Software development for the on demand enterprise

Building your business with the IBM Software Development Platform

ON DEMAND BUSINESS™

An on demand business is an enterprise whose business processes—integrated end-to-end across the company and with key partners, suppliers and customers—can respond with speed to any customer demand, market opportunity or external threat. This new wave of enterprise transformation requires tighter coupling of applications and business processes, more collaborative business relationships and an enhanced emphasis on software development.

The drive to differentiate

Today's on demand enterprise thrives on continuous business differentiation. This differentiation is driven by business practices that:

- *Consistently deliver innovative products*
- *Improve operational efficiencies*

Peek under the covers of virtually any product, service or system that sustains competitive advantage and you will find software in action. Whether applied to a legacy system transformation, packaged application implementation or new development project, software development is the not-so-secret weapon that allows organizations to codify their unique business knowledge and set their products and services apart from the competition.

By improving their software development capability, organizations fundamentally improve their ability to compete in an on demand world.

The high rate of failure

Software development is a team-based activity. Business, development and operations teams must all work together to achieve a successful outcome. In more than 60 percent of projects, however, these extended teams fail to produce meaningful results. Often the problem lies not within any one area, but in the interface between cross-functional teams.

- ***Business** stakeholders lack the consistent portfolio and project visibility needed to align technology investments with business and governance objectives.*
- ***Development** teams lack the rapid application development tools and processes needed to respond with speed and quality to evolving business needs and operational challenges.*
- ***Operations** teams lack the correlated "behind the scenes" information they need to perform root cause analysis and manage service levels in complex, multi-tier environments.*

As hard as they try, these teams lack the unifying infrastructure required to align business needs with technology assets. All too often, the results are project failure, frustration and, ultimately, a loss of business agility.

Business-driven development

For business and technology leaders who seek greater business value from their technology investments, IBM offers a proven alternative: business-driven development. This integrated approach aligns line-of-business, development and operations teams by providing a shared process, toolset and vocabulary for developing and deploying software. This unified approach helps organizations transform software development into a source of strategic advantage. The business-driven development team creates software with the power to transform, exploit new revenue sources and achieve breakthrough results.

Part of the on demand operating environment

Business-driven development is an essential aspect of an on demand operating environment—a complete operating infrastructure for aligning people, processes and technology for business advantage. Honing your business-driven development capability is one of several ways of achieving the benefits of an on demand operating environment. Other focus areas include improving business integration through the adoption of service-oriented architectures and adopting flexible infrastructure management solutions. An on demand operating environment can help your organization use technology as a lever to maximize business flexibility and responsiveness while reducing cost.

Key to the on demand enterprise

For business and technology leaders who recognize the importance of unifying business and technology domains, IBM offers a proven foundation: the IBM® Software Development Platform.

This complete and configurable solution integrates formerly disconnected development activities into a unified whole. Its common toolset, vocabulary and workflow are shared by all members of the extended software development team.

The IBM Software Development Platform is:

- ***Complete.*** *It supports every member of your development team as well as business and operations stakeholders to drive business value throughout your software life cycle.*
- ***Open and extensible.*** *You can leverage existing assets and choose from a wide array of development languages, deployment platforms and partner technologies—including Microsoft® .NET, BEA and Oracle solutions.*
- ***Modular.*** *You can choose the exact tools and adoption path that best fit your needs.*
- ***Proven.*** *It is based on tools and best practices that are the choice of thousands of high-performance software teams.*

The IBM Software Development Platform is not a single product offering, but an integrated set of products that can be adapted to the unique needs of your team and technology environment. It spans Microsoft Windows®, UNIX®, Linux® and mainframe platforms and supports a wide spectrum of programming languages, integrated development environments (IDEs) and cross-development environments for real-time and embedded system developers. The IBM Software Development Platform combines core products with complementary and technology-specific extensions. To meet your team's specific needs, you can extend your solution with Ready for IBM Rational® software-validated IBM Business Partner solutions.

