



# Ramp up development projects more quickly with reusable methods and processes.

Per Kroll, chief architect, Rational expertise development and innovation, Rational software, IBM Software Group

Bruce MacIsaac, manager of methods, Rational expertise development and innovation, Rational software, IBM Software Group

#### **Contents**

- 2 Renewed focus on process
- 3 Overcoming common challenges to successful software delivery
- 4 The project execution challenge
- 6 The audit challenge
- 7 The process improvement challenge
- 9 The outsourced and distributed development challenge
- 9 Guiding principles underlying process library assets
- 11 Elevate the level of abstraction
- 12 Practical implementation of software delivery principles
- 17 Building manageability into applications and business services
- 19 Creating and extending process assets
- 21 Making the best use of process library assets
- 24 Improving the odds of success in any process-related effort

#### Renewed focus on process

As software becomes increasingly critical to business competitiveness and survival, the process of software and systems delivery is coming under intense scrutiny. Many different groups and teams need to work together effectively: Executive groups need to decide how to improve current and future business performance. Project teams need to develop supporting software systems. IT teams need to improve technology operations. The activities of all functional groups need to be coordinated within and across projects where team members may be located at different sites, in different countries and, even, within different partner organizations. What helps make this happen? The process.

The process defines who is responsible for what. It describes how people and teams are expected to collaborate and what information needs to be produced and communicated. And it guides optimal use of development resources.

The process also functions as a knowledge-transfer vehicle. It allows relevant knowledge to be shared when and as needed to effectively leverage the tools at hand; simplify the adoption of new development, operations and systems management practices; and enable compliance with relevant standards such as Sarbanes-Oxley (SOX), Control Objectives for Information and Related Technology (COBIT), Information Technology Infrastructure Library<sup>®</sup> (ITIL<sup>®</sup>) or Capability Maturity Model Integration (CMMI).

Most important, the process constitutes a baseline from which to make improvements. It allows change to be based on an understanding of what works and what doesn't. Page 3

## Highlights

The process library—a key component of IBM Rational Method Composer software—can help IT organizations to ramp up projects more quickly and improve governance of the software lifecycle.

This paper describes how the process library—a key component of the IBM Rational® Method Composer solution—can help IT organizations rapidly create and implement proven methodologies and processes to overcome common challenges to successful software delivery. It highlights the principles upon which the reusable process assets in the library are built and the scope of the solution, which includes the IBM Rational Unified Process® (RUP®) best practices for software and systems delivery and the IBM Tivoli® Unified Process best practices plug-in for IT service management. Together, the RUP and Tivoli Unified Process solutions provide guidance on how to build applications and business services with designed-in manageability, to support the IT lifecycle. The paper concludes with a look at how organizations can leverage the process library to ramp up projects quickly and improve governance of the software lifecycle.

#### Overcoming common challenges to successful software delivery

Inadequate processes can cause major management headaches. When projects are late, over budget or fail to meet business requirements, it's often a process issue. Without standard processes, project execution can suffer. There's no consistent way to perform similar activities, and outcomes are unpredictable. Every audit is painful. Demonstrating any process to an auditor is laborious and time consuming. If a process isn't working, it's difficult to identify and deploy a better process and get everyone to follow it. Plus, when activities are outsourced, an inability to communicate internal processes to the contracted vendor can mean paying a premium.

Page 4

# Highlights

# The project execution challenge

Many organizations are plagued by inconsistent project performance. Some projects succeed; others do not, and it's difficult to know the reasons why. Inconsistencies can limit oversight and prevent the reuse of successful development practices across applications and projects. Differences in how projects are run and what artifacts are produced also introduce skills-transfer issues as people move between projects.

In the past, the solution was to standardize on one process. By forcing everybody down one path, organizations were able to drive consistency and compliance. However, practitioners and teams could find themselves struggling with processes that were unsuitable for their tasks—significantly reducing productivity.

Using the process library from IBM, organizations are able to balance disciplined software development with flexible execution.

