

# IT and Application Cloud Modernization

Accelerate the cloud modernization of  
application portfolios and IT environments

**CGI**



```
$dir) ){  
le = opendir($dir) )  
$dir );  
false != ($file = readdir  
$file != "." && $file != "  
( is_dir($file) ){  
$arr = get_dir_files( $file  
foreach( $arr as $value )  
names[] = $dir  
chdi
```

For years now, enterprises have been migrating to the cloud as they seek to modernize their core IT environments and applications.

When done right, the cloud delivers efficiencies, cost savings, flexibility and agility, among many competitive advantages. At the same time, cloud modernization poses challenges, including complicated, lengthy and costly migrations, as well as the sheer volume and scale involved. Success can be elusive.

How can you find a smarter, faster approach to cloud modernization to accelerate desired outcomes?

# Driving business results with strategic cloud modernization at scale

Cloud is the “new normal” for how we work and an essential enabler of agile operating models that adapt continuously to constant change.

Some say cloud is the new operating model, especially in a digital world of anywhere operations.

Over nearly two decades, cloud services have become mass-adopted and pervasive. Cloud service providers—ranging from AI start-ups to independent software vendors to hyper-scalers—continue to innovate new services at a breakneck pace. The combination of cloud and other technologies, such as Internet of Things, advanced analytics, artificial intelligence, automation, 5G and edge computing, form the key ingredients of modern digital business solutions.

Today’s enterprise cloud challenges often stem from inflexible cloud strategies, overly simplistic modernization efforts, immature cloud-native practices, poorly governed and integrated yet sprawling SaaS solutions, and governance, management and operational models that were not designed for the velocity, connectedness and dynamism of the cloud age.

Some organizations are making considerable progress with IT and application modernization, but many with mixed results. Very few have begun the modernization of their monolithic legacy core systems due to the size and complexity of these systems. Overall, most organizations are challenged with modernizing their core technology foundations to support composability and event-based flows.

## 37%

of applications are now modernized. Of these, 75% have moved to cloud. Over the next 2 years this will increase to nearly 80%.  
(Source: 2021 CGI Voice of Our Clients)

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## 23%

of core business applications have been modernized.  
(Source: 2021 CGI Voice of Our Clients)

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## Top 3

IT priority is modernizing applications and IT environments.  
(Source: 2021 CGI Voice of Our Clients)

# A value-based, differentiated approach to cloud modernization

Our cloud experts work with you to use the cloud more strategically—no matter where you are on your modernization journey.

Our value-based, differentiated cloud modernization approach helps your organization:

- Assess and treat each application differently based on multiple factors that drive or hinder value creation (e.g., complexity, risk, security, total cost of ownership, architecture, dependencies and technology obsolescence)
- Flexibly scale to modernize your entire application portfolio efficiently
- Handle the domain-by-domain decomposition and rebuilding of complex and monolithic business systems at the core, including mainframe (or handle their replacement with modern SaaS solutions)
- Tackle the strategic build out of foundations, such as multi-cloud environments, cloud-native development and runtime environments, API gateways, and distributed, de-siloed dataflow environments

Overall, we work with you to achieve the following:

- **Elimination of technical debt at scale:** Using a differentiated factory model that operates under an agile framework (e.g., SAFe, LeSS), we help you to systematically eliminate costly and often paralyzing technical debt across your application landscape.
- **Foundational transformation to enable business agility:** With a range of accelerators and tools, we help you to design, plan and execute a structured transformation of key foundational components of your technology layer.
- **Joint execution of your modernization:** We don't modernize for you; we modernize with you. We pair our experts with your staff to collaborate on analysis, architecture, planning, design, development and operations.



