

Lift, shift and modernize:

proven mainframe
modernization strategies
that enable digital
transformation

The business case for OpenFrame

OpenFrame from TmaxSoft is the most complete mainframe rehosting solution in the market.

It enables you to move mainframe workloads to open system environments, with little or no change to existing legacy program business logic. You save on costly mainframe contracts, more effectively leverage critical data, and gain a more flexible, modern and transparent environment.

Accelerate your IT transformation with OpenFrame.



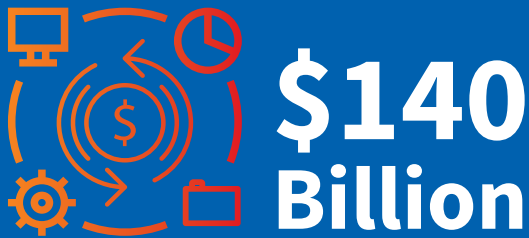
The case for change

For decades, most large-scale companies have used mainframes to host and run the software applications that make up their legacy systems. Often these mainframe computers and their applications are inherited from mergers and acquisitions, or from deferred IT investments. Today, it is estimated that more than half of core business processes may still run on a mainframe system. But maintaining and relying on these often-antiquated applications pose cost and modernization challenges.

Organizations are torn between the need to manage costs while maximizing the value of their mainframe. This leads them to ask, “If our system is not broken, why fix it?” But these companies are finding the status quo increasingly challenging to maintain, and are merely putting off the inevitable. Failure to modernize an obsolete system becomes an increasing liability over time, leading to ever-escalating costs and the inability to take advantage of newer technologies. This puts an organization at a competitive disadvantage—a disadvantage that will only continue to grow.

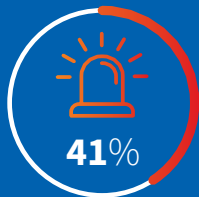
Digital transformation facts

The time is now to digitally transform your mainframe applications and stay ahead of the competition.



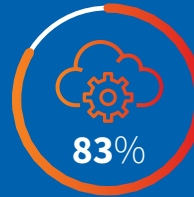
Estimated costs to the U.S. and U.K. economies based on outdated IT systems, and of which mainframes are the biggest component.

Source: Data Economy



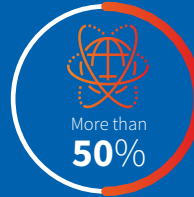
Businesses with mainframe systems that cite the need to regularly work around their limitations, incurring higher costs, duplicate tooling and increased security risks.

Source: Forrester



Enterprise workloads that will be in the cloud by 2020.

Source: Forbes



Global enterprises already using the cloud in some capacity that plan to adopt an all-in cloud strategy by 2021.

Source: Gartner



Businesses using a mainframe that struggle to deliver applications as quickly as they're required.

Source: Forrester



Organizations that list "application modernization of installed on-premises core enterprise applications" in their top five IT project priorities.

Source: Gartner

What is OpenFrame?

Rewriting applications can not only be costly but risky—redevelopment of code that has been optimized for older hardware can introduce bugs and inconsistencies. New applications may demand steep learning curves that can be time-consuming to master.

But OpenFrame is, as the name implies, open. This rehosting solution is not limited by code or vendor, application or language. It doesn't jeopardize data or demand new training or the learning of new tools. Instead, OpenFrame reuses configurations, recompiles applications and migrates and modernizes data, including batch systems, online systems and security systems, without any change to the business logic. Because applications are not being rewritten, there is no change in interface or function.

It's simple. By lifting and shifting existing applications, there is no change to the end-user experience. Everything functions as it did before, but in an open, distributed environment.

It's reliable. With no change to the business logic, OpenFrame eliminates the primary risks involved in recoding.

It improves performance. Rehosted applications often see improvements in performance with less space, power and cooling requirements.

It's secure. Mainframe application security levels remain in place and can even be enhanced.

It saves you money. An open environment means reduced licensing costs, less expensive equipment upgrades, more vendor choice and more affordable support services.

It's scalable. Mainframe systems are limited in scalability due to tightly coupled architecture (UI, application, data). OpenFrame has no such limitations.

OpenFrame rehosting vs. rewriting or upgrading



Upgrading

Merely adding system hardware or upgrading to a higher-capacity mainframe may seem like an attractive option. This will boost capacity and possibly performance, but it will also increase maintenance and licensing costs. It also fails to solve the bigger issues of inflexibility, diminishing the ability to modernize. This is not a long-term solution at all.



Rewriting

Moving mainframe applications through a complete code conversion to an open, cloud environment may be considered a wise, forward-thinking choice by many. But rewriting a business application necessitates proper interpretation of existing application logic (business processes) and rewriting them in a new code base. Differences in hardware and operating systems can create a number of challenges and obstacles. As a result, full-scale rewriting of the application source code can take years, and then extensive and lengthy user testing will still be necessary. The chances of extensive delays, data loss, cost overruns or errors are high.