Now, the library of process content delivered with IBM Rational Method Composer can help organizations balance disciplined development with flexible execution. On the one hand, the library can help teams complete projects quickly and efficiently with processes that make the best use of their time and optimize available resources. Common templates for artifacts can save additional time by facilitating reuse. And best practices for oversight and governance can help reduce project risk. On the other hand, teams are able to choose the practices and the formality that make sense for their context (see figure 1).

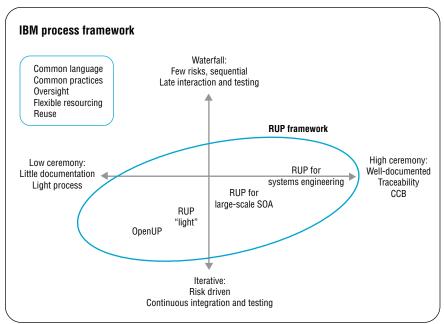


Figure 1: The IBM Rational Method Composer solution includes IBM RUP proven best practices for software and systems delivery, enabling organizations to reuse common process elements to tailor development processes to fit the needs of each project while maintaining a consistent approach to project management and executive oversight.

The process library from IBM can help simplify access to and understanding of processes. Roles, responsibilities, artifacts, templates, examples and other process assets are easy to find through consistent structure and graphical navigation. Because the library integrates with Eclipse-based development environments from IBM (through the process adviser capability), practitioners can launch process guidance within the context of their preferred integrated development environments (IDEs). Context-sensitive processes can be translated into project plan templates and moved to project and portfolio management environments. As tasks are distributed, they automatically reference the guidance and artifacts defined in the original processes.

To facilitate knowledge transfer, IBM provides books, articles, courses and Web seminars, as well as trainers, mentors and consultants skilled in process definition to help ensure that processes are effectively deployed and used.

Virtually any type of development effort can be supported, and developers can launch process guides within the context of their preferred IDEs.

More than two dozen standardsbased, out-of-the-box processes are delivered with the process library that can be easily tailored to accommodate desired working procedures.

Easy-to-navigate process guidance is tightly integrated with practitioner tools and supported by a broad curriculum to help bridge the gap between what to do and how to do it.

## The audit challenge

A well-documented process is of little value if it is misunderstood or disregarded. To be in compliance, organizations must be able to clearly communicate what a process does, enable people to follow the process and be able to prove they have done so.

## Say what the process does

Processes must be documented to clearly communicate to teams and auditors the manner in which the organization intends to develop software. The process library provides more than two dozen out-of-the-box processes that can be tailored and used as building blocks to rapidly capture the desired working procedures. The tool also contains mappings to well-known standards such as the Software Engineering Institute (SEI) CMMI, which guides developers' understanding of what process assets need to be deployed to address CMMI Level 2 process areas. In addition, the Tivoli Unified Process solution maps to a variety of standards, including COBIT, SEI CMMI, ISO 2000, ISO 17799 and Six Sigma.

#### Do what the process says

Sometimes there is a big gap between what an organization establishes as a good high-level process and what needs to do be done on a day-to-day basis to execute that process. Therefore, it is important that those who must comply with the process be involved in helping to define it. This way there's agreement that the process accurately captures the desired working procedures. It is also important that the process itself is a good learning tool. IBM Rational Method Composer and the process library tool provide easy-to-navigate process guidance that is tightly integrated with practitioner tools and supported by a broad curriculum to facilitate team acceptance and use of processes. This guidance helps bridge the gap between what to do and how to do it with the tools at hand.

Process library components are continuously updated to help organizations improve the way they deliver software on an ongoing basis.

#### Prove it

Auditors will want proof that teams followed the documented processes. The process library offers guidance on how to provide proper recordkeeping and how to prepare for an audit. When implemented with the IBM Rational Software Delivery Platform, which includes IBM Rational ClearCase® and IBM Rational ClearQuest® software, the library enables organizations to better manage the record keeping on which user has changed what development asset. And the integration with IBM Rational SoDA® software can help simplify the creation of required reports.

