July 6, 2005

Big Changes Coming For Rational Unified Process

by Liz Barnett

TRENDS

Big Changes Coming For Rational Unified Process
IBM Delivers Much Improved Tools As Well As New Content

by Liz Barnett
with Carl Zetie and Lindsey Hogan

EXECUTIVE SUMMARY

Tailoring the IBM Rational Unified Process (RUP) to meet each project's needs may involve very simple or very complex activities, depending on the nature of the project. At the high-complexity end, creating and customizing new processes within the RUP environment can be challenging, and the existing RUP tools don't make it easy for project managers or methodology authors. The good news: The next release of the RUP includes new tools that are a significant improvement over the current tool set. Companies will have a far easier time using the RUP as the core of their development and life-cycle management methodologies. And, more important, IBM partners and customers will have an easier time enhancing RUP content and sharing it among the RUP community. For RUP to remain a leading methodology framework, IBM and its partners must continue to enhance the content to address topics like vertical industry solutions, service-oriented architectures (SOAs), integration projects, and project team organizational models. The new tools coming in 2006 will make this continued leadership possible.

TABLE OF CONTENTS

NOTES & RESOURCES

Forrester interviewed IBM RUP product management for this report and received a detailed demonstration of upcoming RUP capabilities. Forrester also interviewed a number of current RUP IT customers.

Related Research Documents

"Teams Begin Adopting Agile Processes"
November 24, 2004, Trends

"Microsoft's Methodologies Are Coming"
November 10, 2004, Trends

"Trends 2005: App Dev Methodologies And Processes"
November 4, 2004, Trends

"IBM Delivers First Application Development Methodology Integration"
April 1, 2004, Quick Take

"Customizing RUP To Meet Enterprise Methodology Needs"
December 10, 2003, Planning Assumption

FORRESTER

THE CURRENT STATE OF RUP — MORE FLEXIBLE THAN MANY COMPANIES REALIZE

RUP, a leading process framework for application development (AD) organizations, provides a wealth of resources for analysts, developers, architects, testers, and project managers. Some companies see the RUP as a large, bureaucratic methodology. Others view it as a very lightweight and flexible approach to software development. Both perspectives can be true. The RUP is intended to be customized, extended, and used in a variety of ways by each customer.

RUP is widely used and recognized for a number of reasons. No other methodology product offers strong processes for life-cycle management activities such as software configuration management (SCM), testing, requirements management, and issue tracking. Over the years, Rational (prior to its acquisition by IBM) collected best practices from its tool customers and fed these experiences back into the process. Rational also worked with consulting firms around the world to help them adopt the RUP as the core of their methodologies. For example, consultancies such as Capgemini, Covansys, and Deloitte Consulting have extended RUP content to fit their practices.[1] This spread the RUP approach and terminology to thousands of consultants and their clients.

RUP creators Philippe Kruchten Ph.D. and Per Kroll have published books on how to adopt the RUP. Customers can access a wide range of materials on RUP best practices through the IBM developerWorks site. Thus, much of the RUP's content is publicly available and can be obtained and used at a minimal cost. IBM continues to invest in RUP enhancements, involve its vast Global Services consulting community, and cull a wide range of best practices from its customers' projects. It is very hard for other vendors' methodologies to compete against all of these IBM resources.

The Current Version Includes New Content and Tools

In October 2004, IBM delivered tools for the IBM Software Development Platform based on Eclipse 3.0. These modeling, development, and testing tools received far more attention from customers and the press than did the enhancements to the RUP.[2] The current RUP version (v2003 SR4) includes a number of new content- and tool-oriented enhancements, including:

- **Content from SUMMIT Ascendant.** SUMMIT Ascendant, the methodology tool acquired from PricewaterhouseCoopers (PwC) Consulting, includes methodology content that is among the strongest in the industry. RUP customers will certainly benefit from the experiences that were collected from PwC Consulting engagements, particularly those focused on project and program management. IBM has begun to port some of this content to the RUP tool set — a big win for RUP customers since they now gain access to a much broader set of process libraries for the low price of the RUP.

