

A practical guide to choosing the right agile tools.

Protect your investment today with solutions that evolve as you grow





The benefits of agile are clear:

- Lower development costs
- Higher-quality software
- Software and systems your clients want
- Faster time to market
- Repeatable results

Yet each team's goals, needs and initiatives to achieve desired results vary from deploying simple approaches with open source tools, to automating and implementing a subset of agile approaches, to launching full-scale agile lifecycle management.

IBM Rational® software has helped thousands of companies worldwide improve their agility with software best practices, tools and services. IBM understands that a single-size solution does not fit all.

This evaluation guide is designed to help you choose the best tool for your needs today, while protecting your investment as your team, needs and agile maturity grow.

Do you need tools to build a successful agile core for repeatable success?

We've learned that teams first consider tools once they have completed a few agile pilot projects, have undergone self-evaluation and understand that they need to improve core practices such as collaboration and continuous integration.

Do you want to adopt and automate agile practices across the lifecycle?

From here, teams then consider tools as a way to reduce risk and address complexity as they continue to grow their skills and maturity across the agile lifecycle in areas such as test-driven development, continuous change and evolving requirements, greater stakeholder involvement, and more.

Do you want to be agile but think you're too big, too distributed or too strapped by compliance issues?

The good news is IBM Rational® software can help you in one of these entry points, a combination of them or some we haven't even considered yet. Your challenge is to identify your greatest need today, the improvements you need to make to current practices, and whether new tools are really the solution.



Contents

Section 1: Core agile software development

This section reviews core agile processes and tools that address a portion of the development cycle and need to be combined to form a more complete approach. Examples include Scrum, Extreme Programming (XP) and Agile Modeling.

Section 2: Extend your agile solution as your needs evolve

This section is broken up into two parts:

- ***Disciplined agile practices.*** This approach includes strategies and tools to address the full agile system delivery lifecycle. You can build your own solution from Level 1 processes or adopt an existing process that does this. This includes processes such as Dynamic System Development Method (DSDM) and the Open Unified Process (OpenUP).
- ***Disciplined agile at-scale practices.*** This approach looks at teams that must manage increasing application complexity, address gaps in communication to encourage collaboration, and automate functional silos to enable an iterative development process.

Section 3: Choose an agile tools vendor that protects your investment

This section highlights key attributes to help you partner with a vendor who is a thought leader, who has extensive experience with agile development, and who can help you with a solution today that will grow as your team and needs evolve.



Section 1: Core agile software development

IBM Rational Team Concert™ is a solution for core agile development. It provides integrated version control, automated workflows and build capabilities in a single product for realtime visibility and

comprehensive project collaboration. Table 1 illustrates core agile practices and describes how Rational Team Concert can automate, accelerate and provide just-right process for your team.