Profiles in transformation: Hotel and Hospitality

WHY BECOME ON DEMAND:

An international hotel group was facing a barrier to continued profitability and growth due to its aging online reservation system. The system could not keep up with the company's growing customer base and lacked the personalization and native language capabilities required to compete on a global scale.

SOLUTION:

The company set out to streamline business processes and integrate with business partners by modernizing its existing systems. It built a reliable services-based infrastructure that integrates multiple legacy systems and offers the scalability required to handle spikes in traffic and continued growth. Customers can now book reservations in multiple languages and benefit from personalized access to rewards programs. The team used tools in the IBM Software Development Platform to meet the technical and business requirements of the project.

BENEFITS:

- *With a new services infrastructure, the company's gross Web bookings have more than tripled—from US$800,000 per day to US$2.5 million per day over 18 months.*
- *Increased usability of the new system has driven an additional US$350 million in revenue from new customers.*

What is software development?

Software development is a strategic business process that integrates and automates other business processes, such as supply chain management and customer relationship management. Businesses engage in software development whenever they:

- ***Integrate** existing applications, either internally or with customers or partners*
- ***Modernize** existing applications*
- ***Extend** packaged applications with custom code*
- ***Build** new applications*
- ***Deploy** applications to a production environment*

A complete team solution

IBM tools allow each member of your team to perform their specific role and share their work as it progresses through the project life cycle. Your team will appreciate best-in-class tools that allow each role to work more productively at the right level of abstraction. Every investment of time and effort—from understanding a business process to finding and fixing a software defect—is fully leveraged for the benefit of the extended team.

The IBM Software Development Platform helps:

- ***Business Executives*** *manage technology assets within an overall project portfolio and make rapid, well-informed allocation decisions when priorities or needs change.*
- ***Business Analysts*** *understand, simulate and monitor business processes to identify the greatest opportunities for business improvement.*
- ***Business Stakeholders*** *communicate business priorities and make rapid, well-informed allocation decisions when priorities or needs change.*
- ***Project Managers*** *manage process, scope, resource allocation, scheduling and change control to ensure on-time and on-budget delivery of software that meets business needs.*
- ***Architects*** *define the overall structure, layout and security of your operating environment to ensure that your infrastructure, systems and solutions are well positioned to meet evolving requirements.*
- ***Developers*** *take advantage of frameworks, patterns and rapid application development techniques to quickly build quality applications.*
- ***Data Architects*** *design and model database schema to support information needs in an on demand environment.*
- ***Testers*** *leverage automated testing tools to ensure the functionality, performance and reliability of applications under construction.*
- ***Performance Engineers*** *validate system performance, determine maximum system capacity and identify and resolve performance problems.*
- ***Operations Managers*** *efficiently plan and integrate changes into production environments and monitor their impact on the health of the IT infrastructure.*
- ***Network Engineers*** *plan and monitor essential network resources, detect bottlenecks and recover from network degradation or outages.*

Profiles in transformation: Financial Services

WHY BECOME ON DEMAND:

One of New Zealand's leading financial service providers was at risk of losing business to competitors with more customer-focused Internet offerings. It needed to quickly develop more innovative currency applications and revamp its Internet offerings in order to meet market challenges and maintain customer loyalty.

SOLUTION:

The bank decided to bring development of applications in-house with tools from the IBM Software Development Platform. The flexible solution integrated both new and existing IT assets into a coherent development infrastructure that enabled the bank to quickly deploy new and differentiating Internet-based offerings.

BENEFITS:

- *Added 40,000 new users*
- *Increased profits by 17 percent*
- *Reduced customer support calls*

The Eclipse advantage

The IBM Software Development Platform is built on Eclipse, an award-winning, open source platform for the construction of powerful software development tools and rich desktop applications.

Eclipse is both an open source software development project—with over 100 active vendor participants—and a rich foundation for providing shared services across your tooling environment.