- **A growing list of plug-ins.** Plug-ins are the RUP's way to deliver customized process components specific for a technology, tool, platform, or domain. Today, customers use the RUP Builder tool to configure their RUP processes by selecting subsets of RUP core content, adding

one or more plug-ins, and then communicating the processes via a published project Web site. IBM and its partners continue to develop and support various plug-ins (see Figure 1). However, many plug-ins have been developed by customers — particularly by consulting firms — are not available to the general public. There has been no incentive for these companies to share their RUP enhancements with other firms. This may change as the industry moves to more open source collaboration techniques and companies become willing to share more with others. IBM needs to find ways to encourage partners and particularly customers to share the plug-ins that they have developed.

- **Tool mentors and integration with Atlantic products.** Using an Eclipse plug-in, developers using IBM Rational development tools can access context-sensitive guidance found in the RUP. We have not yet seen companies use this plug-in to extend development capabilities for those using Eclipse and open source tools, but this is a likely trend that will make the RUP accessible to a much wider range of users. IBM also delivered specific "configurations" (IBM's term for different versions of a RUP process) to assist customers using the IBM Rational Software Architect and IBM Rational Application Developer products.

Figure 1 RUP Plug-In List Keeps Growing

Plug-ins created by IBM Rational	Plug-ins created by IBM business partners (some require purchase)
• RUP Plug-in for SOA V1.0 • RUP Plug-in for COTS Package Delivery V1.0 • RUP Plug-in for WebSphere Business Integrator Modeler V1.0 • RUP for Extreme Programming Plug-ins • RUP Plug-ins for IBM WebSphere Application Server • RUP Plug-ins for Microsoft .NET • RUP Plug-ins for BEA WebLogic • RUP Plug-ins for J2EE • RUP Plug-ins for Sun • RUP Plug-ins for User Experience • RUP Program Management Plug-in V1.0 • RUP for Systems Engineering Plug-ins • RUP for Creative Web Design Plug-in v1.0 • RUP for Rational Rapid Developer Plug-in v1.0 • Wylie College Example Process Configuration v1.0 • RUP for Asset-Based Development Plug-in v1.0 • RUP Plug-in for legacy evolution v1.0 • RUP Plug-in for IBM Rational SUMMIT Ascendant v1.0	• RUP Plug-in for Software Asset Portfolio Management — Flashline • RUP Plug-in for secure application development v1.0 — Secure Software • RUP Plug-in for business rules — Fair Isaac • The RUP Plug-in for CAST Application Mining Suite, version 1.0 — CAST Software • RUP Plug-in for operations and application surveillance management — Appmind Software • RUP Plug-in for achieving straight-through processing (version 1.0) — Rambyte, Ltd. in partnership with Venture Financial Systems Group, Ltd. • ICONIX QuickStart Plug-in for RUP Version 1.0 — ICONIX Software

Source: IBM

Source: Forrester Research, Inc.

IBM uses its developer site, IBM developerWorks, to manage the RUP plug-in exchange. Developers can download plugs-in and also gain access to a wide range of resources for implementing the RUP in their organizations.[3]

IBM Introduces New Project-Specific Plug-Ins

IBM enhances the RUP content using input from a number of sources: IBM Global Services engagements and the IBM Global Services Method, content from the SUMMIT Ascendant product, and also IBM partners' and customers' experiences. At the Rational Software Developers User Conference (RSDUC) in May 2005, IBM announced some new RUP plug-ins for specific project types, including:

- **RUP for SOA.** Based on experiences from IBM Global Services engagements, as well as white papers by IBM Distinguished Engineer Alan Brown and IBM Software Group Rational Architect Simon Johnston, this new RUP plug-in provides much-needed guidance for teams building SOAs. This first release provides content oriented toward software architects and designers; a subsequent release will provide specific best practices for implementation teams. Most methodologies — homegrown and those sold commercially — do not yet include specific processes for SOA development and deployment. This is an important piece of an SOA team's tool kit.[4] Experiences — and ideally templates from past projects — from IBM Global Services consultants as well as from other highly skilled firms are critical input here.

