

Business-Driven Development Tools from IBM Rational Streamline Project Management for Global Financial Services Company

Overview

■ **The Challenge:**

To improve its responsiveness and decrease time to market for new software systems, a global financial services company sought a comprehensive approach to managing and executing development projects, accelerating project start-up times, and improving team communication.

■ **The Solution:**

The company switched from a waterfall development approach to an iterative life cycle and began using IBM Rational RequisitePro to manage project requirements, risk and scope. The company's development team also standardized on the IBM Rational Software Development Platform for visual modeling, software configuration management and testing.

■ **The Benefit:**

Startup times for projects have been reduced from several weeks to less than two days. The development team is completing projects 10 to 20 percent faster. Project managers—along with the entire development team—are better able to manage development initiatives and respond to changing customer demands.

In the financial services industry, responding with agility to customer needs and evolving market demands is a vital capability for software development organizations. In addition to keeping pace with shifting marketplace demands, software development teams in financial services must deliver software with high levels of reliability, availability, performance and scalability while maintaining compliance with both internal and external regulations and mandates.

Managing a software development effort in this environment is a complex task. After evaluating its own software development capabilities, a leading global financial services company recently decided to adopt a new approach. The company relies on a development organization of more than 700 analysts, developers and testers working on up to 20 concurrent projects for systems that reliably process more than eighteen million transactions per hour.

In the past, the efforts of this development team were hampered by a waterfall development approach that made it difficult to respond quickly to changing needs. The team also lacked an effective way to manage project requirements, risk and scope in a way that engaged the entire development team and all stakeholders.

In addition, the team had no standardized development environment, and often spent a significant amount of time at the start of each project deciding on, establishing, and configuring the team's working environment. To address the challenges, the company:

- adopted an iterative development approach based on IBM Rational Unified Process®, or RUP®.
- began using IBM Rational RequisitePro® not only as a requirements management tool, but also as a project management tool.
- standardized on IBM Rational tools for visual modeling, software configuration management and testing.

Moving to an Iterative Approach

Early on, the company recognized that a waterfall approach to development—in which each phase of development is carried out sequentially—was no longer meeting its needs.

The company's vice president of applications development recalls, "We needed to substantially improve our time to market.

We were sometimes slow to respond because of the scope and size of the applications we were developing and because we were using waterfall development throughout the organization. We needed to make a change to bring new products to market quicker, so we implemented RUP and an iterative development approach."

He adds, "We started out using RUP on pilot projects and expanded out to more projects over time. As we began applying the methodology on more projects, it became apparent that the supporting tools from IBM Rational would be useful in amplifying the benefits we were realizing from doing iterative development."

Focusing on IBM Rational RequisitePro

When the development team was still following a waterfall approach, they would typically work from a large, static requirements document that was provided by the customer—usually another group within the company. "In a typical waterfall project, we would receive this huge, monolithic requirements document that was thrown over the fence. We wanted to move away from that to use requirements artifacts that were useful for doing iterative development, such as use cases and supplementary specifications," notes a senior project manager at the company.

"To better manage that approach, we decided the first tool we needed to focus on was Rational RequisitePro. We knew that if you don't get the requirements right, the rest of it doesn't fall into place as effectively," he adds.

Rational RequisitePro for Project Management

IBM Rational RequisitePro is a requirements management tool that enables teams to define, track and update requirements as the project evolves. The company uses Rational RequisitePro to manage requirements including elements such as business rules, use cases, features, vision and supplementary requirements.

In addition, they have configured Rational RequisitePro and added requirement types—including managing iterations, scenarios, risks and issues—to support project management. By exploiting the flexibility of Rational RequisitePro, the company's development team extended their capabilities, and now relies on it as a central project management tool.

According to project managers within the company, traditional project management tools such as Gantt charts, network diagrams and decision trees lead managers to attempt predictive rather than adaptive planning. In addition, these tools are typically used solely by project managers, severely limiting their usefulness in engaging and communicating plans to the team and stakeholders.

Using Rational RequisitePro, the company has addressed these shortcomings and now implements a Requirements Management Plan for each project. This plan uses traceability to unite the management of project scope, time, risk, and communications in a single place that is accessible and understandable by everyone involved in the project. The Requirements Management Plan in Rational RequisitePro centralizes and binds project stakeholders—including customers, project managers, analysts, developers, and testers—in a jointly-established, common focal point.

Everyone on the Same Page

“One of the things that we do differently is use Rational RequisitePro not only to manage project requirements, but also to manage the scope by iteration. Our team uses Rational RequisitePro to see what scenarios are assigned to each iteration. The developers know exactly what they are going to develop and the test team knows what functionality to test because the scope by iteration is defined. This approach really improves scoping and communication, and everyone is on the same page as to what is going to be done during a particular iteration. In this way, Rational RequisitePro really becomes a vital project management

tool,” explains the vice president. The project manager adds, “We still use Rational RequisitePro in all the standard ways, including managing requirements and impact analysis—if one feature changes, we can see what happens downstream to others. But along with that, we have added the concept of the iteration as well as the scenarios and risks associated with each iteration. As a result, the project team can use Rational RequisitePro to see the scope—what is specifically going to be done in each iteration.”

“It cuts down on the confusion that can arise in iterative development. We have eliminated the confusion around what the testers need to start planning to be able to test, and also confusion from the developers who were not quite clear about what it was they were actually supposed to deliver in an iteration. Rational RequisitePro is used by our customers too—usually through the Web interface—to see exactly what is being done in any given iteration and what they can expect to see at the end of that iteration,” he continues.

