Software development for the On Demand Business

Rational software

IBM

Business driven development: transforming software and systems delivery.

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. Software and software-based systems are at the core of the move to On Demand Business. The resulting focus on delivering real value to the business is radically affecting the way software is procured, specified, integrated, extended, built and maintained.

The drive to differentiate

The On Demand Business enterprise thrives on continuous differentiation. This differentiation is no longer just about innovative products and services. It's also about rethinking business models, processes and policies to create new opportunities. Tremendous strides in technology are enabling a new approach to innovation that improves business growth and cuts costs simultaneously.

Software is at the core of virtually every business today. Any business application, product or service that sustains competitive advantage depends upon software. Software and software-based systems are the not-so-secret weapons that allow organizations to codify their unique business value.

And this value can be delivered faster and more cost-effectively than ever before. Organizations are enjoying new degrees of freedom in the way they work. Technology has accelerated globalization by overcoming the geographic boundaries between countries, companies and communities. Software not only automates business processes, but enables new ways to conduct business. Activities within a business process, such as customer order fulfillment or product development, can be uncoupled and sourced to the most knowledgeable workers, no matter where they are located in the world. Often called right-sourcing, this trend promises process optimization on an unprecedented scale. It also means that new business initiatives increasingly require the flexibility to modify key business processes and to rapidly deploy solutions without having to rip out and replace existing systems.

The conclusion is inescapable. By improving software development capability, an organization can truly become an On Demand Business.

Focus on business value

Because software is critical for business success, software development becomes a business-critical process that must drive value. As a value-driven process, development must be as accountable as any other core business activity. This means that development organizations are responsible for:

- Aligning technology with business.
- Effectively managing risk.
- Enforcing compliance.
- Improving responsiveness.
- Increasing efficiency.

Challenges to achieving value-driven solution delivery

Accountability for delivering value isn't easy, because development is as much an art as it is a science. Right-sourcing and compliance pressures add complexity to effective oversight.

Balancing control and innovation

Management must be able to achieve accountability without stifling creativity. Practitioners want to work in a development environment where they are able to:

- Collaborate freely within and among teams.
- Spend minimal time on administrative tasks.
- Have unfettered access to required information.
- Use the latest tools and technologies.

Achieving a balance between control and innovation is complicated by new, distributed models for software delivery. These models require better governance to ensure strategic alignment, role and responsibility clarity, and continuous measurement, no matter where or what software is being delivered.

Managing geographically distributed teams

Global economics and emerging technology demand that you distribute and integrate skills, activities, teams and resources in new and cost-effective ways. However, managing processes and teams that are dispersed across town, beyond the border, overseas and in partner organizations is more difficult. You must be able to:

- Accurately assess the best distribution, or right-sourcing, of your resources and projects.
- Keep multisourced projects aligned to changing business requirements.
- Ensure optimal performance in meeting business and project objectives.
- Support productive collaboration among teams in different time zones, countries and companies.

Value-driven means your software development portfolio and projects support business initiatives that are aligned with organizational goals.

Complying with controls and regulations

Disciplined processes and compliance with government regulations are essential to geographically distributed development. You need to effectively coordinate the activities of teams working in different locations around the world. And you're required to comply with all country-specific regulations. This can be particularly challenging when project deliverables are outsourced to partner companies in multiple countries. You must find ways to cost-effectively ensure compliance with:

- Internal policies and controls.
- Government regulations for every country in which you operate.

Designing, implementing and managing modular systems

Modular systems are the most cost-effective way to provide the flexibility and agility demanded by On Demand Business. They enable businesses to reuse their existing technology assets in new ways. Through modularity, businesses can deconstruct critical processes into components that can then be reconstructed into new processes more quickly. And modular systems can be based on open computing to maximize interoperability and scalability. As a result, organizations can react more quickly to new market opportunities.

