

Enterprise Modernization solutions  
To support your IT objectives



**Rational.** software

**IBM Enterprise Modernization solutions.**





# Uncovering the true value of your business

Over the years, your organization has made significant investments to increase the value of your business applications. These applications continue to demonstrate value to your organization by supporting core processes and providing information that is crucial to your business operations. Your applications probably contain millions of lines of code that provide valuable business intelligence. They are at the center of your organization and enable you to manage and process the majority of your customer, product, supply chain and other critical business data.

While these applications—along with the information and functionality they contain—are invaluable to your business, they may be keeping your organization from realizing its true potential. In many cases, applications have been developed over many years and modified extensively, often by many different developers. The evolution of your business applications may have resulted in a complex, highly integrated portfolio of inflexible applications and processes that could inhibit your ability to increase efficiency, differentiation and responsiveness. Faster time to market and improved agility can be difficult to achieve when you are burdened with large legacy applications that contain compartmentalized business processes and hide duplicate functionality and information. It's even harder if your organization has gone through a merger or acquisition.

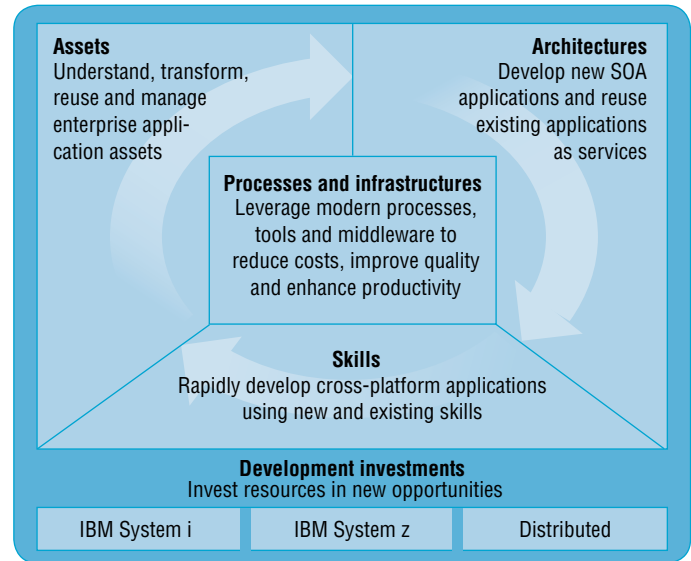
Leveraging existing systems, rather than replacing or rewriting them, is a time-tested approach to gaining a competitive advantage. Service-oriented architectures (SOAs) and new technologies can help modernize, extend and reuse existing assets—saving time and money while reducing risk. Once modernized, these IT systems offer greater agility, flexibility and robustness, and can boost productivity—enabling you to more quickly respond to marketplace dynamics and changing business needs.

## Delivering enterprise modernization solutions to meet a wide range of needs

IBM recognizes that only you can build your roadmap to modernization. You know your business requirements, staffing constraints and budgetary limitations better than anyone else. Therefore, IBM offers a suite of tools that you can adapt to your specific requirements. No two businesses will have the same set of constraints. Some will want to rapidly modernize in the shortest possible time, while others may wish to slowly integrate modernization into current projects and objectives, stretching their modernization roadmap over several years. IBM can help you create a customized roadmap and provide the tools you need to cost-effectively and incrementally evolve your core IT systems toward new architectures and technologies for nearly all platforms.

IBM Enterprise Modernization solutions, delivered via the IBM Rational® Software Delivery Platform, help you modernize existing application assets, architectures, skills, processes and infrastructures, and development investments—reducing maintenance burdens and freeing more of your resources to focus on developing new business requirements and capabilities.

Here we highlight some of the most common ways to modernize your IT systems—and the IBM offerings you can use to support those efforts.