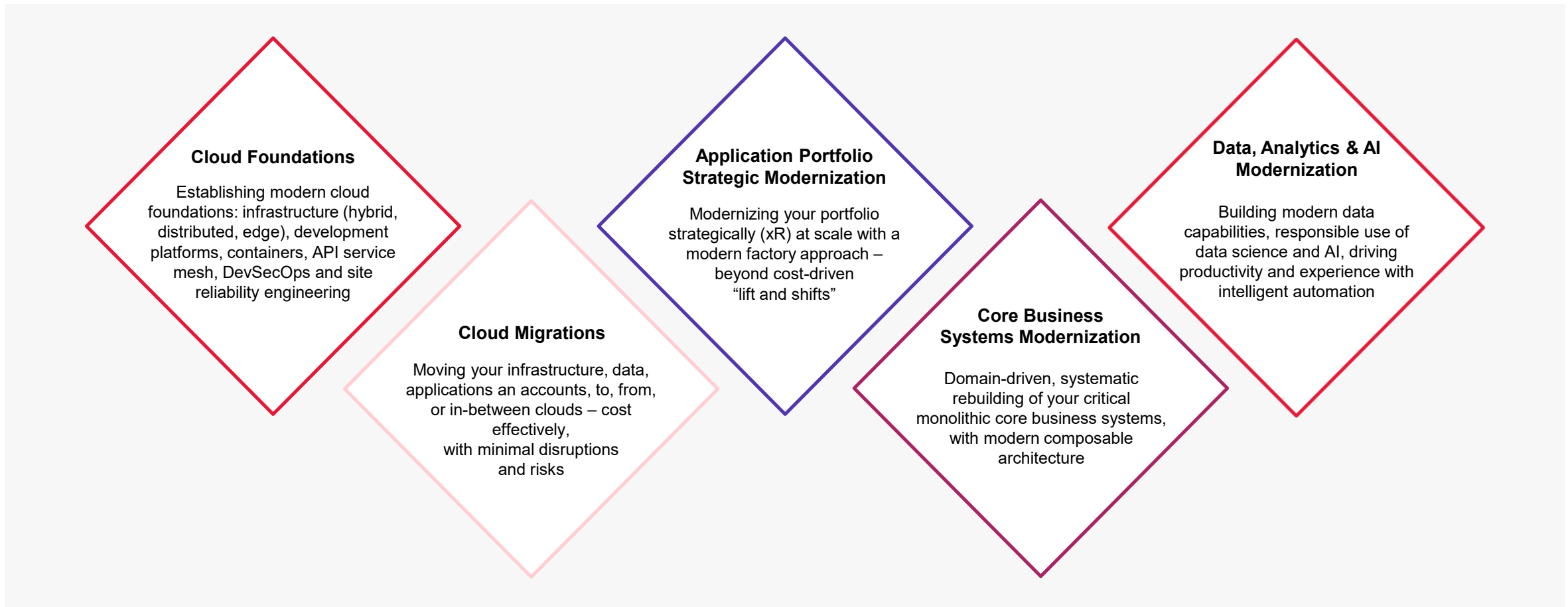
Through our IT and Application Cloud Modernization services, we help you accelerate the strategic modernization of your infrastructure, platform, data and application environments into a modern, adaptive technology foundation for your agile business.

# What success looks like



- **Modernized application portfolio:** The bulk of your application portfolio has been rationalized, streamlined and modernized, enabling you to operate securely and compliantly in the cloud.
- **Modernized core systems:** Your core business systems have been decomposed and modernized, with the majority of domain functionality replaced by composable SaaS components.
- **Improved portability, scalability and reliability:** All of your applications have been decomposed into reusable and containerized service components.
- **Modern flow data architecture:** Your critical data assets have been de-siloed, re-architected and integrated into an event- and flow-based enterprise data fabric that, combined with key AI/ML components, delivers real-time inputs for innovative services and experiences.
- **Shortened release times:** As business demands change, your applications are quickly adapted and composed/re-composed from reusable API-enabled software components.
- **Minimized infrastructure footprint:** Your operational complexity has been simplified through optimized usage of cloud assets, and your OpEx cloud costs are continuously monitored, metered, optimized and re-allocated, leveraging AI and automation to reduce your total cost of ownership.