- **RUP for Commercial-Off-The-Shelf (COTS) Package Delivery.** This plug-in is based on the Evolutionary Process for Integrating COTS-Based Systems (EPIC) methodology that was developed by Carnegie Mellon University's Software Engineering Institute (CMU SEI). This plug-in also includes some best practices from the SUMMIT Ascendant product. Note that the RUP COTS plug-in provides general information for teams selecting and implementing packaged software, but it is not specific to any particular software product. Customers must tailor the process to fit specific vendors' (e.g., Siebel Systems, SAP) product integration needs. Support for packaged application implementations has been a big gap in the RUP's content; this is only a first step, but an important one. RUP users should press their packaged software vendors to work with IBM to develop package-specific plug-ins, and press IBM to draw upon Global Services engagements' experiences to satisfy their full requirements for processes and best practices.

IBM Advances Its ITLM Strategy

IBM is also moving ahead with its IT life-cycle management (ITLM) strategy, linking information and processes across an application's entire life cycle, not just the application development life cycle. Tools are beginning to show true integration; for example, developers can now receive runtime data from Tivoli tools to help diagnose production performance and quality errors.[5]

Next is process integration. As a first step, IBM is delivering the IBM Tivoli Unified Process (ITUP) — a means for customers to support and comply with Information Technology Infrastructure Library (ITIL) standards using the current RUP tool set.[6] For the first time, the RUP tools and process framework will be used by operations organizations as well by development. However, it's still too early to tell whether Tivoli users will adopt this Web-based process delivery environment, a first for operations organizations that typically do not spend a lot of time customizing and delivering online processes.

IBM has also integrated the RUP with the IBM Rational Portfolio Manager, acquired late in 2004 from Systemcorp. The current Rational Portfolio Manager 6.1 provides project templates for RUP projects and allows project team members to link directly to RUP guidance from tasks within a portfolio manager's project plan.[7]

DEMAND FOR METHODOLOGIES IS UP, CHOICES ARE LIMITED

The market for software development and life-cycle management methodologies is small and volatile.[8] In just the past 18 months, we've seen a number of important changes to the methodology product market:

- **Computer Associates (CA) steps out.** CA moved AllFusion Process Management to its "CA Products Group" and no longer considers this to be a strategic product area.

- **Microsoft makes major enhancements.** Microsoft has decided to make MSF 4.0 a true product and will integrate it with the Visual Studio Team System (VSTS) platform promised for late 2005. One of the impressive features of Team System will be integration and automation between steps described in MSF and tasks performed in Visual Studio, not to mention a customization framework that allows non-MS plug-in tools to do the same.

- **Allen Systems Group (ASG) goes after industry standard processes.** ASG has increased investment in Visual Process, promoting the tool more as an authoring tool for consultants' methodologies than as a content library of third-party best practices. Its own content has emphasized support for industry processes like SEI CMMI and PMBOK 2000.

- **Small vendors lose visibility.** Forrester clients rarely inquire about CS/10,000, PROgression, or Gantthead. That's not to say that these products are dead but rather that they are clearly not growing or gaining market share in any meaningful way. CSCL released a new version of its KnowledgeBase in January 2005 but is primarily competing against project management (PM) tool vendors. Gantthead, too, is primarily directing its content at a PM audience.