*Aspects of enterprise modernization*





### **Asset modernization: leveraging existing assets— instead of rewriting or replacing them**

Asset modernization requires deep insight into targeted applications. The first step toward leveraging existing assets is to establish a common repository for your key application assets, and making that repository accessible to your key stakeholders. Once the information is captured and stored, development teams can quickly discover and understand application relationships and dependencies, as well as assess the impact of proposed changes. Developers can quickly identify the business rules embedded in core business processes; restructure code; remove dead code; and create reusable components that can be enabled as services within an SOA. Newly discovered assets can then be stored and managed across their lifecycle—from design and creation to consumption. This ability can greatly improve the productivity of your IT staff and reduce maintenance costs by eliminating the need for your staff to research, catalog and assemble the business rules for each service request.

Our asset management solutions provide IT staff with detailed reports and graphics that enable a rich understanding of existing applications, whether they were developed for IBM System i™, IBM System z™ or distributed platforms. Without this understanding, projects can potentially end up being much larger and more expensive than anticipated.



## Architecture modernization: helping you avoid costly rip-and-replace approaches

It's important to also address the complex dimensions of architectural change. Fragmented business processes, workflows, data and tightly coupled application architectures can reduce your flexibility and ability to move to new technologies; they also hamper your ability to reuse existing assets for new projects. Additionally, a myriad of implementation technologies and middle-ware inhibit resource and application mobility. To transform your core systems into flexible applications and services—while avoiding costly and high-risk rip-and-replace solutions—you have the option of using a variety of approaches and techniques.

You can start with Web-enabling existing character-based IBM 3270 and IBM 5250 screens to Web-based or rich client interfaces. You can expose these character-based interfaces as Web services without any modification to the underlying application code.

This approach can result in immediate benefits to users by simplifying the overall workflow and navigation of your host applications. Another common approach is to create services from business functionality buried in legacy systems. By crafting modular components and services from existing code written in languages such as COBOL, PL/I, RPG or Java™, you can tap into the business value in the current systems and position your IT infrastructure for rapid future changes to the business model.

Once you've decided on your architecture, having the right tools to modularize your legacy systems is critical. Our architecture management solutions can help your staff rapidly design, construct, assemble, test and deploy high-quality Web, Web services, portal and SOA applications for IBM CICS®, IBM IMS™ and the IBM WebSphere® Application Server platform using an integrated development environment (IDE) that fits your development needs. By working with what you already have, you can reduce time to market, improve business alignment for growth, cut costs and limit business risk.



### **Skills modernization: improving development productivity**

The rapid rate of technology improvement and the architectural evolution in the mainframe and midrange computing environments have not only given technology a new role, but have made these platforms an integral and strategic component of your organization's enterprise IT infrastructure. Organizations are struggling to determine how to tap into their traditional IT professionals' decades of experience and domain knowledge to enable them to improve current enterprise applications and take advantage of the new architectures and technologies that are available on these platforms. At the same time, organizations are trying to make it easier for new developers with distributed-platform skills to quickly learn and reuse existing application assets to create services and deploy new applications on existing infrastructures.

IBM solutions can help improve development productivity through a powerful, platform-neutral, business-oriented language known as EGL. A simplified high-level programming language, EGL lets you quickly write full-function applications based on Java and modern Web technologies. By providing a platform-independent model for developing applications, EGL can help you generate and deploy native Java and COBOL code optimized for your target platform. IBM is working with the Object Management Group (OMG), a not-for-profit computer industry consortium that develops enterprise integration standards, to standardize this new business language.

### **Processes and infrastructures modernization: enhancing collaboration and productivity**

Organizations have traditionally managed System i or System z development separately from distributed development. In the past, each team maintained its own set of applications, development processes and tools. However, this separation not only can hinder collaboration and productivity across the software lifecycle, it also can lead to errors that result in application failure or downtime. Such disruptions can be devastating to an organization's ability to drive revenue, address regulatory requirements and take advantage of new marketplace opportunities. In fact, downtime is often the catalyst that forces organizations to improve their development processes and infrastructure. Frequently, applications use components that run on multiple platforms. Because changes to one part of an application on one platform can impact other parts of the application on another platform, supporting these applications requires an enterprise-scale approach to synchronizing activities relating to software development, management, quality and release.