# CGI IT and Application Cloud Modernization Services



## Cloud Foundations

As part of any strategic IT modernization effort, foundational building blocks need to be put in place. Our cloud architects and technologists help you to design and build critical modern cloud foundations. These foundations include: hybrid and distributed cloud infrastructure environments, modern DevSecOps pipelines and development platforms, modern flow-based data fabrics, API gateways and meshes, runtime container orchestration, and cloud management platforms, to name a few.

We also help you pivot to and mature a dynamic CloudOps operating model.

## Cloud Migrations

We help you to migrate infrastructure, data applications and user accounts to, from, or in-between clouds, with minimal disruption. We offer a standardized, repeatable and scalable factory approach to cloud migration through our global delivery centers. This approach involves the mapping of application, infrastructure and data dependencies and business impacts and develops optimized move sequences using automated software tools. The factory operates under an agile sprint model that builds out target environments and facilitates iterative staging, integration, tuning and testing using automated processes. The client-approved go-live is planned and executed with minimal business disruption and is followed by a seamless hand-off to CloudOps.



## Application Portfolio Strategic Modernization

We use our smart factory model to assess, rationalize and modernize your application portfolio at scale. Over the years, we have developed and refined a structured, repeatable and scalable approach to modernizing large application portfolios. This approach includes our xR (Retain, Retire, Replace, Rehost, Replatform, Refactor, etc.) differentiation method. We adapt and scale this xR factory model to specific client conditions. During an initial assessment, we leverage CGI and third-party discovery, mapping and scanning tools. The result is a comprehensive modernization path recommendation for each application that includes the right agile, sprint-based modernization process.

## Core Business Systems Modernization

CGI's core systems modernization service addresses the complex and monolithic nature of most business-critical core systems. This service focuses on the replace and refactor processes within our proven xR factory model. The former involves a replacement with COTS SaaS, if needed, customized with cloud-native developed components. The latter involves a domain-driven full redesign and rebuild using modern frameworks and cloud-native features and platforms. It also includes the case of modernizing and moving mainframe systems to cloud. This rebuild takes place in an agile factory model, with methods, techniques and processes of the refactor factory track applied.





## Data, Analytics and AI Modernization

CGI's data, analytics and AI modernization services span from advising, to building, to providing managed services. We advise on modern multi-cloud data strategy, data governance, and data management; AI and intelligent automation strategies and ethics; and flow architecture and platform design. We also develop distributed data fabrics, AI, analytics and intelligent automation platforms and environments. In addition, we provide managed services for distributed platform operations and security, as well as for DataOps, ScienceOps and AIOps operations. Finally, we help with the setup, staffing, knowledge transfer and operations of a Data Science and AI Center of Excellence.





## Case in point

### Cloud-native rebuild of monolithic core systems for a UK energy trading firm

Our energy trading client needed to modernize its monolithic core applications. The company's vision was to build a modern, scalable, data-driven, cloud-native platform to help them quickly adapt to evolving market needs. Because the client's technology was proprietary, SaaS was not an option.

Using a blended delivery model involving a client-facing CGI team in London and nearshore teams in Portugal, we built a cloud-native software factory with five parallel Scrum and testing teams. At its peak, the factory scaled to 60 members.

In a multi-year initiative, CGI and the client jointly decomposed 10 legacy systems and, following a domain-driven design approach, methodically rebuilt them into composable, micro-services-based,

decoupled cloud-native applications. We configured the factory in Microsoft Azure with automated continuous integration/continuous delivery (CI/CD) DevOps pipelines, and built the micro-services architecture using .NET core and Docker. Further, we delivered runtime container orchestration using the Azure Kubernetes Service.