## The process improvement challenge

Outdated processes can be as bad as no processes at all. Process must be continually improved to support new technologies, development practices and lessons learned. Examples of desired improvements can include:

- Enhanced business agility as a result the transition to a service-oriented architecture (SOA).
- Lower risk through the ability to reuse and protect investments by effectively governing services and development assets.
- Faster time to market for high-quality software through the incremental adoption of Agile development principles.
- Better decision making due to the increased transparency of projects and portfolios.
- Increased productivity due to the adoption of asset-based development.

Page 8

## Highlights

With access to process components and guidance, organizations can quickly build their own process libraries or extend the process library from IBM. Using the process library from IBM, organizations can keep processes up to date—even with limited resources. The library provides guidance on numerous process areas, enabling talented staff members to spend less time defining such practices as how to capture use cases, how to perform Unified Modeling Language (UML) modeling, how to apply the basics of SOA, and how to perform functional and performance testing. Instead they can focus on leveraging the continuously updated process components from the process library to address business challenges. Sample assets include:

- The SOA Governance and Management Method from IBM, which introduces and helps govern SOA initiatives.
- The RUP for Service-Oriented Modeling and Architecture (SOMA) methodology from IBM.
- Lightweight versions of RUP that can be adopted for Agile development (for example, RUP for small projects and RUP for maintenance).
- RUP for asset-based development with IBM Rational Asset Manager software for producing, consuming and managing reusable assets.
- Asset governance to help manage and control key investments.

Additionally, organizations can develop their own practices and capture them using Rational Method Composer software to either build their own process libraries or extend the process library from IBM.

Process library content includes RUP proven best practices for global development and delivery to help organizations manage dispersed teams and outsourced development projects.

## The outsourced and distributed development challenge

Managing development performed at one site is difficult enough. But when teams are globally dispersed or work is outsourced to contractors or partner organizations, managing development can be a nightmare. Intended benefits may not be realized, as language, cultural issues and confusion about how to effectively collaborate consume productivity and cost efficiency gains. The results may be poor-quality software that fails to meet business needs.

Distributed teams need to agree on how to collaborate. Who is doing what? What artifacts should be produced, and how do these artifacts move across teams? What are the milestones? These and other questions are answered by the process library from IBM. Organizations can support distributed teams using RUP for global development and delivery—for new development or maintenance projects—as a starting point, or create and extend their own process using building blocks from the process library.

## Guiding principles underlying process library assets

As noted earlier, the process library from IBM includes RUP proven best practices for software and systems delivery and implementation, as well as capabilities to help enable effective project management. These practices describe an end-to-end process, including a suggested order of activities such as planning for phases and preparing typical iteration patterns. The RUP practices can be used out of the box or as a starting point for customizations. New delivery processes are added frequently and are made available via the IBM developerWorks® Web site. These delivery processes share a common set of principles aimed achieving an effective balance between project oversight and practitioner flexibility.

New delivery processes are added frequently to the process library and are made available via the IBM developerWorks Web site. The common underlying principles of these processes are iterative development, focus on quality, balanced priorities and team collaboration.

## Demonstrate value iteratively

At each iteration, software should deliver incremental capabilities that can be assessed by stakeholders. This iterative approach enables organizations to get feedback at critical milestones so that plans can be adapted as required. Major technical, business and programmatic issues can be addressed up front. Benefits include early risk reduction, improved predictability and a higher level of trust among stakeholders.

## Continuously focus on quality

Continually improving software quality requires more than just testing to validate fitness for use. It requires that all team members be involved in building quality into the process and the product. By focusing on test and build automation throughout the lifecycle, teams can greatly reduce the number of defects and provide fact-based quality metrics early on, helping to resolve issues with less effort and cost.

