

# Enterprise modernization: A Rational approach

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## Introduction

Over the past half century, businesses of all types across the globe have made significant investments in software and systems to automate business processes, deliver innovative capabilities, and integrate operations. As technology has evolved, organizations have carefully considered choices about platforms, programming languages, and methodologies in order to address business needs in the most effective ways possible as each new approach or capability has become available. But multiple decisions about computing infrastructure made over a number of years have led to deeply embedded and often disjointed archeological layers of technology and information assets.

Organizations find themselves with an incredibly diverse and evolving set of contributors distributed across geographies and generations with different skills, needs, and expectations. Furthermore, new technologies continue to emerge at an increasing pace.

Today, technology is what organizations rely on to differentiate their core capabilities, control costs, and drive sustainable growth. Mapping the best technology strategy to desired business process improvements has never been more mission-critical, yet it has never been more complex. Realizing that the status quo is no longer a viable choice, organizations must consider ways to modernize their technology infrastructure to deliver differentiated products and services.

Outsourcing is a common path today for at least a portion, if not all of, an organization's IT operations. Leveraging packaged, commercial-off-the-shelf (COTS) applications is another commonly considered choice.

A third option, and one that is the primary focus of this paper, is modernizing existing applications, processes, and development infrastructure. These options are not mutually exclusive, and there is no single, correct "one size fits all" solution. The key for your business is to strike the right balance among numerous strategic options in order to optimize your desired business results.

In this paper you will learn about a new, broad, and all-encompassing multiplatform view of modernization in the context of applications, people and teams. Our goal is to help you:

- Find smarter ways to design, build, maintain and extend the applications that run the business.
- Choose the best procurement model for your organization, including cloud and packaged applications.
- Provide individual practitioners with the best tools available to optimize their productivity.
- Enable your organizationally, geographically and generationally diverse practitioners to team and collaborate as effectively and efficiently as possible.
- Understand the importance of process improvement linked to appropriate success measures.
- Develop a strategic road map that begins with a clear understanding of your current portfolio of applications and leads toward a mature application portfolio management approach and strategy, delivering ROI gains incrementally.
- And, most critically, learn how to accomplish all of the above while continuing to deliver innovative capabilities, control costs and mitigate risk.

## Key challenges in enterprise modernization

A typical view of IT modernization shifts immediately to phrases like "legacy modernization" and assumes the discussion will be about mainframe systems and software. This is only partly true; "legacy" means any existing system, whether it was created last week, or 30 years ago.

The scope of IT modernization encompasses all systems, including distributed applications written in Java™, Microsoft Visual Basic, C, C++, C#, PHP, and more. It's about open source, Blackberries, iPhones, outsourcing, process improvement, and finding the right combination of assets to ensure that the technology is delivering the necessary business results. Ultimately, it's about ensuring that the IT organization can support the vast sea of challenges that businesses are confronted with.

Here are the primary challenges as IBM sees them.

**Poor alignment between the IT strategy and the business strategy** is a near universal problem. For decades, corporate executives and department managers have complained about budget overruns and schedule delays of complex IT projects. Underlying causes include the intricacy and size of modern applications, as well as poor communication between business, which features operational and IT experts who speak dissimilar jargon. The accelerating pace of evolving technologies only exacerbates the problem. The 2008 - 2009 economic downturn emphasized the need for agility as many companies shifted their business strategy, both to reduce cost and to seek competitive advantage. Those who can shift more quickly and efficiently can set themselves apart from the competition.

**High application maintenance costs** consume 70 - 80 percent of most IT budgets, given the sheer mass of code and assets to be maintained. The lack of knowledge about the value, costs, interdependencies, and potential change impact relative to those assets is a key business challenge. Many companies seek modest improvements (2 - 5 percent) in annual maintenance productivity, based on more effective use of current tools, maintenance skills, and life cycle governance methods. Achieving more significant maintenance productivity improvements will require changes to one or more of these IT expense factors.