Change and release management solutions from IBM can help automate and enforce development processes and enhance collaboration and productivity across distributed, mainframe and midrange operating platforms at every stage of the application lifecycle. Additionally, IBM's portfolio and quality management solutions have been extended to support mainframe and midrange platforms. By automating the software lifecycle and providing a consistent development process paradigm across platforms, you can integrate isolated development teams to enhance project collaboration, improve release coordination and boost operational efficiency.

## Development investments modernization: focusing on new development, not maintenance

Modernizing development investments is one of the keys to greater responsiveness. Doing so enables you to shift your investments to key platforms and architectures, and it can help make developers more productive on these platforms and architectures.

Organizations that continue to depend on inefficient and outdated legacy environments are finding that their ongoing maintenance costs are skyrocketing. They are also finding it difficult to attract new development talent because many IT professionals are unfamiliar with older development environments. To stay competitive, you need to transition existing applications to new architectures and technologies without incurring the substantial risk and high costs of manual rewrites or migrations. IBM solutions help organizations automate migration from older third-generation language (3GL)-based and 4GL-based applications to newer technologies such as EGL. Using highly automated conversion software from IBM and IBM Business Partners, you can migrate specific legacy environments to EGL in a cost-effective and efficient manner that greatly reduces risk and shortens the overall conversion process.

Optimizing development investments frees your IT staff and budgets to pursue new opportunities. It enables you to shift resources from maintenance to new development, and to make incremental improvements within the context of a long-term strategic modernization initiative. One way to achieve this is to invest in technologies and solutions that can improve overall developer and team productivity. This can be achieved by automating manual and repeatable activities such as design, development, testing and deployment processes.



## IBM Enterprise Modernization solutions

	If you need to ...	... you need this IBM software ...
Asset modernization	<ul style="list-style-type: none"> <li>Identify key assets and restructure them for reuse in an SOA</li> <li>Reduce the cost and time of ongoing application maintenance</li> <li>Extract business rules currently embedded in code</li> <li>Manage and govern the design, development and consumption of software assets and services</li> </ul>	<p><b>IBM WebSphere Studio Asset Analyzer</b>—helps IT personnel discover and analyze existing enterprise applications by allowing them to understand and gain intellectual control over application relationships and structures.</p> <p><b>IBM Rational Transformation Workbench</b>—helps accelerate strategic and tactical modernization projects by allowing you to quickly transform existing assets and discover reusable business logic for creating services.</p> <p><b>IBM Rational Asset Manager</b>—helps improve productivity and software delivery through asset reuse by enabling you to create, modify, govern and locate any type of development assets.</p>
Architecture modernization	<ul style="list-style-type: none"> <li>Speed the efficiency of traditional mainframe, Web development and integrated mixed-workload development</li> <li>Break skills silos by simplifying and accelerating cross-platform development</li> <li>Increase productivity and reduce training costs by extending host applications to modern user interfaces</li> <li>Accelerate the adoption of SOA by rendering existing IT assets as service components, encouraging reuse and efficiency</li> </ul>	<p><b>IBM Rational Developer for System i</b>—helps developers create IBM i5/OS® operating system-based applications including COBOL, CL, RPG, Web, Web services and XML-based applications.</p> <p><b>IBM Rational Developer for System i for SOA Construction</b>—helps business developers leverage EGL to deliver Web and SOA applications for the i5/OS operating system.</p> <p><b>IBM Rational Developer for System z</b>—can enable developers to quickly create IBM z/OS® operating system-based applications, including traditional CICS, IMS, COBOL, PL/I, Web, Web services and XML-based applications.</p> <p><b>IBM Rational Business Developer</b>—helps business developers deliver cross-platform Web and service-oriented applications through EGL.</p> <p><b>IBM Rational Host Access Transformation Services (HATS) for Multiplatforms</b>—helps developers create Web and rich client applications that provide an easy-to-use GUI for your character-based 3270 and 5250 host applications, as well as create services for SOA implementations.</p> <p><b>IBM Rational HATS for 5250 Applications</b>—provides easy integration between WebFacing applications and system screens or non-WebFacing 5250 applications.</p>
Skills	<ul style="list-style-type: none"> <li>Exploit new technologies and innovation without retraining your existing staff</li> <li>Utilize new skills for cross-platform development</li> </ul>	<p><b>IBM Rational Business Developer</b>—helps business developers deliver cross-platform Web and service-oriented applications for a variety of platforms, including Java Platform, Enterprise Edition (Java EE) and traditional mainframe and midrange platforms such as System z and System i.</p>