## Balance stakeholder priorities

There will always be competing stakeholder priorities. For example, the need to produce a solution rapidly and inexpensively can conflict with the need to meet all business requirements, regardless of time or money. The development organization should work closely with the stakeholders to make sure that projects and project requirements are prioritized correctly. The organization also needs to strike the right balance between leveraging existing assets and building custom software. In some cases, achieving this balance may require compromising on which requirements to address.

To help reduce unnecessary complexity that can derail projects, IBM supports reuse of existing assets, higher levels of abstraction and architecture-driven development. It also enables organizations to adapt the process as required throughout the project lifecycle.

#### Collaborate across teams

An iterative and Agile development approach increases the need for individuals to work closely as a team. In addition to equipping people with the right skills to perform their best, organizations need to break down the walls that are often built up between analysts, developers, testers, operations staff and other members of the project team. This can be achieved through proper team organization and effective collaborative environments. It's important to promote meaningful interaction by automating metrics collection and status reporting and by providing effective collaborative environments that simplify communication and knowledge sharing.

#### Elevate the level of abstraction

Complexity can impede project success, but there are ways to reduce it. By limiting the amount of code and the number of data structures, components, model elements and other constructs produced during a project, teams can simplify the development process and speed time to delivery. One way to achieve this goal is by reusing existing assets instead of custom-building new ones. It's also possible to leverage higher-level languages, frameworks and tools that can automate code generation and unit testing, and can simplify configuration management.

Another approach to reducing complexity is architecture-driven development. Organizations can accomplish this goal through refactoring—keeping code and models clean, and implementing key aspects of the architecture first.

## Adapt the process

More process is not necessarily better. Rather, organizations need to adapt the process to the specific needs of each project based on size, complexity, compliance requirements and other pertinent factors. The process may also need to be tailored to different phases of the software delivery lifecycle. For example, the organization may opt to use less process rigor, or ceremony, at the start of a project and more toward the end. By assessing how well a process is working at the completion of each software iteration, organizations can determine whether the process needs to be improved or whether a different process model needs to be used going forward.

Using out-of-the box processes delivered with the library, organizations can support practical implementation of the software delivery priniciples for virtually all project types.

## Practical implementation of software delivery principles

The process library from IBM offers out-of-the-box processes that support the practical implementation of the previously discussed software delivery principles.

- RUP for small projects guides small and colocated teams through the process of developing new software or making major improvements to existing software.
- RUP for medium-size projects guides distributed and medium-size teams through the process of developing new software or making major improvements to existing software.
- RUP for large projects (classic RUP) guides distributed and large teams through the process of creating or refining business models, developing new software and making major improvements to existing software to support evolving business requirements. This process is most appropriate for organizations that are working to meet industry or regulatory compliance guidelines, such as SOX, SEI CMMI, Basel II and ISO 9001.
- RUP for commercial off-the-shelf (COTS) or packaged application development guides teams through the process of evaluating the trade-offs between asset reuse and creating assets based on requirements, programmatic risk and marketplace concerns. The process addresses how to incorporate one or several smaller components, as well as how to customize large packages to specific needs (see figure 2).

For example, RUP for COTS or packaged application development can help balance competing priorities over the project lifecycle.

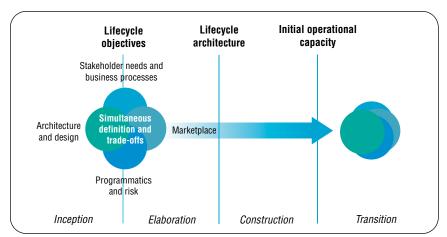


Figure 2: RUP for COTS or packaged application development helps development organizations deliver the right application at the right price by balancing the sometimes-competing priorities of developing for users' functional needs, living within architectural constraints, creating acceptable dependencies to vendors and accepting project risk and time constraints.

- RUP for systems engineering describes how to develop systems that combine software, hardware and people through effective, unified collaboration. This process is used in a variety of projects, from large-scale defense and communications projects to embedded software projects in the automobile industry.
- RUP for SOMA describes how to define business processes and couple them
  with services by analyzing current assets and data structures to identify
  the appropriate business elements to expose as service components. The
  approach includes specific guidance on how to leverage Java™ Platform,
  Enterprise Edition (Java EE) and other technologies to effectively implement Web services (see figure 3).