Core agile practice	How Rational Team Concert can help
Team collaboration	Provides integrated release planning and reporting, source control, document collaboration, work-item and build management, chat, and process guidance through Web 2.0 technologies. A Web interface allows business stakeholders and customers to contribute feedback and participate in the development process.
Agile process awareness and automation	Offers out-of-the-box choices of agile process configurations, like Scrum and the Eclipse Way, that guide team workflows and automate process steps and checkpoints. They can be used as is or customized throughout the life of the project.
Iteration and release planning	Integrates dynamic iteration and release plans with the drag-and-drop ease of work-item management.
Resource balancing	Easily assesses individual workloads at a glance and shifts resources to high-priority work items. Easily balances work by dragging and dropping work items among team members.
Automated governance	Assesses project and cross-project status and trends in realtime with Web-based dashboards, metrics and trend reporting.
Requirements management	Uses a collaborative wiki-like platform to allow business and technology teams to work together in an online community to manage requirements. The single location allows users to view, comment on and query—in context—any textual or graphical element, and to link to other resources on the Internet or on an internal intranet. A host review document within a collaborative environment allows users to comment on issues and engage in discussion threads with other stakeholders and team members, ensuring that everyone participates in the review and approval of requirements.
User interface storyboards	Easily creates and maintains storyboards as changes are propagated. Any user interface part can be linked to rich document descriptions and requirements. And storyboards can be quickly assembled by sequencing, reusing and refactoring sketches using reusable components to quickly gain consensus on flow and content. The user experience can be elaborated to further elicit and validate requirements.
Work-item management	Automatically creates and tracks the progress of individual work items such as requirements, tasks, defects and enhancements in accordance with team process and project rules. Captures and maintains work-item relationships to other artifacts such as code change sets and builds.
Source control management	Provides essential software version control, workspace management and parallel development support to individuals and teams. Additionally, is fully aware and integrated into work items (why a code change was made) and build management (when a code change made it into a build).
Connectors and bridges to other commercial and open source tools	Connects with IBM Rational ClearCase® and IBM Rational ClearQuest® software to provide software change and configuration management, defect management, work-item management and build management. Also bridges to Subversion software configuration management tools to leverage these existing investments.
Build management	Schedules and executes software build processes. Leverages multiple servers for rapid, cross-platform build processing. Integrates with work items and source control to provide the ability to create detailed bills of materials to guarantee build reproducibility.
Quality management	Creates test plans, which are dynamic, living documents that evolve with the project. Test plans are quality contracts that clearly describe project goals and entry and exit criteria, while also tracking prioritized items for validation. Static data, such as business objectives, and dynamic data, such as requirements and test cases, are captured in the test plan.
Test lab management	Supports distributed execution across physical and virtual lab machines. To enable this, the software includes test lab management functionality that allows testers to register their physical and virtual assets as well as schedule test execution according to asset configurations. This helps remove administrative burdens and helps ensure optimal utilization of test lab resources.
Ease of getting started	Offers a single download package that's easy to install. Offers minimal administration, easy project startup, and rapid onboarding and off-boarding of team members.
Scalable for the enterprise	Supports teams ranging from a few to thousands of developers and stakeholders with enhanced security, proxy server and high-availability options.
Open and extensible	Offers a published software development kit for extensibility and customization. Supports both client-side and server-side plug-ins.
Incremental adoption	Works with your existing tools so you can leverage your investments. Support bridges between work items and continuous builds with Subversion. Supports bridges and synchronization with Rational ClearCase and Rational ClearQuest.
One solution for cross-platform teams	Offers a single solution that lowers total cost of ownership. Supports Java™ Platform, Enterprise Edition (Java EE); Microsoft® .NET; Microsoft Windows®; Linux®; IBM i and IBM System z® platforms.
Flexible licensing options	Offers different editions and different price points for different size teams, including a no-charge IBM Rational Team Concert Express™ -C edition. (Compare editions at ibm.com/software/dre/hmc/compare.wss?HMC02=Q312982B67194Y87 .)

Table 1



Key takeaway: While Rational software can help you address virtually any phase of the agile lifecycle, IBM recommends that you maximize ROI by addressing your greatest need today, then build upon that success as team needs and agile maturity grow.



Section 2: Extend your agile solution as your needs evolve

In this section, we'll build upon the core agile practices highlighted in section one with the more-advanced needs of

disciplined agile delivery and delivery at scale. When referencing Rational Team Concert in table 2, we'll only discuss the relevant feature that supports the best practice.