With Eclipse at its core, the IBM Software Development Platform:

- ***Provides a custom perspective of common projects.*** *Each member of your team can work in a perspective optimized for their role.*
- ***Reduces latency across tasks.*** *Unlike previous development environments, Eclipse perspectives share the same underlying data. Whenever anything under construction changes–a new business process, user requirement, test result or deployment configuration–team members can instantly assess the impact of that change. This gives teams the immediate feedback they need to accelerate success.*
- ***Enables a rich partner ecosystem.*** *The Eclipse platform makes it easier for both you and other vendors to create custom and third-party plug-ins to extend your software development environment. You benefit from a vibrant tools and services ecosystem that is supported and extended by a broad community of IBM partners.*

Profiles in Transformation: Public Sector

WHY BECOME ON DEMAND:

A Midwestern state benefits council was using a labor-intensive, manual process to administer and manage benefits to its 36,000 state employees in 100 agencies statewide. An inefficient, outdated system and a small staff was causing errors, processing delays and problems in meeting growing demands. The benefit council needed a streamlined, simple, cost-effective approach that would integrate disparate systems and increase responsiveness.

SOLUTION:

The council implemented an online enterprise application that gave employees access to information through a Web portal, providing timely services, faster response, less paperwork and integration of all processes. Software quality was the key to the solution. Key products from the IBM Software Development Platform provided common requirements management, automated testing and defect and change tracking support.

BENEFITS:

- *Automated processing yielded savings of US$100,000 per year*
- *Data previously available in days is now available on demand with 24x7 availability*
- *Printing and mailing costs have been virtually eliminated*

Successful business transformation requires the close collaboration of three sets of stakeholders:

- *The line-of-business organization that drives business strategy*
- *The software development team that enables that strategy*
- *The IT team accountable for day-to-day operations*

Key to unifying these disparate teams is the ability to provide business insight and project visibility across all three domains. From asset discovery through solution deployment, the IBM Software Development Platform provides a uniquely holistic, 360-degree view of your evolving technology. Only IBM provides both a top-down and bottom-up view of your technology projects, enabling correlated decision making based on objective data.

Govern projects and portfolios

Complete visibility into your project portfolio requires accurate project data and the tools to analyze and monitor that data. IBM solutions automate the project portfolio management process from opportunity identification and prioritization to project execution and closure. The IBM solution helps executives visualize and balance project portfolios and make more objective decisions. It also helps project and program managers initiate projects more quickly, balance workloads more effectively and actively manage risk.

Discover business and technology assets

Business transformation requires both knowledge of existing business processes and the ability to visualize alternatives. IBM solutions enable you to capture current business activities and workflows and simulate alternative scenarios to uncover business opportunities. Once an opportunity has been identified, IBM solutions help you analyze business and technology requirements, perform impact analysis on existing systems and scope projects appropriately.

Develop at the speed of business

The IBM Software Development Platform features a rich toolset and automation framework to dramatically accelerate development cycles. Rapid application development capabilities allow teams to efficiently build applications using either code-based or model-driven approaches. The IBM approach integrates Unified Modeling Language (UML) modeling, code generation, Java structural analysis and process guidance to dramatically simplify software construction. Outstanding support for Web services and Web portal development eases your organization's transition to service-oriented architectures.

Deploy to closed-loop environments

A closed-loop environment helps teams ensure that service levels are met and expected business benefits are realized. Dynamic provisioning automates the time-consuming and error-prone task of updating application software and middleware across multiple servers, clients and pervasive devices. Comprehensive monitoring capabilities empower operations teams to effectively resolve production problems in complex, multi-tiered application environments. And once a solution has been deployed, business process monitoring capabilities allow teams to compare expected results to actual business results.

Manage change and assets

The on demand enterprise thrives on controlled change. IBM change management solutions help you implement a managed approach to change that also guards against corruption of assets. With their outstanding support for team collaboration and parallel development, IBM solutions have been at the forefront of making virtual and distributed teams more productive.