- **Agile processes gain ground.** Use of Agile processes has really taken off in corporate IT, putting a lot of pressure on all of these methodology vendors to update content and provide more nimble tools. Recent Forrester surveys showed that more than 40% of companies have development iteration lengths of less than three months; more than 85% of teams have 15 or fewer team members; and 18% of companies specifically named Agile processes such as XP, Scrum, and DSDM as methodologies in use in their organizations.[9]

In the same Forrester surveys, more than 60% of those companies were still using waterfall or homegrown development methodologies. But 63% of companies stated that they had a process improvement program in place to improve their development organization's effectiveness. With increasing emphasis on productivity improvements, quantification of value, and cost effective AD solutions like outsourcing, AD organizations must adopt more iterative and flexible methodologies.

THE BIG NEWS: THE RUP IN 2006

Starting with a beta release in 2005 and general availability in 2006, IBM expects to deliver big changes to its RUP process support, particularly in the area of the RUP tool set. With this release, IBM's process offering will support a broad range of methods as well as allow for easy method authoring (see Figure 2).

WITH NEW FEATURES COME NEW CHALLENGES

Of course, getting a new release of a product doesn't imply that an organization's problems are all solved, nor does it mean that all product gaps have been filled. Customers looking for industry experience in development and life-cycle processes will find tremendous value in the RUP, but will also need to put some effort into making it work for them. Users should expect to:

- **Learn new terminology.** IBM has the blessing and the curse of multiple methodologies. It's been a few years since it acquired PwC Consulting, but only now will we see significant integration of IBM's three methodologies.[10] One big change is with standard terminology for artifacts and process steps. The term "task" is now the standard name for the lowest-level unit in a work breakdown structure for a project. IBM is also using somewhat confusing terms like "capability patterns" and "delivery processes" that will require explanation for experienced RUP users.

- **Continue customizing RUP configurations for specific project types.** The RUP is still a framework, and IBM assumes that each customer (and perhaps for each project) will customize the RUP to suit its needs. Variables such as team size and skills, nature of the application architecture, degree of distributed development, participation by third-party consultants or outsourcers, and compliance requirements will drive RUP users to select different activities, artifact types, and quantity of milestones. Users need to adopt the process of customizing their processes as a part of ongoing application development work.

Figure 2 What To Expect From The RUP Tools In 2006

New feature	What it means
Completely new authoring tools	The archaic UML-based Rational Process Workbench (RPW) tool is gone! Methodologists and project managers can customize their processes with an easy-to-use forms-based interface. Consultants like IGS may use this new tool to author new processes, but most customers will be focused on customization and extension, rather than authoring from scratch. And, RPW and RUP Builder functionality have been consolidated into a single Eclipse-based tool.
Everything is a plug-in	Whether you build your own processes or use one from IBM or a partner, all "methodology components" are seen using the plug-in metaphor, with the same architecture and components. As more and more plug-ins become available, customizing the RUP for different project types will seem like assembling building blocks rather than authoring completely new processes.
Terminology has changed	There are four basic types of information within the RUP: roles, tasks, work products (artifacts, deliverables, outcomes), and guidance. Changing terminology, such as using "task" instead of "activity," will force some retraining for RUP, SUMMIT Ascendant, and IBM GS Method users.
New look for published content	Customized RUP processes are published to a Web site for all team members to access. The new UI includes expandable/collapsable areas, so it's much easier to drill down into work products, links to roles, and links to activities.
Wide variety of predefined types of guidance	RUP users will start from a list of predefined types of guidance including checklists, examples, reports, and techniques. This will make it easier for teams to reuse existing process assets and really take advantage of each others' experiences.
Creation of project plan templates and ability to export to IBM Rational Portfolio Manager (RPM)	RUP users will be able to create and/or customize a standard set of project road maps, and export them to IBM Rational Portfolio Manager. This will make it easier for project teams to deploy customized versions of RUP on their projects and directly leverage the best practices provided in the RUP.

Source: Forrester Research, Inc.

- **Build their own Agile processes.** The RUP content supports iterative processes but does not include content for complete Agile development processes within the tool set. The early version of the RUP XP plug-in is limited and is not integrated into the rest of the RUP's life-cycle processes. (Forrester does not know of any companies using this XP plug-in.) As the demand for Agile processes — and Agile techniques used on open source projects — within large IT shops grows, it's critical that the RUP provides direct support for the best practices from XP, Scrum, Feature-Driven Development, and the other leading Agile processes.[11] At this point, the RUP is not a player in the Agile methodology landscape.

