Retiring the mainframe
The path to IT modernization and competitiveness

CGI's experience demonstrates that **retiring the mainframe platform can save up to 90%** of its associated operating expenses, reduce time for competitive upgrades and more. Yet, a mix of inertia and misunderstanding of what it takes to realize these savings causes businesses to waste precious resources to maintain obsolete technologies, impeding their competitiveness.

Today's modernization paths enable businesses to keep all of their applications intact and can trigger the simplification of the legacy portfolio—all without investing a single dollar to fund the adoption of a far more competitive platform.

Is this too good to be true?

This executive summary highlights CGI's successful approach to retiring mainframes and illustrates the striking outcomes.

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Overcoming the handicaps

"Mainframe" is the name chosen in the sixties to label large systems designed to host core applications and bulk data processing for corporations and government organizations. This class of equipment was designed to handle high volumes of transactions, enable the hot-swapping of system capacity without disrupting its functioning, tolerate faults, and support high I/O throughput by using specialized dedicated processors.

Based on this legacy, a significant portion of today's transactions is still processed by mainframes. Yet, unlike in the beginning of the computer era, big businesses no longer require mainframes to handle large volumes of data quickly and accurately. Today, the largest transactional systems in the world don't run on mainframes. Leaders such as Apple and its iTunes and Apps stores, Facebook, Amazon, Google and most leading telecommunications companies and retailers no longer operate mainframes.

Most importantly, new competitors across all sectors of the economy are challenging incumbents without the handicaps of old mainframe technologies, and therefore benefitting from radically lower costs and far faster response times in launching new service offerings.

But, if mainframes are such expensive and complex computing devices, why are they still used when much better and cheaper alternatives exist? In reality, every new business, and large ones in particular, don't use mainframes.

Apart from being locked into a single provider, organizations still dependent on mainframes face four increasing handicaps:

- **Slow time-to-market:** Launching new services takes too long and responding to competitors' new services can be a nightmare.
- **Rapidly aging skill pools:** Many mainframe vendors have closed shop or stopped supporting their old platforms, putting business continuity at risk.
- **Lack of access to best-in-class software:** Such software is no longer being developed for the mainframe (e.g., CRM, Liferay, etc.).
- **High maintenance costs:** With additional CPU capacity and memory priced at a premium and business rules hard coded, making changes is costly and time-consuming.

CGI addresses the complexity and the highly integrated nature of mainframe applications by maintaining their integrity, minimizing recoding, and retaining functionality while adopting a state-of-the-art system landscape.

Our experience demonstrates that retiring the mainframe platform can save up to 90% of its associated operating expenses, reduce time for competitive upgrades and more. CGI has helped clients reduce infrastructure and application maintenance platform costs from 50-70% and to redeploy 30-50% of resources towards innovation projects.

Mainframe modernization

CGI's modernization approach migrates mainframe-based applications to open and cost-effective Unix and Linux-based platforms and has generated the following benefits for our clients:

- Reduced infrastructure and application maintenance platform costs from 70% to less than 50%
- Redeployment of resources towards innovation from 30% to more than 50%

Our track record reveals an extremely compelling business case. A typical modernization project involves the following economics:

- The annual cost per MIPS ranges from $2,000 to $5,000 (€1,500 to €4,000).
- Depending on the complexity of the mainframe technologies involved, a migration project costs approximately the same as one year of maintenance.
- Resulting ongoing system maintenance costs are around 20% of mainframe costs.

The below chart provides high-level savings estimates for how for a modernization project involving a midsize mainframe (4,000 MIPS) delivers benefits.