The client achieved a future-fit, adaptive and composable cloud-native application, built and secured 100% in the Azure public cloud. They can now develop, test and deploy new functionality rapidly through automated DevOps pipelines, delivering faster speed-to-market, increased responsiveness and business agility.

# Case in point

## A strategic application portfolio ‘overhaul’ streamlines the technical operations for a leading provider of residential property data

A leading U.S. provider of residential property information, insight analytics and data-enabled solutions decided to modernize and move its extensive application portfolio to the cloud. Rapid growth through acquisitions had led to data center sprawl. As a result, the company faced the challenges of increasing technical debt, higher spending on third-party data centers, expensive and slow application upgrades, and security risks.

Further, the company’s in-house IT organization lacked the requisite skills to lead or execute an enterprise-wide modernization effort.

Based on our experience in helping clients transform business and technical operations

through cloud modernization, the company chose CGI as its strategic modernization partner.

Our application transformation solution encompassed a Pivotal Cloud Foundry platform set up and supported on Google Cloud Platform, CloudOps support, an application portfolio assessment, Brownfield application modernization, and DevSecOps services. We initiated a modernization factory program with a “move-and-improve” track (300+ applications, development, program and architecture management), as well as a “lift-and-shift” track. The modernization factory required 75 CGI technical staff to operate, working closely with client business and IT professionals.

Today, the client benefits from a modern cloud-native application portfolio in a public cloud environment, with significantly faster release times for upgrades and new builds. Security is now baked in at the application, pipeline and platform levels. Further, the program has streamlined operations, significantly reduced technology sprawl, increased network performance visibility, and introduced standardized software development processes and reusable recipes.

# We combine deep client knowledge with technology expertise and industrialized software (re)engineering

When it comes to IT and application cloud modernization, we are the partner of choice for organizations worldwide. We deliver the expertise, experience and end-to-end capabilities required for smarter, faster cloud modernization that drives business agility.

For 45+ years, we've helped leading organizations modernize business and operating models, as well as enterprise and technology architectures, environments and solutions—all while keeping them secure and compliant.

Our track record is based on a deep understanding of the following.

- **Our clients' industries.** We analyze and understand the trends that are shaping these industries, and have deep experience in leveraging the cloud for each industry.
- **Cloud technologies.** We have more than 7,000+ cloud strategists, architects, developers, and operators across the globe to support you on your cloud modernization journey.
- **Cloud modernization.** We not only have helped clients transition to the cloud at scale, but we also have cloud-modernized and transformed our own portfolio of 200+ industry-leading business solutions.
- **Digital architecture.** We advance digital architecture through our global architecture practice—Responsive, Collaborative Approach to Digital Architecture (RCDA)—which has more than 1,500 trained and certified digital architects.
- **Operational excellence and blended delivery models.** We know how to operate hybrid environments with dynamic DevSecOps, CloudOps and AIOps models.

Regardless of where you are on your cloud modernization journey, we provide the end-to-end modernization services you need to overcome technical debt and build a modern technology foundation for the future.

**We stand ready to work with you to solve your cloud modernization challenges and successfully leverage the cloud to become an agile and adaptive enterprise.**

Contact us at [info@cgi.com](mailto:info@cgi.com) or learn more at [cgi.com/cloud](https://cgi.com/cloud).

CGI's IT and Application Cloud Modernization Services are part of our full suite of cloud services designed to help with the transformation to an agile, adaptive and resilient enterprises. In addition to strategic IT and application cloud modernization, we offer cloud strategy, architecture and planning advisory, cloud-native development innovation, enterprise SaaS solution integration and configuration, cloud turnaround intervention, and ongoing cloud management, operations and optimization services.

# About CGI

## Insights you can act on

Founded in 1976, CGI is among the largest IT and business consulting services firms in the world. We are insights-driven and outcomes-based to help accelerate returns on your investments. Across 21 industry sectors in 400 locations worldwide, our 80,000 professionals provide comprehensive, scalable and sustainable IT and business consulting services that are informed globally and delivered locally.

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