Risk Management

Managing risk is central to iterative development and effective project management. For the company’s project managers, managing risk is

done in conjunction with requirements management. “For us, risk is a requirement type. As a project manager, you are most interested in mitigating risks as you proceed through projects iteratively. With Rational RequisitePro, not only can we see the iteration and what requirements are involved in that iteration, but also we see what risks are being addressed, reduced, or eliminated during each iteration,” notes the project manager.

“For example, if we are in an elaboration phase and we are trying to prove out the architecture, we may need to connect to a data source that we have never connected to before. Alternatively, we may need to process more transactions than we have ever processed before in any given period of time. We capture those risks in a supplementary specification.

Then, we specify that, in this iteration, we are going to address the transaction processing engine, and prove that it works with the testers and the developers. Essentially, the entire team is able to agree on what the scope of the iteration is, what is being tested, what risks are being eliminated, and in what time period this is all being done,” he adds.

Ensuring Quality

Leveraging the integration between Rational RequisitePro and Rational TestManager, the company's testing teams can link specific requirements with individual test cases to ensure their test plans have complete requirements coverage. "We take advantage of the built-in integration offered by the tools and the linkages between them. We don't have to use ad hoc methods and tools, or translate from one tool to another via an Excel spreadsheet, for example. Our testers also use Rational RequisitePro directly to plan tests for any given iteration. They look at the scenarios in each iteration to determine what functionality will need to be tested," explains the senior project manager.

The testing teams conduct some test cases manually and use IBM Rational Robot to develop automated functional tests for the remaining cases. The automated tests are then used in regression testing for each subsequent iteration.

Creating a Standard Environment

The company focuses on Rational RequisitePro to provide a foundation for the entire development effort, incorporating a wide range of tools from the IBM Rational Software Development Platform. "Rational RequisitePro is the basis for starting

up our projects. We have created a framework with it that feeds into the downstream activities and tools," notes a senior project manager.

Those tools include IBM Rational Rose® XDE™ Developer for visual modeling, IBM Rational TestManager for test planning and management, and IBM Rational ProjectConsole™ for metrics gathering and reporting. The development team also uses IBM Rational ClearCase® and IBM Rational ClearQuest® for software configuration management.

"We're using the whole IBM Rational toolset, but there's an emphasis around Rational RequisitePro for requirements management and project management. One of the reasons we started with a focus on requirements and testing tools — instead of developer tools — is that those are the areas that have been traditionally the least served by tools in the past," the project manager explains.

"Before we had the integrated suite of tools from IBM Rational to work with, each project was started with an ad hoc environment. Every team was coming up with their own way of doing things. That was very inefficient and wasted time in the organization. Today, with the

integrated environment that we have created, the development teams have a consistent framework from start to finish. On day one, they are not wondering what environment they are going to use or how to set it up. They hit the ground running with this standard framework and integrated environment, using the same tools, configured in the same way, and accessed from a central location," he adds.

Configuration, Training and Tutorials

The company engaged IBM Rational consulting services to assist in the custom configuration of Rational RequisitePro and other IBM Rational tools to meet its project management objectives. "The consultants helped us in the specific implementation of our configuration and in conceptualizing and delivering the Requirements Management Plan. We found them to be invaluable in assisting us with that," notes the vice president.

The company also used IBM Rational consultants for some on-site training sessions, to supplement its own internal training programs and the tutorials included within IBM Rational tools.

Improved Control, Better Communication, Higher Customer Satisfaction

According to a senior project manager at the company, Rational RequisitePro has directly contributed to a number of qualitative improvements throughout the development organization. He notes, “As a project manager, Rational RequisitePro gives me better control over the course of the project and helps me set expectations with the customer. It enables a much more effective and even level of communication throughout the life cycle of the project with the customer and enables joint agreements throughout — as opposed to spikes of communication with a customer to offset misunderstandings.”

He continues, “Rational RequisitePro is really a focal point for the entire team to provide input, and to monitor and manage the progress of each iteration. It is a very powerful tool for communicating to the entire team what is being accomplished and when. It’s important to realize that it is not just a database we put requirements into; it is a powerful tool that we use for traceability, project scheduling, and risk reduction.”

Projects Accelerated

By following an iterative development approach based on RUP, applying Rational RequisitePro as a requirements and project management tool, and standardizing on the IBM Rational Software Development Platform, the company has improved its responsiveness and its ability to rapidly start and complete software projects.

“In the past we could spend several weeks figuring out the approach to managing the requirements, finding a place to host those requirements, setting up the environment, and getting people up to speed with what was going on. Now, they can basically make a single call, a switch gets flipped, and they are in. Within two days, they have an environment that they can jump into and start using. It has a complete framework behind it and they have all of the reference documentation that they need for their team to hit the ground running,” explains one senior project manager.

He adds, “I think our customers are happier because they have a much better idea of what the requirements are and when they are

being delivered. They can see the progress and they see that our teams can move ahead more quickly than before. Using IBM Rational tools, we can deliver more functionality in the same period of time.”

“With Rational tools, we are now able to consistently get projects started and running fully up to speed with a configured tool set that is standard across the organization so that we get our projects started faster, and get them completed faster. For teams that are rigorously following our established practices, we have seen a 10 to 20 percent reduction in the amount of time it takes to complete a project using Rational RequisitePro and other IBM Rational tools,” the vice president concludes.



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