**Inflexible, aging and poorly integrated IT systems** can also hinder your ability to quickly innovate and deliver new products and services to your customers. Today's business users have grown accustomed to the ease of use of modern web-based applications. However, many organizations still depend on traditional green-screen or character-based applications which can be inefficient, difficult to use and hard to change. Finding cost-effective ways to modernize and extend these IT systems to deliver new differentiated service offerings can deliver greater return on technology investments and avoid costly rewrites.

A good example of aging application technology: It is estimated that there are approximately 200 billion lines of COBOL code in production, with 5 billion lines of new code added to these highly valued core production systems each year. As much as 70 percent of business data worldwide is stored on mainframes and approximately 80 percent of daily business transactions are processed in COBOL. There are about 1.5 - 2 million developers globally developing and maintaining COBOL code today.<sup>1</sup>

In addition, the aging of the current IT work force creates concern that they will walk away with much of the business and technical knowledge accumulated over decades of building and maintaining the applications that run the business. The difficulty in attracting new talent to a green-screen environment can also stifle innovation and potentially put your organization at a competitive disadvantage. Organizations must strike a balance between (a) training existing personnel with deep business knowledge and experience and (b) hiring fresh personnel with modern technology skills but less business logic knowledge and experience. Reaching the right balance in resources is essential to minimizing risk on a modernization project.

**The lack of collaboration among different development teams** is a challenge across multiple dimensions. You may manage multiple development organizations across mainframes and distributed systems, perhaps in multiple physical locations, and could be relying on outsourced personnel. This can potentially cause domain, cultural and coordination challenges, especially recognizing that a majority of your enterprise applications are multiplatform in nature. Your company may have grown through acquisition, requiring application and hardware consolidation and painful changes in the merged organization. The use of different tools and processes among separate development teams creates a lack visibility into how, for example, changes in one part of an application on one platform will impact other parts of the application on another platform. This lack of integration translates to significantly reduced efficiency, lower quality and increased costs.

## Improving application knowledge, development skills, team collaboration, and infrastructure efficiency

The IBM® Rational® approach to modernizing and leveraging existing core system applications is based on four types of project strategies, as shown in Figure 1. When combined, these four strategies can help organizations to:

- Better understand their core application assets and how best to extend them or reuse them in building new applications. By leveraging proven application functionality, customers may reduce project risk, reduce project timetables and execute with fewer resources, thus saving cost.
- Empower their development organization with new skills to rapidly translate green screen interfaces to modern point-and-click GUIs while allowing both host and distributed developers to use a common integrated development environment interface—boosting productivity and reducing project cost.
- Improve team collaboration for tiered applications across host and distributed environments and across multiple development centers—perhaps in multiple geographies—to reduce project timelines and cost.
- Optimize the value received from customer’s host-based hardware investments and significantly improve development productivity.



Figure 1: The IBM Rational approach to modernizing and leveraging existing core system applications is based on four types of project strategies.

In this section, I will consider each of these strategies in the order shown in Figure 1.

### Modernizing your application portfolio

Lowering application maintenance costs and improving IT agility requires a detailed understanding of your application assets and the business processes they support. When the business wants to change strategies and business process changes are required, understanding your application assets and interrelationships will allow the IT organization to respond more quickly. You can move your IT organization from requiring several months to make small legacy application changes to making more significant changes in less time. Improved life cycle governance will help your company maintain application asset knowledge as you shift to a more agile development and maintenance organization. The ultimate goal here is to increase flexibility through revitalized applications

Here are several ways to accomplish this:

#### Reduce maintenance costs and improve productivity by recovering lost application knowledge

Many organizations invest millions of dollars in business intelligence software to collect and analyze operational data in order to gain better insight and help optimize their business operations. Yet there is little or no investment made to understand the systems that capture and process most of that operational data. You cannot modernize what you do not understand. The fact is that most organizations still rely on the knowledge in people’s heads regarding the structure of mission critical IT systems that run the business. And the problem is, as those people move to other projects or retire, this information goes with them and this critical knowledge is frequently lost.

Application analysis tools can help improve the productivity of your IT staff by automating the manual processes used by developers, analysts, and others to learn about existing legacy systems. Application discovery and analysis tools create an electronic inventory of all your IT assets by scanning millions of

lines of application source code and storing all the cross-reference information in a centralized database. This database can be used later to generate analysis reports and metrics on size, complexity, quality, and reusability of existing code base.