Rehosting

OpenFrame rehosting, on the other hand, delivers the benefits of rewriting but for substantially less money and time, and without the high risk of business logic errors. OpenFrame provides a set of proven and established tools that recompile mainframe applications and migrate data. Your applications will work just as they always have, but in an open, distributed environment. The end result of this innovative solution is complete data modernization but with no change in user functionality, no change in business logic and no need for user training. Your systems can now adapt quickly to evolving customer and employee demands including instantaneous, highly personalized experiences like those from mobile devices.

Digital transformation strategies: reduce, re-platform, replace

When it comes to OpenFrame, modernizing the mainframe does not have to be an “all or nothing” strategy. OpenFrame allows for multiple approaches to support your IT transformation goals, including:

Reducing mainframe costs (MIPS reduction)

A mainframe consumes an extraordinary amount of processing power, and this can lead to substantial and continually increasing operating costs such as usage-based fees from 3rd party software licensing. To avoid these escalating costs, an organization can reduce its MIPS (a measurement of CPU resource consumption) by shifting certain legacy applications from the mainframe to the cloud or a modern on-premise environment. These actions may not only decrease MIPS-related costs, but also improve mainframe performance and modernize high usage applications.

WHY REDUCE?



Some of your applications or programs are using an abundance of MIPS, resulting in continually high and increasing costs plus system inefficiencies, especially during high peak usage. Your batch programs, for example, are often resource-intensive and can be lifted from the mainframe to reduce its burden.

Re-platforming legacy apps

Some applications on the mainframe may be 20 years old or older, and the original owners or details of these apps may be unknown. These outdated applications may be infrequently used but are still a drag on mainframe performance, and supporting them can be costly. Re-platforming them to a less expensive, open system environment improves mainframe performance until these outdated applications can be replaced with newer, better options.

WHY RE-PLATFORM?



Some of your mainframe leases are expiring, but some of the applications are not used frequently enough to rewrite. These apps can be archived in OpenFrame to increase mainframe efficiency until better, more cost-effective options are found.

Replacing the mainframe

Decades-old legacy systems can hinder your organization's ability to compete with nimbler companies that take advantage of more modern systems and processes. Your company can keep patching, fixing and working around limitations. Or, the best solution may be phasing out the mainframe completely by lifting and shifting all the applications residing in a single mainframe box to the OpenFrame environment. As a result, the full value of mainframe apps can be unlocked and exposed to mobile and digital applications.

WHY REPLACE?



Your costs are growing out of control and the inability to modernize your system is troubling. Replacing your mainframe allows you to use your mainframe legacy applications but for far less than mainframe maintenance prices. You are also well-positioned for future scalability. Mainframe replacement could align with a lease renewal or a general modernization project.

What are the risks of doing nothing?

You can likely expect the expense of digital services to increase significantly over the next few years, but those costs can be greatly softened by addressing mainframe limitations now.

If you still rely on your mainframe, you need to ask these six crucial questions:

1. How much of my budget is tied up in maintaining an older mainframe instead of being used on innovation and differentiation?
2. Is any of the software on my mainframe authored by a company no longer in existence?
3. What is the true cost of maintaining my existing mainframe in terms of purchase, install, cooling, power and support?
4. Can I modernize my existing mainframe to meet newer needs like those of mobile users?
5. Is the data in my mainframe available to my distributed applications economically?
6. How well are my mainframe systems documented? Are there personnel with the knowledge and skill set to adequately support and maintain our mainframe in the future?

How OpenFrame works

OpenFrame provides all the technology required to implement a multi-tiered technology stack. Once completed, OpenFrame has the ability to allow you to integrate applications and data more easily with the rehosted applications. Existing distributed applications including data analytics tools can more easily be integrated. Mobile support and access can be enabled. Security is also enhanced because the existing mainframe security is retained, and additional security provided by modern SQL databases (Tibero) can now be employed.

TmaxSoft has successfully provided mainframe migrations across a myriad of industries. Typically, after a detailed assessment of the source system and anomalies are identified and addressed, the mainframe workload is rehosted, breaking free from their previously outdated mainframe environment. Rehosting also unlocks the value of mainframe apps by exposing them to web services for mobile and digital applications. Because the operating systems are open with multiple database and utilities options, they integrate well with the newer technology required.

OpenFrame step-by-step



STEP 1

Begin discovery phase

Analyze current mainframe hardware and software environment.



STEP 2

On-site workshop

Gather insights into high-level application architecture, use cases and data flow.



STEP 3

Detailed assessment

Analyze the process, provide recommendations and identify any potential gaps.