The business-driven development life cycle

The business-driven development life cycle is iterative in nature. Each iteration combines a mix of analysis, design, construction and testing activities and results in a demonstrable form of the software that can be validated and refined by users. Producing multiple iterations reduces project risk by providing tangible checkpoints along the pathway to a complete solution. A typical iteration includes the following steps.

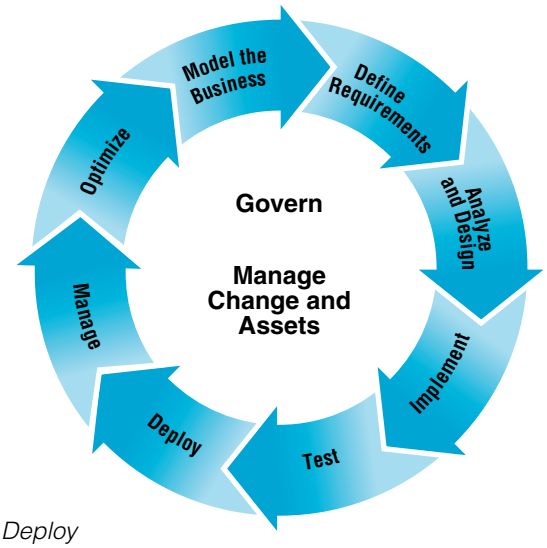
Model the Business Process
IBM solutions enable you to capture current business activities and workflows and simulate alternative scenarios to determine the best opportunities for business transformation.

Analyze Requirements
Once a solution has been identified, the next step is to define its supporting business and IT requirements. IBM solutions help you generate a financial analysis for your proposed solution and document both its business and technology requirements. By modeling user interactions using the industry-standard UML, your team will share a common and precise understanding of proposed changes.

Design and Construct
The next step is to translate requirements into technology solutions. Because no single tool fits all team needs, IBM offers the broadest spectrum of code-based, model-driven and rapid application development solutions for developing high-quality software. You choose the toolset optimized for your technology environment, skill level and development paradigm.

Test
Each iteration is validated to ensure that it functions as designed with acceptable performance. IBM testing tools accelerate quality assurance activities as they build a valuable foundation of reusable test artifacts.