#### **Achieve quick ROI by leveraging proven application user interfaces**

A low-risk and low-cost modernization strategy is to web-enable existing green screen applications. You can use existing staff without requiring them to learn the variety of web technologies that exist today. This approach delivers immediate business value, such as reduced training time for new employees, while also buying time for more extensive modernization efforts later.

Alternatively, 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. For example, you might choose to integrate several existing green screen systems via a new Web 2.0 mashup-style UI, delivering a totally fresh and more functional UI but doing so very quickly by reusing existing, unchanged applications.

#### **Lower maintenance costs and improve business agility with SOA and Web 2.0**

Architectural change requirements typically span multiple platforms. Fragmented business processes, workflows, data, and tightly coupled application architectures reduce your flexibility and ability to move to new technologies. They also hamper your ability to reuse existing assets for new projects.

IBM offers solutions to help you rapidly design, construct, assemble, test and deploy high-quality web, Web 2.0, portal, and SOA applications for IBM middleware platforms using an

integrated development environment (IDE). The IBM Rational cross-platform IDE can help to reduce project timetables, improve business alignment for growth, cut costs and limit business risk.

#### **Migrate applications to lower cost software development platforms**

IBM solutions can help automate migration from older third-generation language (3GL) and fourth-generation language (4GL) applications to new architectures and technologies without incurring the substantial risk and high costs of manual rewrites. A highly automated transformation to IBM's modern business language, Enterprise Generation Language (EGL), can help reduce costs by avoiding recurring maintenance fees commonly associated with legacy languages. EGL also enables platform flexibility and choice because it deploys to virtually any environment such as COBOL, Java, or JavaScript. Studies have also shown that developers are considerably more productive with EGL, helping them to write more code in less time.<sup>4</sup>

#### **Improving development skills**

Two significant challenges can be overcome with the adoption of a modern integrated development environment (IDE). First, ISPF tools that ship with the mainframe have been the standard for many organizations for many years; however, each year skilled developers reach retirement age. Second, developers on the mainframe use a different IDE from what developers working with distributed applications use, which causes communication and coordination challenges and leads to slower, more costly projects.

IBM offers a modern Eclipse-based IDE, spanning mainframe, midrange and distributed environments with a modern graphic user interface that can help overcome both challenges. The IDE can be used by both Java and mainframe developers, providing a common view of tiered applications that span both environments. This common interface improves project coordination,

reduces project timetables, and helps constrain development expenses. This common IDE also provides two additional valuable benefits:

- While ISPF tools require development directly on the mainframe, consuming valuable MIP capacity, the new IDE operates on a work station, thus avoiding these MIP costs.
- As Java developers become familiar with the IDE, the common interface greatly facilitates working with mainframe code. Organizations can create a pool of developers that work in both environments, thereby increasing development deployment flexibility while helping to avoid potential challenges in sourcing.

#### **Improve flexibility by leveraging existing or new IT staff to build new EGL solutions**

EGL is a powerful, easy to learn and highly productive modern language that provides developers of almost any background with a simplified, high-level development model to help quickly deliver cross-platform transactional services and applications. EGL complements the breadth and depth of Java, JavaScript, and COBOL technologies with a simplified and more abstract development paradigm that allows developers of any background to quickly deliver web applications and services, including Web2.0 user interfaces.

EGL helps developers avoid most middleware complexity while providing a way for IT organizations to embrace modern web and SOA technologies—without forcing the entire team of developers to learn and master the low-level intricacies and complexities of Java and SOA programming. EGL is ideal for the business-oriented development teams who value ease of learning and high productivity and need to deliver modern applications and services but cannot afford the time, cost, and risk to transform each developer into a Java and Object Oriented expert.

#### **Unifying development teams**

Nearly all large organizations have multiple hardware platforms, multiple operating systems, multiple programming languages, and multiple development centers. Integrating the development

teams that operate in a complex environment requires a unified and collaborative software delivery system that consolidates multiple development approaches and tool sets. A single consolidated team infrastructure can help reduce operational costs for application source code and build management and improve quality across the delivery life cycle and across the multiplatform environment.