Disciplined/at-scale practices	Rational solution and value
Produce working software on a regular basis, and develop small, incremental releases	<p>You can use Rational Team Concert to schedule and execute software build processes. Leverage multiple servers for rapid, cross-platform build processing. Integrations with work items and source control provide the ability to create detailed bills of materials to guarantee build reproducibility.</p> <p>For more robust and complex build and assembly needs, <i>IBM Rational Build Forge</i>[®] software helps standardize repetitive tasks, manage compliance mandates and enable high-performance builds for agile development. Rational Build Forge integrates into your current environment and supports major development languages, scripts, tools and platforms, allowing you to continue to utilize your existing investments while adding valuable capabilities around process automation, acceleration, notification and scheduling.</p>
Perform continuous regression testing, and take a test-driven development (TDD) approach	<p>Rational software provides integrated, collaborative solutions for the developer and tester to build, manage and deliver quality software.</p> <p><i>IBM Rational Application Developer</i> integrated development environment (IDE) for Java, Java EE, Web, Web services, portal and service-oriented architecture (SOA) solutions assists in rapidly designing, developing, assembling, testing and deploying these applications. Provides a code coverage capability that helps ensure that your test cases are optimized to test the most code in the minimum number of tests. Static analysis tools help developers confirm that they are following coding convention requirements and/or best practices. Integration with Rational Team Concert facilitates collaborative debug capabilities with other teammates.</p> <p><i>IBM Rational Software Analyzer</i> is a static analysis tool that enables automated software code reviews, bug identification and policy enforcement very early in the development cycle, taking continuous integration to the next level.</p>
Involve the testing team for parallel independent testing	<p><i>IBM Rational Quality Manager</i> is a Web-based, centralized test management environment for business, system and IT decision makers and quality professionals who want a collaborative and customizable solution for test planning, workflow control, tracking and metrics reporting vulnerabilities.</p> <p><i>IBM Rational Functional Tester</i> software automates regression tests to help ensure that new changes to your application have not impaired existing functionality.</p> <p><i>IBM Rational Performance Tester</i> software enables you to execute large-scale performance tests to validate application scalability.</p> <p><i>IBM Rational AppScan</i>[®] software includes automated Web application security and compliance assessment tools that scan for common application vulnerabilities.</p>
Work closely with stakeholders, ideally on a daily basis	<p><i>IBM Rational Requirements Composer</i>, <i>IBM Rational Team Concert</i> and <i>IBM Rational Insight</i>— each based on <i>IBM Jazz</i>[™] technology—use Web 2.0 workspaces and communications to bring teams together around requirements, test, configuration and change management.</p>
Capture requirements at a high level, in a visual, collaborative way—and be able to change them	<p><i>IBM Rational Requirements Composer</i> is a Jazz technology-based requirements management solution that provides textual and visual requirements definition techniques in a collaborative environment. It uses Web 2.0 workspaces and communications to bring teams together around requirements and keep the ideas flowing iteratively. While creating a community space for business and IT to collaborate on requirements, Rational Requirements Composer enables communications using comments, discussion threads and artifact updates, and provides a centralized and security-rich repository for storing and sharing documents of virtually all formats.</p>

Table 2

(continued on next page)

Disciplined/at-scale practices	Rational solution and value
Regularly reflect on, and measure, how you work together and then act to improve on your findings in a timely manner	<i>IBM Rational Insight</i> is a performance management application that provides you with quick insight into project risk, status and trends by helping you measure, monitor and analyze your projects' performance. With Rational Insight, you can save time, reduce manual errors and take greater control of your software and systems development and delivery.
Self-organizing and disciplined teams work within an appropriate governance framework	Rational Team Concert features help with work-item management to automatically create and track the progress of individual work items such as requirements, tasks, defects and enhancements, in accordance with team process and project rules. The software also captures and maintains work-item relationships to other artifacts such as code change sets and builds. Work-item lists provide self-organization, and individual and team dashboards, as well as reports, enable governance with fact-based decision making.
Need right-sized governance for your team: customize, govern, employ agile practices	Rational Team Concert integrated process guidance and rules allow you to customize and control the right-sized process for your team. <i>IBM Rational Method Composer</i> is a process management platform with one of the industry's most comprehensive tooling and richest process libraries for successful software and IT projects. It includes new collections of agile practices that leverage leading process expertise and experience in agile software development. (Learn more about this topic in the IBM white paper <i>Lean development governance</i> at www14.software.ibm.com/webapp/iwm/web/preLogin.do?lang=en_US&source=swg-ldg .)
Think your team is too big to be agile	Rational software has successfully worked with organizations of 5 to 500 developers. Break through this misconception by building an agile framework based upon best practices and tools that govern and drive your process. The following Rational tools are successfully used around the globe on large-scale agile implementations. Consider: <ul style="list-style-type: none"> • <i>Rational Requirements Composer</i> for initial modeling • <i>Rational Team Concert</i> for development and monitoring • <i>Rational Build Forge</i> for continuous integration • <i>Rational Quality Manager</i> for independent testing management • <i>Rational Software Analyzer</i> for code quality • <i>Rational Method Composer</i> for large-team practices (Learn more in the IBM white paper <i>Enable the agile enterprise through incremental adoption of practices</i> at www14.software.ibm.com/webapp/iwm/web/preLogin.do?source=swg-eaetiaop&S_TACT=105AGX23&S_CMP=Agile .)
Distributed teams: people in different locations add to the risk of failure due to the inability for frequent face-to-face collaboration and the speed and frequency of development tasks	By adapting your practices and deploying tools that break down communication barriers, provide transparency, and automate and accelerate the software delivery and build process, you can make agile work for distributed teams. Consider: <ul style="list-style-type: none"> • <i>Rational Team Concert</i> for direct support of distributed teams • <i>Rational Build Forge</i> for continuous integration between sites • <i>Rational Requirements Composer</i> for initial requirements modeling • <i>Rational Method Composer</i> for distributed development practices
Regulatory compliance: you don't believe you can meet mandates using agile methods	You can use the following solutions to help your software or systems development organization manage compliance with standards, policies and regulatory mandates, such as Sarbanes Oxley, that are often explicit about penalties but unclear about implementation and documentation requirements. Consider: <ul style="list-style-type: none"> • <i>Rational Team Concert</i> for traceability and monitoring • <i>Rational Quality Manager</i> for traceability and quality assurance • <i>Rational Software Analyzer</i> and <i>IBM Rational Policy Tester™</i> for quality assurance • <i>Rational Build Forge</i> for traceability to deployed configuration • <i>Rational Method Composer</i> for process definition