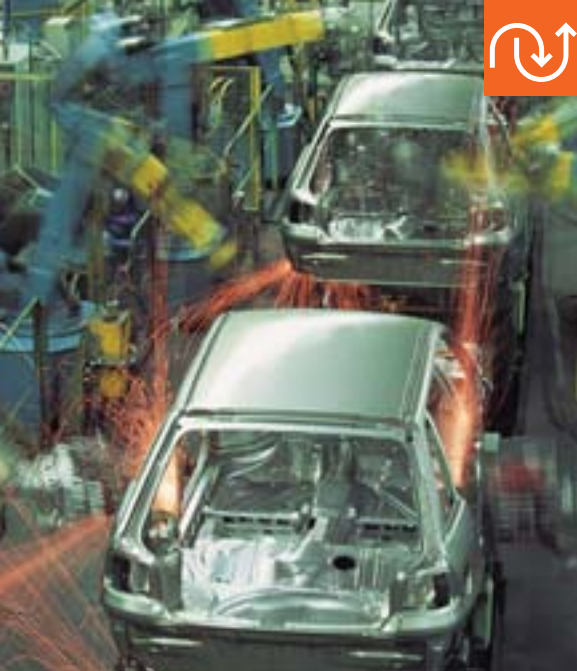


	If you need to ...	... you need this IBM software ...
Processes and Infrastructures modernization	<ul style="list-style-type: none"> <li>• Ensure that business goals and requirements drive downstream design, development and testing</li> <li>• Lower costs by eliminating duplicate tools and processes</li> <li>• Improve IT flexibility by leveraging employee skills across the organization</li> <li>• Exploit a single infrastructure for enterprise and distributed development environments</li> <li>• Enforce software governance policies and procedures across functionally diverse and geographically distributed teams</li> <li>• Manage quality across the software delivery lifecycle</li> <li>• Strategically integrate application security throughout the software development lifecycle</li> </ul>	<p><b>IBM Rational RequisitePro®</b>—allows global teams to clearly understand and effectively manage changing requirements in their natural context.</p> <p><b>IBM Rational Method Composer</b>—helps you create and deploy your established modernization approach by selecting only the policies and process components you need.</p> <p><b>Change and release management solutions from IBM</b>—help you improve productivity, gain better visibility into projects and processes, manage distributed teams, and provide audit trails and traceability across the software development lifecycle for fast delivery of high-quality software.</p> <p><b>IBM Rational Functional Tester</b>—helps reduce complexity and improve test efficiency and reuse with a set of manual and automated tools designed to address your needs. Our tools support a broad range of applications including Java, HTML, Microsoft® .NET, 3270 and 5250, VT100, Oracle Forms, Borland Delphi, Sybase PowerBuilder, Siebel, SAP and SOA.</p> <p><b>IBM Rational Performance Tester</b>—helps ensure that your applications scale and meet end-user demands. Provides scalability and load testing for Java EE, Web-based, Siebel, Citrix, SAP and SOA applications.</p> <p><b>IBM Rational AppScan®</b>—helps accelerate the adoption of security testing throughout the application development lifecycle.</p>
Development investments modernization	<ul style="list-style-type: none"> <li>• Devote more resources to new development rather than maintenance</li> <li>• Move to supported platforms and fully leverage the capabilities of the IBM Rational Software Delivery Platform</li> <li>• Make incremental improvements within the context of a long-term strategic modernization plan</li> </ul>	<p><b>IBM Rational Software Delivery Platform</b>—offers an array of products, services and best practices to help developers throughout the software and systems delivery lifecycle.</p> <p><b>Application transformation solutions from IBM</b>—provide complete enterprise application transformation solutions for migrating existing legacy applications developed with tools from Computer Associates, Software-AG and others to IBM Rational Business Developer software, which is part of the IBM Rational Software Delivery Platform.</p>