Service-oriented architectures (SOAs) represent the latest step in the evolution to modular systems. An SOA is an open-standards-based application framework that takes everyday business applications and breaks them down into individual business functions and processes, called services. A service is simply a grouping of components (executable programs). SOAs allow organizations to build, deploy and integrate these services independent of applications and the computing platforms on which they run.

Before getting into the technology of modular systems, however, companies must identify the core areas of the business where increased responsiveness is critical. Then, together with IT, they have to look at the processes in these areas, and the applications that enable those processes, to decide what functionality can be shared for greater operational flexibility.

Therefore, developing for modular systems is a new way of thinking that requires process guidance. Additional challenges include managing:

- Fragmented collections of independent and loosely coupled services.
- Multiple skill sets, including experience in complex new standards, as well as knowledge of legacy systems.

All these trends—geographically distributed teams, compliance and modular systems—impact the way software initiatives and projects are managed. The focus is on driving business value.

Profiles in transformation: Hotel and hospitality

On Demand Business initiative

An international hotel group faced a barrier to continued profitability and growth: 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 globally. The company set out to streamline business processes and integrate with business partners by modernizing its existing systems.

Business driven development solution

Using the IBM Rational® Software Development Platform, the development team built a reliable services-based infrastructure that integrates multiple legacy systems and scales to handle spikes in traffic and continued growth. The company's customers can now book reservations in multiple languages and benefit from personalized access to rewards programs.

Business value

- Gross Web bookings more than tripled—from US$800,000 per day to US$2.5 million per day—over 18 months.
- An additional US$350 million in revenue came from new customers alone.

Profiles in transformation: Public sector

On Demand Business initiative

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. An inefficient, outdated system and a small staff were causing errors, processing delays and problems in meeting growing demands. The benefits council needed a streamlined, simple, cost-effective approach that would integrate disparate systems and increase responsiveness.

Business driven development solution

The council implemented an online enterprise application that gives 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, with IBM Rational Software Development Platform products providing common requirements management, automated testing, and defect and change tracking support.

Business value

- Savings of US$100,000 per year from automated processing
- Data now available on demand, 24x7
- Virtual elimination of printing and mailing costs

Governing the business process of software and systems development

IBM offers a proven solution for businesses seeking greater business value from their technology investments: business driven development. This integrated approach enables you to effectively govern the business process of software and systems development. You're better able to:

- **Manage value** by aligning technology to business and balancing development innovation with organizational effectiveness.
- **Develop flexibly** and efficiently with modular systems and lean, agile teams that leverage the best technologies and available talent both inside and outside the company.
- **Control risk** and change with automated performance measurement and collaborative, iterative and auditable processes built on best practices.

IBM Rational solutions are designed to enable organizations to apply principles of governance to software and systems development. IBM provides the depth and breadth of products that can enable customers to use a business driven development life-cycle process to consistently align business priorities with development results.

Manage value

To be value-driven means your software development portfolio and projects support business initiatives that are aligned with organizational goals. The traditional project approach to software delivery often focused on individual areas of the business in isolation. With business driven development, you operate from an organizational perspective.