#### **Reduce cost and improve operational efficiency by unifying disparate IT infrastructure across teams**

Most IT organizations depend on a variety of software change, configuration management and team infrastructure for application development. Over time, this approach often results in the use of incompatible tools with different information repositories, from different vendors, on different platforms, using different jargon, and based on different process assumptions. Integrating and maintaining such mix-and-match infrastructures has proved to be much more problematic than expected. An important emphasis of a modern approach is to define a consolidated collaborative application life cycle management environment as a first-class enabler of the teams. The return on investment in these consolidated environments is manifold: the environment scales up significantly with the size of the application development organization, promotes useful levels of standardization, reduces costs, and minimizes the additional organizational burden of maintaining proprietary alternatives. In IBM's experience, consolidated collaboration generally yields 15 - 35 percent improvement in team productivity.

Frequently, applications contain components that run on different 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 development activities across multiple teams in the software development organization regardless of the target platform.

IBM offers solutions to help coordinate and consolidate these multiplatform development activities. Rational enterprise change and release management solutions help consolidate development processes and can help enhance collaboration and productivity across multiple platforms at practically every stage of the application life cycle. By providing a consistent development process paradigm across all platforms, previously isolated development teams can become integrated, thus enhancing team collaboration, improving release coordination, and boosting operational efficiency.

#### **Reduce risk and cost by focusing on quality across the entire software delivery life cycle for all platforms**

Software testing plays a critical role in the delivery of high-quality applications in today's complex and multiplatform enterprise IT systems. Statistics show that it is much more cost-effective to fix software defects early in the development life cycle rather than later or post-deployment, when it can be two to three orders of magnitude more expensive to fix defects. IBM offers solutions to help ensure end-to-end quality of applications deployed on distributed, mainframe, and midrange platforms. The software quality process begins by eliciting requirements that are well understood by all the key stakeholders from both the business and IT teams. Requirements drive downstream design, implementation, and test phases of the project and provide traceability throughout the software life cycle to help ensure that development is actually building and delivering solutions that will meet business needs. For example, you can link test cases to requirements to help testing teams identify and focus their testing on the most critical capabilities of the software system and stay current with changing requirements. By integrating workflows and sharing data among analysts, developers and testers, organizations can help establish an early focus on quality and enable organizations to proactively address quality issues. You can also create dashboards to quickly assess the quality of the target application, address gaps in requirements, adjust delivery dates, and shift development resources to help remediate any situations that will impact the business.

#### **Improve predictability of project success through governance and best practice guidance**

Process improvement involves adopting best practices for processes and measurements. These are used to help accelerate overall software delivery, minimize rework and reduce the cost of change. Examples of best practices may include iterative development, continuous integration, evolutionary architecture, shared vision, and test management. Practices not only provide guidance and techniques within a certain domain, they provide an underlying philosophy for how to accomplish various aspects of development according to established methods. Process improvements can provide visibility into—and control over—risks, statuses and trends. By improving software delivery processes, teams can reduce development risk and cost, improve quality, and speed delivery of applications.

IBM Rational tools are delivered with various templates to help teams follow well-established processes. In addition, the tools are highly customizable to allow teams to use the tools in the ways that work best for your organization. Teams can create dashboards and reports to give each stakeholder real-time insight into the status of the project at all times, while making it easier for anyone, anywhere to share knowledge and collaborate more effectively.

#### **Optimizing infrastructure**

We have observed that, when organizations acquire powerful new hardware platforms, they often don't realize that up to half the generational performance improvement is made possible through the compiler that's been specifically designed for that hardware. A simple recompilation can help you to optimize the value you expect from your hardware investment. Additionally, many customers want to take development off their relatively expensive operations mainframe and create a more flexible, low-cost mainframe development environment.