The process library also provides RUP for SOMA, which describes how to define business processes and couple them with services to effectively implement Web-based applications. And multinational enterprises can benefit from process library RUP practices that support global operations.

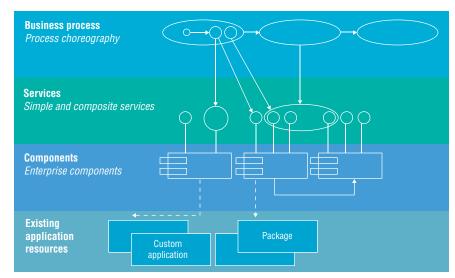


Figure 3: RUP for SOMA describes how to define and simulate business processes; identify services from business processes, use cases, existing data and legacy components; couple the services to business processes; and implement the services and service components.

- RUP for maintenance describes how to take a set of defects and change requests and drive an incremental release of an existing product.
- RUP for global development and delivery addresses application development for distributed environments.
- RUP for global development and delivery maintenance addresses distributed application development for maintenance projects.
- RUP for System z addresses development on the IBM System  $z^{\text{\tiny TM}}$  platform.

Page 15

## Highlights

Rational Method Composer plug-ins can be downloaded to the process library as necessary to support particular domains and technologies. The process library from IBM provides specialized content to support a variety of domains and technologies that can be used to augment or alter the previously described delivery processes, or to build completely new delivery processes. This content is packaged as downloadable Rational Method Composer plug-ins that can be added to the library at any time. Following are some key content areas covered by these plug-ins:

- Java EE development provides guidance on architectural patterns, designs that target various deployment environments and the effective use of tools to develop Java EE applications.
- Microsoft® .NET development provides guidance on distribution patterns, application design, .NET platform elements, architectural layering and the effective use of tools to develop .NET applications.
- User-centered engineering provides guidance on user experience modeling, navigation maps, storyboards, wireframes, usability testing and user-centered design.
- Tool-specific assistance provides guidance on how to leverage IBM Rational software development tools, including IBM Rational Software Architect, IBM Rational Application Developer, IBM Rational Performance Tester and IBM Rational Functional Tester, as well as IBM Business Partner and third-party tools.

The process library from IBM provides guidance to help organizations manage cross-project concerns at the program, portfolio and enterprise level.

Processes for the enterprise	Level	Description
Program management and mobilization	Program	Provides guidance on mobilizing and planning large program efforts, such as the implementation of a program office, the steps involved in planning projects, and the establishment of program governance, controls and supporting infrastructure
Portfolio management	Portfolio	Provides guidance on planning and executing a portfolio assessment, managing business cases, conducting periodic and strategic reviews of ongoing initiatives, and making decisions about whether to continue or discontinue a project
Asset-based development	Program	Provides guidance on asset production and consumption
Asset governance	Enterprise	Establishes policies, organization and team-enablement tools, and helps determine what needs to be measured for asset-based development
Compliance management	Enterprise	Provides guidance on addressing compliance with government regulations and industry process standards, as well as internal policies and practices. Assists in defining and implementing a compliant software development process that addresses separation of duties, control points, audit reports and authorization issues
Business engineering	Portfolio	Provides guidance on modeling business goals, existing and future business processes, and organizational structure, as well as on simulating business processes.  Also describes how to link business processes to existing or future software assets
Process engineering	Enterprise	Provides guidance on leveraging IBM Rational Method Composer software to support process initiatives and process improvement efforts

(Continued on next page)

Model-driven systems development (MDSM)	Program	Provides guidance on developing programs in which an overall system is defined and a large number of integrated projects are being built using individual components that leverage the same system architecture
Practical software and systems measurement	Enterprise	Provides guidance on measuring and integrating activities, artifacts and concepts described by the Practical Software and Systems Measurement Initiative
Department of Defense Architecture Framework (DODAF) compliance	Enterprise	Provides guidance on supporting complex systems development required to be compliant with the DODAF

Table 1: The process library from IBM helps organizations address cross-project concerns at the program, portfolio and enterprise levels.