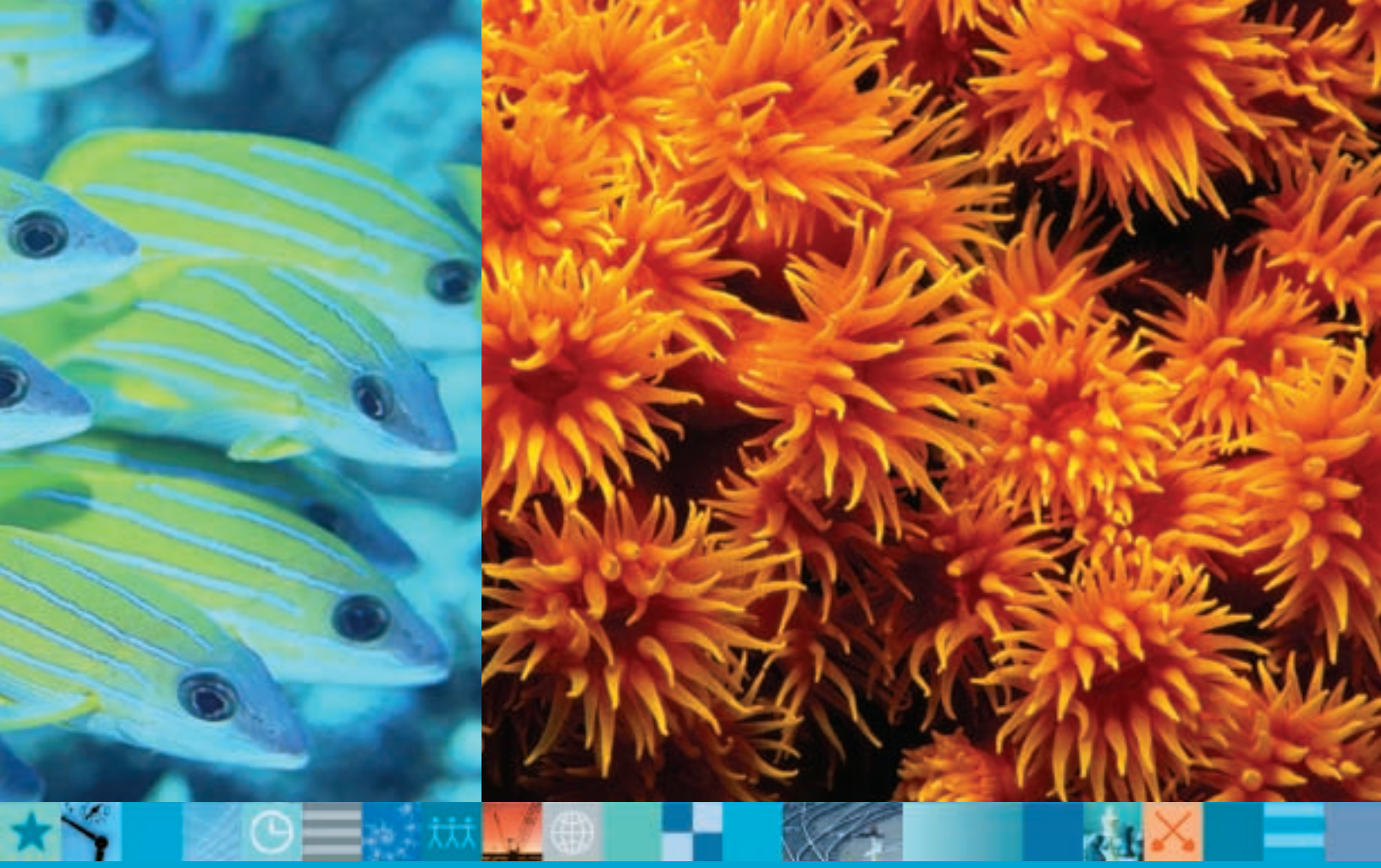
From asset discovery through solution deployment, the IBM solution provides a holistic view of your evolving technology to all stakeholders in the software development process, including the following:

- 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

IBM provides both top-down and bottom-up visibility into your technology projects, enabling coordinated decisions based on objective data.

Determining investment priorities

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 areas where technology improvements can deliver the greatest value to the business. This modeling capability makes it easier to decide how to prioritize new initiatives, in the context of existing projects and other internal system and process improvement needs.



IBM Rational Software Development Platform

The foundation for business driven development is the IBM Rational Software Development Platform. This complete and configurable solution provides transparency across the development life cycle. And, because it is an open platform, all members of the extended team responsible for software delivery can collaborate as they work together using a business driven process.

The IBM Rational Software Development Platform is:

- **Complete.** It can support 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 open-source and other technologies—including Eclipse™, Microsoft® .NET and Oracle solutions.
- **Modular.** You can choose the exact capabilities and adoption path that best fit your needs.
- **Proven.** It is based on technologies and best practices that are the choice of thousands of high-performance software teams.