*Now you can get hands-on experience with IBM Enterprise Modernization solutions for the System i and System z platforms. Available on the [ibm.com](http://ibm.com)® Web site at the URL below, enterprise modernization virtual test-drives allow you to evaluate solutions in the five key modernization areas: assets, architectures, skills, processes and infrastructures, and development investments. Each solution is based on real customer experiences and offers a proven path to get you started with your modernization projects today.*

*These virtual technology exploration sites make it easy and fun to quickly try practical scenarios guided by self-paced exercises. Leverage existing assets, architectures and skills to quickly develop modern applications for System i and System z environments. You can also integrate, test and deploy applications in a live test environment.*

**[ibm.com/developerworks/downloads/emsandbox](http://ibm.com/developerworks/downloads/emsandbox)**



### ***By modernizing its legacy applications, a car manufacturer drives sales***

*When a car manufacturer examined its ability to increase its 2010 sales in the United States by 400–500 more units per dealer over its 2005 sales, it quickly realized it was facing some challenges. The company’s flexibility and ability to support the initiative were limited by its more than 130 supply chain applications, many of which were developed in the 1980s. IBM helped the organization develop an application modernization and renovation plan that leverages SOA technology and positions the organization to reap the benefits of a portfolio of newly modernized supply chain applications. When implemented, the applications will be less expensive to maintain, more flexible, better able to accommodate new requirements and easier to leverage across the company and with external stakeholders. Best of all, the company will be able to handle its planned business growth.*

### **The IBM Enterprise Modernization solutions difference**

IBM Enterprise Modernization solutions are supported by an experienced worldwide staff of professional services consultants to help implement solutions and support your staff throughout the application modernization process—from discovery, analysis, modeling and design to assembly, test, deployment and management. We bring proven methods, techniques, tools and skills, along with a collaborative approach to support you through the process. IBM can help you:

- Unlock core business application components by reusing proven, time-tested applications that can significantly lower risk, reduce costs and speed time to market.
- Lower your support costs by reducing duplicate application components and information.
- Simplify your technology profile, reducing integration complexity and resolving maintenance hot spots to establish a more agile application portfolio.
- Extend flexible reuse and connectivity of core application assets and information across your enterprise with our extensive experience leveraging the value of SOA.
- Reduce skill silos and islands of development.

Modernizing your legacy applications may be only one of your application services needs. Whether you need a little help or a lot, IBM can provide you with support that addresses the enterprise modernization lifecycle—starting with initial design and development and ending with delivery and management.

### **Why IBM?**

IBM continues to invest in a comprehensive portfolio of industry-leading, engagement-proven services, tooling and skills to support the enterprise modernization lifecycle. With prescriptive tools, methods and techniques that harvest real industry experience, IBM can help you accelerate the development and execution of the most appropriate modernization strategy for your business. IBM has a track record of successfully helping companies modernize and transform their legacy applications, thereby unlocking the business value that translates to the bottom line.

In addition, IBM is a leader in nearly all aspects of SOA business and technology transformation. This includes specific modernization approaches that help organizations leverage existing applications effectively and efficiently as part of their SOA solutions.



## For more information

To learn more about IBM Enterprise Modernization solutions, contact your IBM representative or visit:

[ibm.com/rational/modernization](https://ibm.com/rational/modernization)





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