- **Address compliance requirements.** Number Six Software, a consulting firm with extensive RUP expertise, estimates that about 15% of the IT Governance Institute's (ITGI) Control Objectives for Information and Related Technology (COBIT) is related to software engineering. RUP users must tailor their project methodologies to specify *how* compliance requirements in Sarbanes-Oxley and other compliance requirements will be met.

If IBM is able to truly integrate the methodology content from its three methodology products, provide easy-to-use Eclipse-based methodology tools, and integrate the methodologies with its new development tools, then it's unlikely that any other vendor will be able to effectively compete. However, tools don't give the entire picture here: More and more, companies are turning to best practices from the open source and Agile communities as input to their corporate development processes. Therefore, IBM will need to continue to enhance its content and be open to working with these independent sources if it is truly to provide leading methodology content.

R E C O M M E N D A T I O N S

RUP USERS SHOULD MIGRATE QUICKLY TO THE NEW TOOLS

- **Evaluate the RUP beta when it comes out later in 2005.** This is a big step forward for RUP tool capability, and users should plan to migrate to the new version as soon as it becomes available.

- **Press IBM and its partners for more plug-ins.** The more content that IBM and other RUP users provide in the form of RUP plug-ins, the easier it'll be for IT users to take advantage of these practices. IBM needs to provide incentives for partners and customers to share the plug-ins that they have developed.

- **Use the new RUP tools to add your own best practices.** This new release will make it far easier for IT users, project managers, and methodologists to easily add their own experiences to their RUP environment.

- **Look to open source projects and Agile teams' experiences for supplemental content.** Until IBM provides an Agile version of the RUP that supports the full application life cycle, teams must draw upon industry and internal teams' experiences and add them to the RUP.

ENDNOTES

[1] Rational Software, now part of IBM, has steadily adapted the Rational Unified Process (RUP) so that customers will be able to use it as a true methodology framework. The RUP customization tools still need some work, but the flexibility is there. A number of large organizations have done just that — adapted and expanded the RUP to address the plethora of project types and skills within their teams. See the December 10, 2003, Planning Assumption "Customizing RUP To Meet Enterprise Methodology Needs."

[2] The Atlantic release represented the most comprehensive revision — "upgrade" does not do justice to this re-architecting of the key tools — of IBM's development tools since Rational first charted a course toward full application life-cycle management. With the majority of the client-side tools re-engineered on top of the open Eclipse platform, the new tools offer a greatly enhanced user experience and much smoother integrations across the life cycle. See the October 15, 2004, Quick Take "IBM/Rational Launches Atlantic Fleet."

[3] The list of available RUP plug-ins continues to grow. Source: IBM developerWorks (http://www-130.ibm.com/developerworks/).

[4] SOA is hitting a wall in the companies that are most aggressive in its pursuit. Why? The profusion of service interfaces and their design artifacts, such as XML Schemas and Web Services Definition Language (WSDL), is out of control. Although some development or integration tools support limited storage and searching of this metadata, none are complete enough. Enterprises need a comprehensive process framework for managing this portfolio and a model to represent all the important metadata that results. See the April 26, 2004, Trends "Managing The Business Service Model."

[5] At the Rational Software Developers' User Conference (RSDUC), IBM announced two new tool kits to link production and development environments. Source: "IBM Unveils Tool Kits To Better Link Rational, Tivoli Software," *Computerworld,* May 24, 2005 (http://www.computerworld.com/softwaretopics/software/appdev/story/0,10801,101983,00.html?source=NLT_AM&nid=101983).