The IBM Rational Software Development Platform is not a single 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® and Linux® operating systems and mainframe platforms, and supports a wide spectrum of programming languages, integrated development environments and cross-development environments for real-time and embedded system developers.

Solutions for geographically distributed development, compliance, systems development and SOAs are also available. These recommended configurations of the IBM Rational Software Development Platform provide product and services recommendations with a roadmap for usage that helps ramp up and scale key initiatives.

An extensive ecosystem provides additional capabilities for specific industry and technology needs. And Ready for IBM Rational Business Partner solutions provide both product and consulting expertise to accelerate initiatives.

Continually evaluating initiatives

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. From initial investment to solution deployment and assessment, you have superior decision support with:

- Real-time analytics linking financial and software information.
- Real-time resource management.
- Comprehensive dashboard reporting and drill-down.

Develop flexibly

Business driven development allows maximum flexibility in specifying development solutions for business initiatives that require software. You're able to consider the most cost-effective development strategy, whether it's buying new functionality, evolving an existing application, building custom code or integrating a packaged solution. You're also free to select solutions that make the best possible use of available technologies and talent.

Easily extend architectures

Business driven development enables corporate architectures based on open standards and SOAs. Support for open standards increases your choice of available software solutions and simplifies integration. And support for SOAs helps you complete projects more quickly. You can partition projects into smaller, more independent subprojects for faster time to value.

Leverage resources anywhere

IBM solutions have been at the forefront of making virtual and distributed teams more productive. You're able to centrally govern any form of geographically distributed development (including offshore and outsourced) to leverage possible solutions based on resource availabilities, cost constraints, schedule constraints and the relative priorities of other projects.

Realize expected business benefits

The 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, multitiered application environments. And after a solution has been deployed, business process monitoring capabilities allow teams to compare expected results to actual business results.

Control risk and change

A fundamental value of business driven development is transparency. You gain visibility across the entire software life cycle—from business needs through deployed systems. Using development analytics tied to business goals and priorities, managers can better evaluate risks and manage risk variance across their portfolios of software projects. And teams can quickly use the project's expected risk profile to determine the level of development-process discipline

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:

- Specify requirements.
- Procure packaged applications.
- Build new applications.
- Integrate new and existing applications, either internally or with customers or partners.
- Extend and modify packaged applications to improve performance.
- Deploy applications to a production environment.
- Assess and maintain a solution to improve security and enable reliable delivery of expected value.