Mainframe cost	$6 to $16 million/year
Migration project	$8 to 10 million (one time)
New system cost	$1.5 to $2.5 million/year
Project payback	9 to 12 months
Savings	**Approximately $8 million/year**

A fully funded alternative

CGI believes in sharing risks and rewards equitably and can leverage its strong balance sheet to fully underwrite the migration and modernization process. For example, for the same midsize mainframe (4,000 MIPS), financing the modernization project and mainframe operation with a five-year loan at 6% interest rate would generate the following results:

Mainframe cost	$10 million/year	
	Years 1 to 5	Years 6 to 10
New system cost	$7.7 million/year	$6 million/year
Savings	**$2.3 million/year**	**$4 million/year**

"With the mainframe re-hosting, we cut annual operating costs by 95 percent, while providing new functionality to better serve our constituents. Now we have a consolidated, flexible foundation to quickly respond to market change and future integration requirements."

Dr. Carlos Brito, CIO, Instituto das Tecnologias de Informação na Justiça

CGI's IT Modernization Global Competence Center

CGI's IT Modernization Global Competence Center encompasses a specialized team of highly competent and experienced professionals whose main goal is to align a client's vision and goals with the evolution of its IT infrastructure.

We have honed a proprietary process and tools—the M8 (Modernization Automated Tools Environment)—to help clients address mainframe handicaps and migrate to cost effective, flexible platforms with little risk to their business processes, often within 6 to 12 months. Our approach has three steps that enable our clients to maintain full control of the process and associated decision-making:

1. The completion of a **questionnaire** to obtain a quick overview of the project's scope, potential benefits, critical steps and risk mitigation.

2. The execution of an in-depth, structured **assessment** to gain a clear picture of the necessary work and engage in a dialogue with the client on the options at hand. Through this process, the best option is selected in light of the specific circumstances and upside.

3. A **migration implementation project** is then initiated to re-host the mainframe application(s) on Unix or Windows-based platforms.

The following options or combinations are typically considered:

- **Convert:** Automatically convert 4GLs, COBOL or PL/I language into Java, C/C++, etc.

- **Re-write:** Recover content by recycling business rules, mining models and forward engineering.

- **Replace:** Replace applications with custom or packaged solutions and enable SaaS and other cloud technologies.

CGI's M8 approach automatically gathers and analyzes data about legacy applications by creating complex queries for the source code and building a clear picture based on dependencies and interdependencies. These same tools also can be used during the migration project to automate conversion steps and to test comparison activities.

CGI's transformation approach is agile and uses live production data, and our IT modernization proposition and delivery is based on a repeatable, proven solution. We provide mainframe and target system technologies, a variety of target infrastructure configuration and administration services, data expertise at the DBA level (e.g., DB2, Oracle, GoldenGate, etc.), systems architecture design (mapping source to target technologies), and automated software conversion, development and testing.

> **Bottom line:** Through our proven approach, CGI helps clients reduce operating expenses, freeing those dollars to achieve top-to-bottom-line results.

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CASE STUDY
Leading pension funds in the Netherlands

A leading Dutch pension fund was looking for ways to eliminate its dependency on a single provider and increase its service innovation and time-to-market for new services.

CGI was selected to migrate the pension fund's mainframe applications to a Unix platform, reducing costs by more than two thirds, while increasing flexibility and improving service levels. Today, the pension fund is vendor-independent and able to more quickly adopt cost-effective technologies that are better aligned with its business requirements.

CGI deliverables

CGI delivered a turnkey migration without changing a single application. The team deployed proprietary software that enables the running of the original applications in a Unix environment. It also configured the environment, converted all data, tested end-to-end processes, and trained operational staff.

Benefits

The bottom line impact was immediate. A multi-million euro tab was reduced to a fraction of this amount, providing a financial payback within a year. All relevant source code, including JCL scripts, was adapted to run on Unix environments. In addition, all data stored in DB2 database and mainframe files was converted and transferred to Oracle DB in the Unix environment and throughput time for batch processing was shortened by a factor of three.

The savings were redeployed to accelerate critical customer front-end projects within the same budget envelope.

Furthermore, the migration was delivered on time and on budget, with no unplanned service interruption.