### **Improve performance and scalability with the latest compilers**

A quick and low-risk way to improve performance and the scalability of your existing IT systems is to ensure that you are leveraging the latest compiler technology. By periodically upgrading your compilers, you not only take advantage of new language features, extensions and usability improvements, you also get better application performance on new hardware without any source code changes. This allows you to stay ahead of your competition on the technology curve. Best of all, you do not have to change your hardware to upgrade your compiler.

IBM continues to develop its industry-leading optimization technology across multiple platforms, including IBM AIX®, IBM i/OS, and Linux on IBM Power Systems™, and IBM z/OS® and IBM z/VM® on IBM System z®. Designed specifically to complement IBM processor architectures, IBM compilers can help optimize the performance of commercial and high-performance computing workloads. This can help reduce your CPU cycles to improve the returns on your IBM hardware investment.

### **Reduce the cost of your mainframe development environment**

The production mainframe infrastructure often runs at peak capacity, leaving a very small time window for mainframe development and testing, which could further delay the application delivery time. Clearly this conflicts with more agile development approaches that presume continuous availability of development resources and the ability to rapidly develop and deploy new workload solutions. Organizations would like to free up their development MIPS, staff time, and other resources to support their production environment. The IBM Rational Developer for System z Unit Test feature allows mainframe software teams to

perform developer-based build and unit testing of z/OS-hosted applications on their development PC without using System z hardware processing cycles. Rather, teams can perform their mainframe application development and testing on their laptops. Developers won't miss the middle-of-the-night work on testing applications on their production mainframe with their relatively slow ISPF tools. This can help organizations manage their use of zEnterprise™ systems to control their development costs while realizing greater line of business costs savings. Rational Developer for System z Unit Test feature helps lower the overall cost of the mainframe development, making it more in line with distributed development.

### **IBM Rational modernization solutions at work**

*The following case studies help to describe how a variety of IBM customers started their modernization journey by engaging one of the four strategies described earlier in this paper.*

#### **Success story 1: Application Portfolio Management Reduce risk by actively managing your application portfolio**

A major global financial services company operating in over 50 countries with 155,000 employees engaged in retail and commercial banking, credit cards, investment banking, wealth management, and investment management. They saved over £2m in decommissioning redundant systems and infrastructure by incorporating IBM Rational System Architect® software into the governance model to stop the initiation of projects that are not aligned to the target architecture. The business reprioritized the importance of investing in infrastructure renewal. The customer was able to facilitate a joint board level IT and business architecture committee to identify areas where spending was not aligned to their IT roadmap.



**Success story 2: Web-enablement**  
**Achieve faster ROI by enabling your green screen applications as services**

An ISV specializing in financial services realized 94 percent savings in development costs by web-enabling existing green screen applications. The challenge facing them was the antiquated interface of their primary customer-facing application. The ISV was losing market share to competitors whose software had less functionality but better looking user interfaces. To reverse this trend the ISV needed to create an entirely new web experience for the customer or face a continued loss of market share. As an initial solution, the company built a .NET application that cost \$38 million and took nine months to complete. In the end, the application could only provide 20 percent of the functionality of the original mainframe application, and the new system also required additional employees for testing and maintenance. In essence, if the ISV had adopted this new .NET application, the company would have faced losing even more market share and spend more money to do so. Instead, they engaged an IBM partner who used IBM Rational Host Access Transformation Services (HATS) software to quickly create a fully functioning web application out of its existing green screen mainframe application. The project took 29 days and \$2 million to build, start to finish, and had zero defects.

**Success story 3: Multiplatform application development**  
**Improve developer productivity and reduce costs by leveraging modern tooling**

UniCredit Group's HVB IS sought to reduce development costs and improve development and testing efficiency for new and existing applications. They decided to consolidate their web and mainframe development efforts and leverage a similar development that would support both mainframe and distributed development environments. HBV IS deployed Rational Developer for System z software to more than 200 developers who were developing multiplatform applications for System z servers.

The new environment is helping the organization attract younger developers, while developers currently using Rational Developer for System z software are seeing an estimated 15 percent increase in development productivity and 10 percent increase in test productivity.

“Our team now develops, debugs and tests with more confidence, and it is clear that more and more people here will be using Rational Developer for System z,” noted Almut Geiger, product specialist at HVB IS.