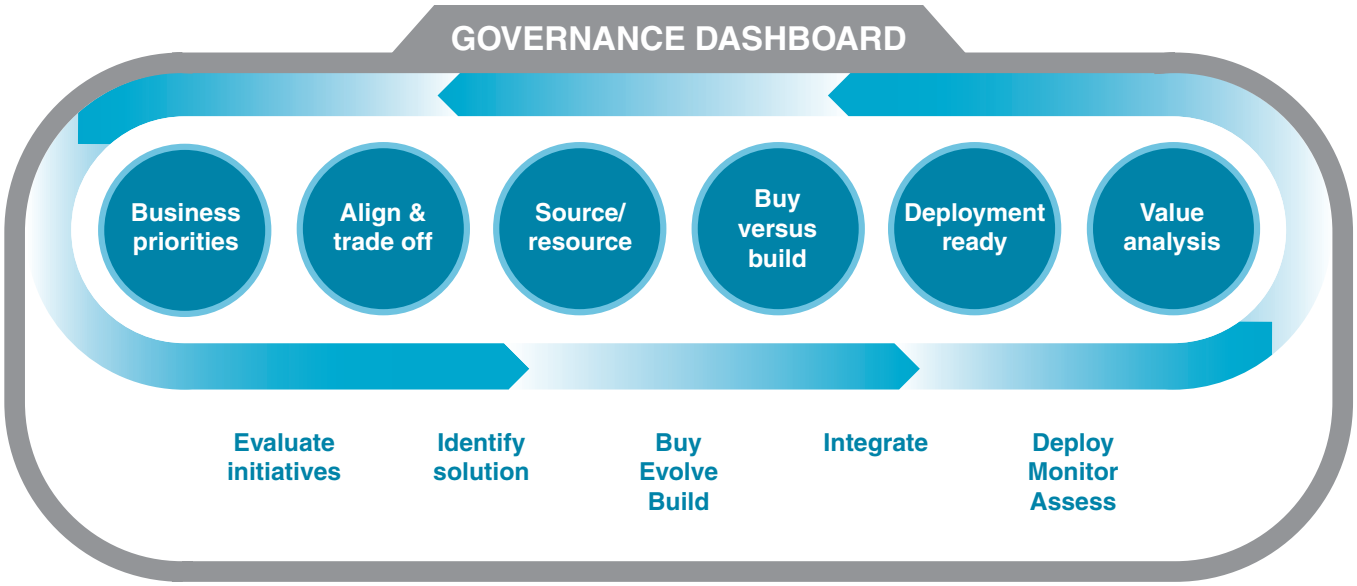


Figure 1. Applying governance to the business process of software and systems development

most appropriate to improve the likelihood of business success—while still maintaining organizational agility and innovation.

Figure 1 shows the typical decisions that managers and the executive team make to balance risk and return on investment. None of these decisions is unusual. What's different is the application of these decisions to software and systems development, a functional area formerly treated simply as a cost center. With business driven development, these decisions are made throughout the life of a project. As the tasks shown in Figure 1 are executed in response to each decision, status and performance data feed into the governance dashboard—giving executives and managers the information they need to make subsequent decisions that will impact task performance. Decision making and resulting actions are iterative processes. Assessments and adjustments are constantly being made with input from:

- Built-in audit and status information on projects and assets.
- Performance testing.
- Service-level monitoring.

Simplify change management and compliance

The closed-loop development life cycle provides both business and development teams with a consistent set of correlated data, enabling them to pinpoint issues and facilitate rapid resolution. Each process 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 helps reduce project risk by providing tangible checkpoints along the pathway to a complete solution. A typical iteration includes the steps described here.

Evaluate business initiatives

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

Identify the solution and analyze requirements

When 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 Unified Modeling Language, your teams will share a common and precise understanding of proposed changes.

Design and construct

Then you're ready to translate requirements into technology solutions. Because no single product fits all team needs, IBM offers a broad spectrum of code-based, model-driven and rapid application development solutions for developing high-quality software. You choose the product optimized for your technology environment, team skill level and development paradigm.

Integrate and test

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

Deploy

IBM deployment capabilities 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.

Monitor and assess

Once deployed, the IBM Rational software development platform can monitor applications and essential system resources across your multiplatform environment to detect potential problems and automate recovery from critical situations. A performance-based feedback cycle also can allow you to compare the projected value of an investment against actual results and make the necessary adjustments to optimize business value.

Transforming software and systems delivery

Business driven development enables the governance required for process visibility, accountability and agility. Decisions are shared among business and technology professionals for software and systems that increase business value. There's accountability with clear roles and responsibilities, and processes that are disciplined and measurable. There's effective risk management with portfolio management that aligns technology and business priorities and enables more informed evaluation of the trade-offs among expanded technology choices. There's also compliant, responsive execution with processes that are flexible, documented, repeatable and traceable.

Using business driven development, executives can trust their software investments to deliver greater returns, and they can effectively manage risks to deliver better business results. Project managers can trust processes to help illuminate, steer, measure and control for more predictable results and to simplify compliance. And practitioners can trust the environment to automate, document, analyze, assess and manage change for more engineering and less administrative work.

For more information

For more information about business driven development and IBM Rational software, visit:

ibm.com/software/rational

Business driven development enables the governance required to effectively manage value, develop flexibility, and control risk and change.

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