modernization journey that is appropriate for their situation.

Authors

Kamran Ikram
Managing Director Technology Strategy & Advisory
United Kingdom and Ireland
kamran.ikram@accenture.com

Michael Coates
Manager Strategy & Consulting
Financial Services
United Kingdom and Ireland
michael.coates@accenture.com

References

1. "IBM Z: The banking platform for the future." The Green Grid, November 27, 2017. Access at: https://www.thegreengrid.org/en/newsroom/blog/ibm-z-banking-platform-future.

2. "Tailored Fit Pricing for IBM Z Offers Cost Effective Workload Growth Compared to Three Public Cloud Examples," IBM, May 2019. Access at: https://www.ibm.com/downloads/cas/XAR2QOBD. "Develop New Collar Talent through a Registered Mainframe Apprenticeship Program," IBM, January 2019. Access at: https://www.ibm.com/downloads/cas/Q9K09G2X.

Stay Connected

Accenture Financial Services
Technology Advisory

https://www.accenture.com/us-en/services/financial-services/technology-advisory

Connect With Us
www.linkedin.com/showcase/16197660

Follow Us
twitter.com/TechAdvisoryFS

About Accenture

Accenture is a leading global professional services company, providing a broad range of services and solutions in strategy, consulting, digital, technology and operations. Combining unmatched experience and specialized skills across more than 40 industries and all business functions—underpinned by the world's largest delivery network—Accenture works at the intersection of business and technology to help clients improve their performance and create sustainable value for their stakeholders. With 513,000 people serving clients in more than 120 countries, Accenture drives innovation to improve the way the world works and lives. **Visit us at www.accenture.com.**

This document is intended for general informational purposes only and does not take into account the reader's specific circumstances, and may not reflect the most current developments. Accenture disclaims, to the fullest extent permitted by applicable law, any and all liability for the accuracy and completeness of the information in this document and for any acts or omissions made based on such information. Accenture does not provide legal, regulatory, audit, or tax advice. Readers are responsible for obtaining such advice from their own legal counsel or other licensed professionals.

Copyright © 2020 Accenture.
All rights reserved.

Accenture and its logo are trademarks of Accenture.

200226