STEP 4

Technical validation

Technical validation of selected legacy applications in the OpenFrame environment.



STEP 5

Implement OpenFrame

OpenFrame at a glance



100%
Project success rate



>100,000
MIPS capacity



0
Change in business logic
or end-user experience



6-12 months
Average time
of deployment



50-75%
Reduction in
annual costs



Infinite
Flexibility to meet digital
transformation goals

OpenFrame delivers results



GE Capital reduced costs by 66%

GE Capital, the financial services unit of General Electric, provides commercial lending and leasing, as well as financial services to consumers. They were hindered by their inefficient mainframe environment. What had started as a homegrown system built out of necessity had expanded to become the central nervous system of both GE Capital's direct and indirect business units. But the aging hardware demanded high maintenance and procurement costs, and its excessive complexity slowed GE Capital's ability to innovate.

Using such a legacy system was also risky. Their system processed five million account schedules, 382 interfaces, 1,700 concurrent users and 3.5 million transactions per day. If the system went down, so would their business.

GE Capital selected TmaxSoft to deliver the solution. They wanted to move fast, so testing was implemented almost immediately. Says Marc Rubel, the Executive Director of Application Development at GE Capital, "We spent a very little amount of time and money. And we completed a proof of concept within a month."

GE was certain they had made the right choice. So, TmaxSoft got right to work moving GE Capital's legacy applications to OpenFrame. The modernization of their system took around a year to complete, which is a fraction of the time it would have taken to move the massive 71 million lines-of-code from its ancient mainframe environment using another, and likely a substantially riskier, option. As a result, GE Capital lowered their annual maintenance costs by 66%, reduced the time it would take for the system to recover from disaster by 240% and moved to a platform that integrated with the rest of the business and supported growth and innovation.

The results included:

- Moving to a more reliable, flexible and automated platform without the need to redevelop or modify applications
- Reducing 71 million lines of code to only 16 million
- Improving employee user experience and increasing agility
- Establishing the foundation for building the next generation portfolio management system

How long does it take to deploy OpenFrame?

Unlike recoding, which can take years, OpenFrame can often be completed in 6-12 months, depending on the size and complexity of the existing system.

Industry	Mainframe Environment	TCO Savings	Project Duration (including testing)
Insurance	CICS, COBOL, PL/I, DB2, JES, 7500 MIPS	\$30M savings over four years	12 Months
Insurance	CICS, DB2, JES, 2300 MIPS	\$35M savings over four years	11 Months
Securities	IDMS, DC/DB, COBOL, 970 MIPS	66% annual TCO reduction	18 Months
Securities	CICS, PL/I, JES, IMS, DB, VSAM, 163 MIPS	50% cost reduction	9 Months
Manufacturing	IMS-DB/DC, PL/I, 250 MIPS	83% cost reduction	12 Months
Retail	IMS-DB/DC, COBOL, Quikjob, Assembler, VSAM, 200 MIPS	50% reduction in TCO within 48 months	12 Months

The unlimited scalability of OpenFrame

As demand and MIPS increase, mainframes are ill-equipped to scale up easily or affordably. More equipment, more costs and more fragmentation are likely the result.
















OpenFrame, however, has no limitations on size, or costly capital expenditures associated with that scalability. Agile and flexible, it provides both horizontal and vertical expansion that can be dynamically invoked as needed. OpenFrame is comprised of multiple nodes linked together. So in high load situations, more nodes can simply be added. OpenFrame has powerful balancing features that distribute transaction requests among the nodes to ensure a continuous, full and efficient use of system resources.

OpenFrame post-migration tools

OpenFrame includes a comprehensive and robust set of developer tools, such as OFStudio, to develop, control, manage and debug applications. Minimal developer training is needed. OFManager provides a set of online tools to monitor and manage your batch and online workloads as well as your security environment.

End-users will see a familiar interface that is now additionally accessible via web browser technology. No productivity is lost through retraining or relearning a new workflow. In fact, with a higher resolution view, the end-user experience is improved.

OpenFrame supports the following platforms:

Platform Options	CLOUD	ON PREMISE
 vmware®		
 docker		
 Linux		
 amazon web services		
 Microsoft Azure		
 Google Cloud		

Case closed: OpenFrame

Companies that choose to ignore mainframe modernization will continue to experience higher costs and may be unable to innovate quickly.

But while organizations have numerous mainframe modernization strategy options, only OpenFrame consistently delivers the advantages of reduced costs and labor, eliminating full-scale system retraining and providing the freedom to reduce, re-platform or replace. With OpenFrame, companies can not only modernize their environment today, but are poised to keep pace with the innovation demands of tomorrow.

OpenFrame delivers multiple ways to achieve mainframe transformation and freedom. To learn more about how TmaxSoft can help you modernize your legacy systems, please contact us to schedule a discussion and demo.

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