## Building manageability into applications and business services

Because the software and systems delivery lifecycle involves both development and service management, the process library from IBM enables content from the RUP and Tivoli Unified Process solutions to be customized and integrated. This convergence helps organizations ensure that applications and business services are built with designed-in manageability. So essentially, RUP provides the detailed processes for developing software solutions, while Tivoli Unified Process provides a framework for merging solution development with the overall IT business.

To help ensure that applications and business services are created with designed-in manageability, organizations are able to customize and integrate the process library content from the IBM RUP and IBM Tivoli Unified Process solutions.

Tivoli Unified Process software also delivers a prescriptive approach to IT service management, an approach for managing IT as a business rather than just as a technology. It details how effective IT service management can be achieved through the use of current management applications and the integration of new process-oriented products. This process is based on the industry standard ITIL framework and covers a broad scope of processes including:

- IT administration.
- IT customer relationships.
- IT direction.
- IT management system.
- IT operational services.
- · IT resilience.
- Solution deployment.

Tivoli Unified Process software supports a prescriptive approach for managing IT as a business by enabling organizations to address all four elements of IT service management—people, process, information and technology.

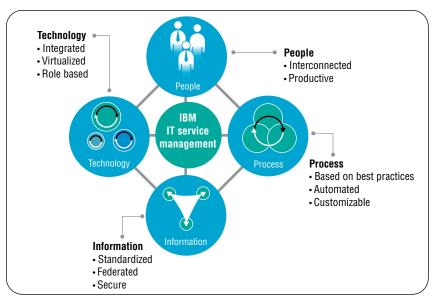


Figure 4: Tivoli Unified Process software addresses IT service management processes for monitoring and managing people, technology and information, as well as IT processes.

In addition to RUP and Tivoli
Unified Process guidance, the
process library from IBM also
provides smaller building blocks
or practices that an organization
can mix and match with existing
practices to extend processes
and build new library assets.

ITIL offers high-level guidance for which service management processes should be implemented, but it does not address how to accomplish the actual implementation. Tivoli Unified Process software provides detailed process diagrams and descriptions to help organizations understand processes and their relationships, making the ITIL best practice recommendations implementable. The Tivoli solution can also be mapped to other leading process models, such as COBIT and ISO 2000.

## Creating and extending process assets

In addition to RUP and Tivoli Unified Process, the process library from IBM provides a large number of smaller building blocks (e.g., practices). These building blocks allow IBM to rapidly produce and maintain the many process assets described in this paper, such as RUP for maintenance and RUP for SOMA. Because there is so much shared content in the various library assets, organizations can reduce process and project management learning curves and increase consistency in how projects perform work.

Organizations can also leverage these building blocks to build their own processes. Rather than starting from scratch, they can mix and match their existing practices with process library building blocks such as requirements management, business modeling, database design, test management and many more. If there is no content in the process library from IBM that meets specialized needs, the organization is able to extend the library with its own building blocks or build a stand-alone process library.

However you create and extend process assets, you can benefit from the lessons IBM has learned from building its process library and from building processes for its clients. IBM has also captured best practices for method development using Rational Method Composer. This content is not included in the process library from IBM at this time, but can be made available as part of services engagements.\*

With the process library, there is no need to start from scratch in creating new software delivery processes.

Because there is so much shared content in the library assets, organizations can reduce process and project management learning curves.