Trustmark National Bank found that its existing green-screen applications were often difficult to change for new business requirements. For example, many of the bank's applications required well-formed user data that had to be validated by the presentation layer. Trustmark National Bank did not want to reuse the same presentation interface, but they could not access the back-end application without it. Trustmark carried out its modernization initiative using Rational Developer for System z and IBM CICS® Transaction Server. Rational Developer for System z software provided a development environment that helped Trustmark design and construct traditional mainframe applications, web applications, and integrated service oriented architecture-based composites quickly and efficiently. Utilizing the CICS Service Flow Feature of its CICS Transaction Server software, along with the Service Flow Modeler tool of Rational Developer for System z software, Trustmark National Bank were able to reduce costs and risk, while speeding application and service delivery through reuse of assets (rather than rebuilding them). “The Service Flow modeling in Rational Developer enabled us to convert our CICS screens to the web without any reprogramming. This reduced our risk, lowered cost, saved months of work, and allowed us to complete the project on time.” said Paul Williams, Director of IT, Trustmark National Bank.

#### **Success story 4: Team development** **Decreasing development time by standardizing on IBM Rational for System z**

For Sodifrance's many complex mainframe modernization projects, the company's staff often required different tools for each phase, including requirements, change management, agile development process management, builds, and more. In order to accelerate the development and migration involved in modernization, Sodifrance sought an open and powerful integrated development environment (IDE) that could be integrated with its own Mia-Software products. Seeking to leverage the open nature of the IBM Rational Jazz™ collaborative software delivery platform to integrate its own Mia-Software products, Sodifrance evaluated IBM Rational Team Concert™ for System z (RTCz) and Rational Developer for System z software on an IBM System z9® Enterprise Class server running IBM z/OS 1.10 at IBM's Montpellier zTech center. Sodifrance decreased its development time by 15 - 20 percent, and they increased visibility across teams through a unified dashboard helps improve development quality, minimizes errors and rework, and reduces time necessary to recognize and address issues. In the future, RTCz will ease development between Sodifrance headquarters and remote customer sites through improved communication and optimized code check-in and management features.

#### **Getting started**

IBM Rational is helping customers embark on their enterprise modernization journey with a customizable framework for measured process improvement that is designed to help organizations better manage their software delivery.

The service begins with an Executive Business Value Workshop (EBVW) to identify specific business goals in the organization, which are then addressed through the development of a customized, targeted solution roadmap. Once the goals are clearly understood and agreed upon, teams can leverage detailed services to assess current software delivery processes and/or

business application systems with the intent to provide guidance regarding modernization best practices to meet the goals determined in the EBVW.

#### **Consider taking first steps with Application Portfolio Management**

Application Portfolio Management (APM) is the process of continually assessing and evaluating the IT portfolio based on balanced business and technical ROI criteria. This information is then used to manage the transformation and align the portfolio with the strategic needs of the business.

While Application Analysis offers an IT-centric view of the portfolio, APM provides a business-centric view of the application portfolio. APM can deliver the biggest return on investment in terms of potential savings and increased business value. It helps identify inefficiencies, reduce risk, increase agility, and ensure IT investments are aligned with your business goals. APM helps teams concentrate their efforts on the elements of the portfolio that are of greatest business value to the organization.

APM can help rationalize and justify your application inventory and infrastructure by considering each as an investment. It helps teams understand the financial benefits and ROI of each component in comparison to the costs of the application's maintenance and operations. It gives you the information and process to make effective decisions on how to evolve the portfolio.

#### **Enterprise modernization for developer's prescriptive solution for SCM coexistence**

This service offering is designed to jump start your modernization efforts by quickly establishing an enterprise-wide System z application development and deployment environment. The solution consists of Rational Developer for System z software, Rational Team Concert software, and Rational Developer for System z Unit Test environment. It is a low-cost and low-risk solution designed to coexist with your CA Endevor Software Change Manager and Build capabilities.