Table 2 (continued from previous page)



Key takeaway: You can make agility a reality for larger or remote teams, or for more complex projects. The key is just-right governance, collaboration in context, and automation. The result? Deliver greater value to the business and your clients.

Section 3: Choose an agile tools vendor that protects your investment

Assess vendor qualities carefully

Selecting the ideal vendor to support your agile teams can be just as important as selecting the right products. The vendor you choose should have resources and agile subject matter expertise to support your needs now and in the future.

As a living example of one of the world's largest and most successful agile transformation projects, spanning over 5,000 of its own developers, IBM can provide the products and services you need to succeed with agile practices. IBM offers global sales, service and 24x7 support. And its products support and interoperate with a wide spectrum of programming languages, operating systems and development environments.

Building your ideal software delivery environment

To protect your investments in software delivery infrastructure, you'll want the flexibility to assemble your own ideal software delivery infrastructure, based on preferred tools and vendors. Investing in an open and modular solution that embraces industry standards can help you optimize your long-term flexibility.

The IBM Jazz platform protects your investments by enabling end-to-end traceability and streamlined collaboration, automation and reporting across the software lifecycle. IBM is a proud sponsor and participant in the Open Services for Lifecycle Collaboration initiative that is working to enable seamless integration of open source, commercial and homegrown tools across your tooling environment.

Backed by more than 25 years of industry leadership in both the open source and proprietary marketplaces, IBM can help you implement an agile software delivery environment that meets your strategic requirements.

Vendor criteria	Key Rational attributes
Establish a capability improvement program that assesses development practices and measures the impact of these practices on business outcomes	Provides comprehensive service offerings with integrated roadmaps, process guidance, training, self-check and metrics dashboards, including: <ul style="list-style-type: none">• IBM Rational health assessment for software delivery• IBM Rational Self-Check for software teams
Protect existing investments by supporting standards-based technologies and universal Web architectures	Provides an open and modular solution. IBM employs standard representational state transfer (REST) interfaces and universally scalable and available Web architectures.
Integrate homegrown, third-party and open source tools into the software delivery environment	Interoperates with popular third-party and open source solutions, including Subversion software. Drives industry leadership in tool and resource interoperability based on open standards and architecture.
Leverage investments in existing IBM middleware, including servers, storage, messaging and service management	Leverages existing IBM DB2® data servers and scalable, security-rich IBM Lotus® Sametime® infrastructures and capabilities. <ul style="list-style-type: none">• Accesses IBM Lotus Quickr™ assets• Leverages IBM Tivoli® administration, backup and monitoring capabilities• Manages user access and permissions using the IBM Tivoli Directory Server platform• Runs on existing IBM WebSphere® Application Server environments
Seamlessly interoperate with existing IBM Rational investments in architecture management, requirements and change management, and quality management solutions	Interoperates with existing Rational solutions. Enables rich participation in Jazz technology-based development and delivery processes.
Extend the software delivery solution by sourcing products and services on a global basis	Offers a rich partner ecosystem with hundreds of global sales, service and product partners.

Table 3



Key takeaway: IBM is one of the only vendors that provides a solution that can meet your agile needs today and tomorrow as your teams and projects grow.



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To learn more about which agile development approach is best for your organization, contact your IBM representative or IBM Business Partner, or visit:

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