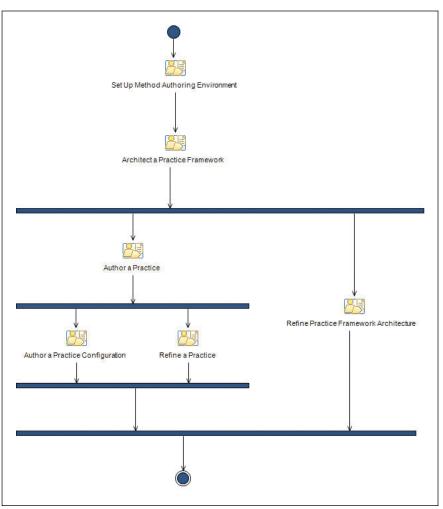


Figure 5: The practice for method authoring from IBM offers step-by-step guidance on how to customize an out-of-the-box method or create a new method using the building blocks provided with IBM Rational Method Composer.

Rational Method Composer provides many ways in which to customize existing content. Changes can then be expressed as deltas to the process library and easily moved to newer versions.

## Making the best use of process library assets

Once the organization has identified the business challenges it wants to address, the next step is to review the available content in the process library from IBM. Decisions have to be made about what to use as is, what to customize and what to build from scratch using the process library building blocks. The best way to get started is to look at each area of the business and ask some high-level questions:

- Does the organization do a good job in this area? Would it benefit from making a change?
- Does the process library from IBM provide relevant guidance for this area?
- If so, what content would be relevant, and how much of the content needs to change?

If there is a good fit, then minor customizations can quickly get the organization to its goals. Rational Method Composer provides many ways in which to customize existing content. It's possible to add text to a guideline; attach customized templates; add or remove tasks or steps from tasks; add organization-specific roles, tasks and work products; and reorder how work is organized and sequenced. Information can be reorganized and the presentation tailored to give the published process a different look and feel. Changes can then be expressed as deltas to the process library so they can be easily moved to newer versions.

An organization can use the process library to create as many process configurations as needed for different project types. Because every process shares a common core, the organization can save time and money by training people on a standard project management approach.

One process configuration is often not enough for an organization. Rational Method Composer facilitates the creation of configurations that share a common core but that have the necessary differences required for various project types. For example, deploying commercial packages is different from creating custom software, but the organization may want a standard project management approach. With Rational Method Composer, it's possible to create as many, or as few, configurations as necessary and share the information that needs to be common. The organization saves time and money by training people on the common set of basic processes. And the easy-to-navigate process library from IBM allows people to apply differences to their particular projects.

## Improving the odds of success in any process-related effort

The process library from IBM provides content that helps address enterprise needs, operations and systems management, and a variety of project types. This content applies to many common business challenges, including project execution, audits, process improvement, outsourcing and process deployment. The more than two dozen out-of-the-box processes included in the process library cover

Ramp up development projects more quickly with reusable methods and processes. Page 23

a wide variety of project types and include many reusable building blocks that can be extended or combined with an organization's own processes to ramp up projects quickly. In addition to the process library, IBM offers related courses, development methods and staff experienced in customizing methods that can help organizations be successful in virtually any process-related effort.

## For more information

To learn more about IBM Rational Method Composer and the process library, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/awdtools/rmc



#### © Copyright IBM Corporation 2008

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

Produced in the United States of America 06-08

All Rights Reserved

ClearCase, ClearQuest, developerWorks, IBM, the IBM logo, Rational, Rational Unified Process, RUP, SoDA, System z and Tivoli are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency, which is now part of the Office of Government Commerce.

Microsoft is a trademark of Microsoft Corporation in the United States, other countries, or both.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

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

The information contained in this documentation is provided for informational purposes only. While efforts were made to verify the completeness and accuracy of the information contained in this documentation, it is provided "as is" without warranty of any kind, express or implied. In addition, this information is based on IBM's current product plans and strategy, which are subject to change by IBM without notice. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this documentation or any other documentation. Nothing contained in this documentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM (or its suppliers or licensors), or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

#### References:

Agility and Discipline Made Easy – Practices form OpenUP and RUP, Kroll and MacIsaac, Addison-Wesley, 2006.

\* All statements regarding IBM's plans, direction and intent are subject to change or withdrawal without notice.