[6] The Information Technology Infrastructure Library (ITIL) is a set of standard IT terminologies — such as a high-level definition of a change request — that the United Kingdom Central Computer and Telecommunication Agency developed in the late 1980s and early 1990s to address the IT service support and delivery issues faced by IT infrastructure organizations. ITIL standards were designed to establish guidelines and a common language for operational processes, such as change management, problem resolution, service delivery, and resolution of customer inquiries. Source: Office of Government Commerce (http://www.ogc.gov.uk/index.asp?id=2261), and see the September 21, 2004, Best Practices "Implementing ITIL."

[7] IBM Rational's announcement that it was acquiring Systemcorp to become part of the IBM Rational development suite brought little surprise. Once IBM demonstrates successful integration of the Systemcorp products with the Rational development and life-cycle management tools, it could place substantial pressure on other vendors in the rapidly consolidating project portfolio management (PPM) market. That integration has begun, but there's more work ahead. See the December 10, 2004, Quick Take "PPM Market In Transition."

8   Since the 1990s, the AD methodology market has been particularly volatile, with continual mergers, acquisitions and new entrants replacing unsuccessful predecessors. However, despite the vendor volatility, the products continue to mature, and the overall quality of the products' content has steadily increased. Forrester examined the following vendor offerings: ASG Visual Process; CSCL CS/10,000; CA AllFusion Process Management Suite; Fujitsu Consulting ProductivityCentre; gantthead.com; IBM Global Services Method, SUMMIT Ascendant, and RUP; Microsoft Solutions Framework (MSF); Select Business Solutions Select Process Director; and The Innovation Group (TiG) PROgression. See the June 10, 2003, Planning Assumption, "Market Overview 2003: Application Development Methodologies and Processes."

9   Forrester and *Application Development Trends* magazine fielded an online survey to 389 ADT subscribers in August 2004. Forrester also fielded an online survey to 116 North American decision-makers who belong to the Forrester Executive Research Panel. We motivated respondents by offering them a summary of the survey results and a chance to win a $50 Amazon.com gift certificate. We screened out 27 respondents who indicated that they were not comfortable answering questions about "programming technologies, application software architecture, and application platforms." When asked which development methodologies were currently being implemented, about 13% were using Agile processes (e.g., XP or Scrum), about 4% were using DSDM, while 62% were using either waterfall/phase-gated or a homegrown process. See the November 24, 2004, Trends "Teams Begin Adopting Agile Processes."

10 IBM has a unique opportunity to leverage the strengths of each set of methodologies and tools and dominate this market. IT shops stand to benefit from the combined strength of the IBM Global Services/ PwC consulting staff experiences and the tool experience that the PwC SUMMIT Ascendant product brings to market. See the January 9, 2003, Planning Assumption "Methodology Users Will See Convergence Between IBM Global Services Method, PwCC Summit And RUP."

11 Competitors are ahead in delivering support for Agile processes. In the upcoming MSF 4.0 product, Microsoft is delivering a more traditional iterative process and an agile process in the product. However, Microsoft's agile process, while based on its own product development practices, does not conform to any of the industry standard Agile processes such as XP or Scrum. UK-based consulting firm Conchango will be putting together a plug-in that will engender Visual Studio Team System (VSTS) with behavior and guidance that best supports the Scrum methodology. See the November 10, 2004, Trends "Microsoft's Methodologies Are Coming" and see the March 25, 2004, Trends "Adopting Agile Development Processes."

FORRESTER®

Helping Business Thrive On Technology Change

For information on hard-copy or electronic reprints, please contact the Client
Resource Center at +1 866/367-7378, +1 617/617-5730, or resourcecenter@forrester.com.
We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Research (Nasdaq: FORR)
is an independent technology and
market research company that
provides pragmatic and forward-
thinking advice about technology's
impact on business and consumers.
For 22 years, Forrester has been
a thought leader and trusted advisor,
helping global clients lead in their
markets through its research,
consulting, and peer-to-peer
executive programs. For more
information, visit www.forrester.com.

FORRESTER®