### Application modernization services

The IBM Rational organization's experienced staff can help define and implement application modernization solutions. Our senior experienced solution and enterprise system architects can help you determine modernization alternatives, assist with defining modernization strategy, and help with implementation planning. We also provide resources that can provide short-term tactical services to help your teams become trained and functional with the tools quickly. Services are customized to meet your specific requirements.

### Development skills and team collaboration modernization services

We offer resources to assist with tool implementation so that ROI and business objectives are achieved faster. Our resources have been helping clients implement IBM Rational tools for many years and can help your implementation yield a quick time-to-value and improve return on your investment. We offer formal training as well as "over the shoulder" assistance for users and administrators to work with your people doing their specific tasks. This strengthens knowledge transfer and helps your team better absorb the learning.

### IBM Rational Café communities and enterprise modernization sandbox

IBM Rational Café communities for EGL, RPG, C/C++, and COBOL offer online discussion forums where your teams can ask questions or provide answers. These communities host blogs by the IBM development teams that create the products and provide free downloads of code samples, white papers, training manuals, videos, and other documents related to enterprise modernization solutions. There are also HotSpots like the HATS HotSpot, that provide the ability to connect to a community to learn what's new, share hints and tips, reach out when you're challenged, and engage in dialogue with the HATS team on what you like, don't like, and what you need.<sup>2</sup>

The IBM Enterprise Modernization Sandboxes let you experience and evaluate the latest modernization solutions for the System z, IBM Power®, and IBM i platforms through hands-on participation and guided walk-through and usage of live, hosted System z and IBM i development scenarios and solutions.<sup>3</sup>

### Conclusion

Technology plays a mission-critical role in business success today. Over the years, organizations have accumulated deeply embedded layers of technology assets that are driving significantly increased costs and inhibiting agility. Enterprise modernization has become a critical business success factor. But embarking on massive, long term, high cost, high risk modernization initiatives without clear, measurable ROI goals is not a viable option. Neither is maintaining the status quo.

Successful enterprise modernization requires approaching these known challenges in new, more cost-effective and practical ways. For example, rather than just thinking about technology assets in terms of code and applications, consider the critical importance of your development team's skills, collaboration and infrastructure efficiency in building and maintaining those assets. To improve productivity and realize significant positive results, organizations must address all four areas of applications, skills and collaboration and infrastructure efficiency. It means finding ways to leverage existing assets more effectively, rather than assuming wholesale rebuild and replace approaches are the only option. It means looking across the enterprise, across different platforms, geographies, and technologies, and plotting a clear, executable course towards reduced costs, improved productivity, and agility, while concentrating efforts on applications that are most important to the organization's business objectives.

IBM recognizes that no two businesses will have the same set of constraints or application portfolios. Some will want to rapidly modernize in the shortest possible time, while others may wish to slowly integrate modernization into current

projects, stretching their modernization roadmap over several years. Whatever path you choose, IBM offers the tools, best practices, and industry expertise you need to cost-effectively and incrementally evolve your core applications, skills, and development teams toward new architectures and technologies.

Making the right decisions about modernization can make the difference between business success and failure. IBM Rational can help find the best path for your organization, based on your priorities and business needs.

### For more information

To learn more about IBM Rational application modernization solutions, please contact your IBM marketing representative or IBM Business Partner, or visit the following website:

[ibm.com/software/rational/solutions/em](http://ibm.com/software/rational/solutions/em).

Additionally, financing solutions from IBM Global Financing can enable effective cash management, protection from technology obsolescence, improved total cost of ownership and return on investment. Also, our Global Asset Recovery Services help address environmental concerns with new, more energy-efficient solutions. For more information on IBM Global Financing, visit: [ibm.com/financing](http://ibm.com/financing)



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July 2011  
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<sup>1</sup> See for example the article from January 2011 at <http://www.nlets.org/press/cobol-doesnt-belong-in-a-museum>

<sup>2</sup> See Ben Margolis and Danny Allan, *Enterprise Web 2.0 with EGL*, MC Press, 2009

<sup>4</sup> See [ibm.com/software/rational/cafe/index.jspa](http://ibm.com/software/rational/cafe/index.jspa) for more information.



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