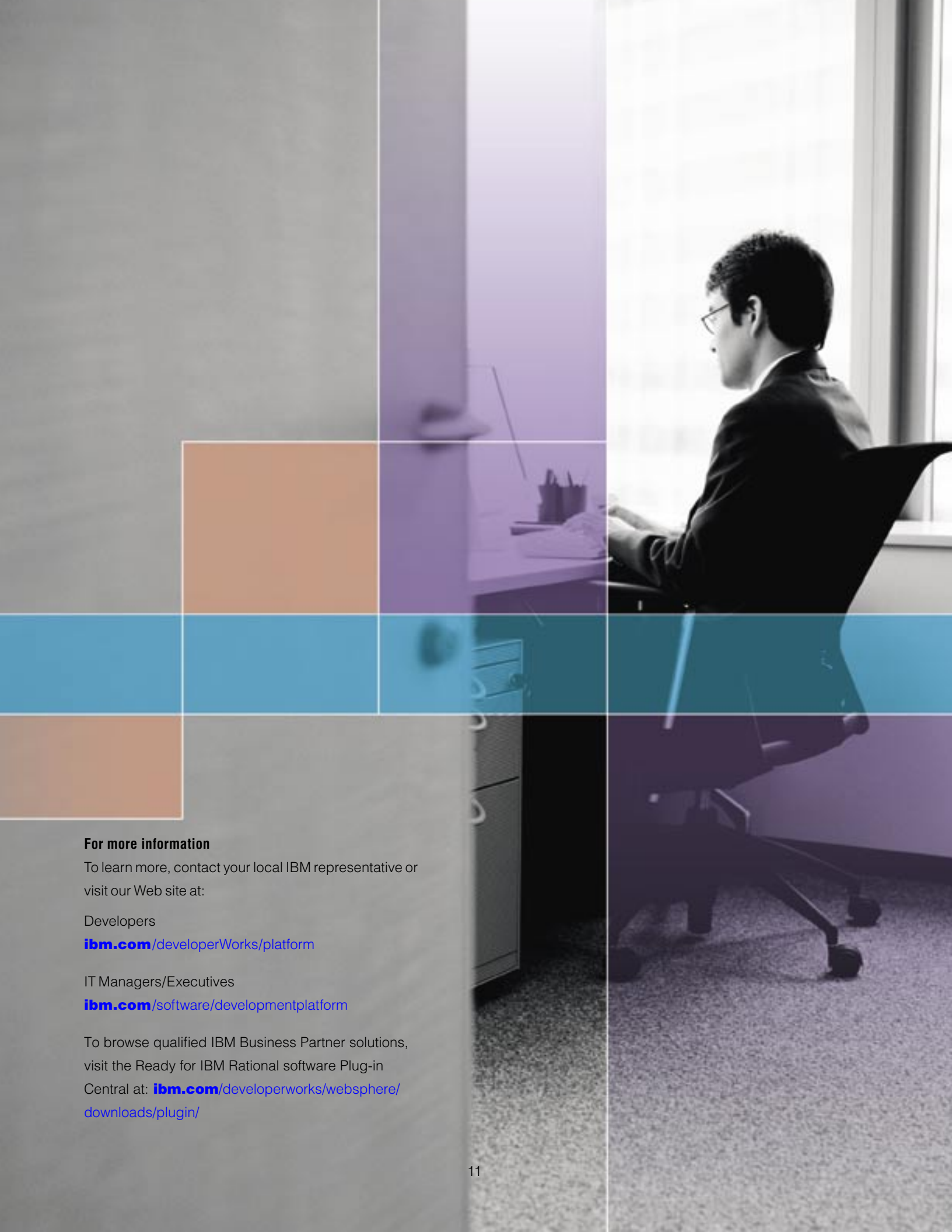
The business-driven development process



Deploy
IBM deployment tools support a managed approach to planning and executing migrations to your production environment. Automated provisioning and configuration management capabilities ease the implementation of coordinated changes to business processes and IT systems.

Manage
Once deployed, IBM monitoring tools monitor applications and essential system resources across your multiplatform environment to detect potential problems and automate recovery from critical situations. A closed-loop development cycle provides developers, operations managers and network engineers with a consistent set of correlated data to pinpoint application problems and facilitate their rapid repair and redeployment.

Optimize
Successful organizations not only automate business processes, but also monitor their execution and dynamically adjust them in response to real-time feedback. A performance-based feedback cycle allows you to compare the projected value of an investment to actual business results and make the necessary adjustments to maximize business value.



For more information

To learn more, contact your local IBM representative or visit our Web site at:

Developers
ibm.com/developerWorks/platform

IT Managers/Executives
ibm.com/software/developmentplatform

To browse qualified IBM Business Partner solutions, visit the Ready for IBM Rational software Plug-in Central at: **ibm.com**/developerworks/websphere/downloads/plugin/

© Copyright IBM Corporation 2004

All Rights Reserved

IBM Corporation
Route 100
Somers, NY 10589
U.S.A.

Produced in the United States of America
December 2004

IBM, the IBM logo and the On Demand logo are trademarks of International Business Machines Corporation in the United States, other countries, or both.

Linux is a registered trademark of Linus Torvalds in the United States and other countries.

Microsoft and Windows are trademarks of Microsoft Corporation in the United States, other countries or both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Other company, product and service names may be trademarks or service marks of others.

References in this publication to IBM products or services do not imply that IBM intends to make them available in all countries in which IBM operates.

G507-1652-01