

Your First Steps Toward Implementing RUP and IBM Rational Solutions

Chapter Return on Investment:

- The potential value that RUP and IBM Rational Solutions deliver to your company.
- Common problems RUP and IBM Rational Solutions solve.
- How to begin selling the executives on this process solution and tools and simultaneously create awareness and excitement.

This chapter focuses on key points to bring awareness and generate excitement about RUP and IBM Rational Solutions once interest in them has been discovered. At this point, you have used the guidance in Chapter 1, “Evaluating Process Solutions,” as an objective method for selecting the proposed process solution for your organization. I will discuss why these key points have great potential to add value to any company and will begin to identify how and where they can add value to your own company. Next, I will take you through activities that can be used to begin selling the idea of implementing them to your executives and decision makers. That’s right—it will take some selling on the potential value and return on investment to move to the next step, assessing your organization and building the business case for change, which is covered in the next chapter.

Taking the Plunge

Congratulations! Arriving at the point where you have realized that you want to explore what value RUP and IBM Rational Solutions can bring to your company is a significant milestone. This enterprise-level process solution and supporting set of development tools can provide a significant return on investment. After making the conscious decision that you are going to champion RUP and the Rational tools as a potential process improvement initiative, you will need to take a few initial steps. First, identify and create a rationale for why you want to use the RUP and Rational

tools. Then, work on what the key principles for business-driven development will bring to your company and what the combination of RUP and Rational tools will do in terms of value. Finally, you will need to begin selling the initiative to your executives and decision makers. Introducing an improved process is really about introducing organizational change. The complexity is much more than most people generally appreciate. Whether you are in a smaller-size company with an IT department of fewer than 50 people or a large one with thousands of people, the organization will need to change how it thinks and acts when developing and deploying software and systems.

The rest of this chapter is written under the premise that your organization does not already have a significant adoption of or implementation of RMC/RUP and/or the IBM Rational Solutions.

Why RUP and Rational Solutions?

RUP has repeatedly proven its value in the industry by delivering significant returns on investment (ROI) to the companies and organizations that have adopted it. I add the caveat that RUP, like any other improved process implementation, is going to be challenging, to say the least. These implementations are cultural changes and, as such, are not trivial tasks. Getting quantitative results and solid returns on investment does take effort. By reading this book, you will arm yourself with the knowledge to set the stage for success.

If you are at a point where you realize that your company could improve its software development processes, or you need one in its absence, along with a set of development tools that automate that process in order to help the organization reach a higher level of efficiency, you need to prepare your case on why you are offering RUP and the Rational tools as a solution. Why? Because you will be asked: “So what are RUP and the new tools you are talking about, and why do we need them?” Be prepared to give an appropriate response, whether that is a 30-second elevator pitch or a five-minute vision statement. A rule of thumb from John Kotter’s books *The Heart of Change* and *Leading Change*¹ is that a vision driving a change initiative must be able to be described in five minutes or less and get a reaction that signifies both understanding and interest. If you cannot express such a vision, you are heading for big trouble. The goal of bringing in a new process or improving upon an existing one is to change behavior; you need to be able to paint a picture of the future with some implicit or explicit commentary on why the person you are interacting with should strive to create that future along with you. As you progress through the lifecycle of instantiating a new process and set of supporting tools, you will need both a strategy and a vision. The strategy shows how to achieve your vision, whereas the vision shows an end state where all the plans and strategies will eventually take the company. A vision should be able to be described in an elevator ride and hallway discussion, where a strategy might take a lunch discussion or hour-long meeting. Let’s start with looking at how you can draft a vision (strategy will be covered in Chapter 6, “Implementation Approach”).

The following comes from *The Heart of Change*² for creating the right vision to guide action in all of the remaining stages of change:

¹ John Kotter and Dan S. Cohen, *The Heart of Change: Real-life Stories of How People Change Their Organizations*. Boston, MA: Harvard Business School Press, 2002 and *Leading Change*. Boston, MA: Harvard Business School Press, 1996.

² John Kotter and Dan S. Cohen, *The Heart of Change*. Boston, MA: Harvard Business School Press, 2002, p. 82.

- **What Works:**

- Trying to see literally-possible future scenarios
- Visions that are so clear that they can be articulated in one minute
- Visions that are moving—such as commitment to a shared set of goals
- Paying careful attention to the strategic question of how quickly to introduce change

- **What Does Not Work:**

- Assuming that lines or logical plans and budgets alone adequately guide initial behavior when you're trying to initiate a leap into the future
- Overly analytic, financially-based vision exercises
- Visions of slashing costs, which can be emotionally depressing and anxiety creating when people tie that to head count reduction
- Giving people fifty-four logical reasons why they need to create strategies that are bolder than they have ever created before

An example of a clearly articulated vision that can be expressed in less than a minute in an elevator or expanded to a five-minute hallway conversation and has proven very effective in one of my implementations, is as follows:

We need to leverage software development to improve our business performance. Closely aligning business, development and operations, and automation of our activities will enable us to identify and work toward a shared set of business goals. We will implement a new process solution, Rational Unified Process (RUP for short), and the IBM Rational Solutions. That will take us from our current state of varying software development processes and tools to a single, configurable software development process solution that is an industry standard, delivering proven key principles for business-driven development and a configurable process framework, as well as a complete, fully integrated solution platform for developing software and software-based systems for our end-to-end software development initiatives. We must balance process with tools; the Rational Unified Process and IBM Rational Solutions have been developed so they are integral to one another. Taking into account the lessons learned in past initiatives of new process or new tools, which have never been in concert, the implementation of combined process and tools will greatly reduce the opportunity for adding process that cannot or will not be supported by tools without significant overhead.

This example follows the spirit of Kotter's guidance. It paints a picture of where the company needs to go, where it is, and where it has been. It is a vision that all levels can identify with, quickly grasp, and buy into.

The Key Principles and Your Environment

After you have completed the exercise of crafting a vision statement, you will need to begin looking just under the covers of RUP and tying in the underlying principles to a value statement for your company. RUP has been based on six best practices that have evolved into the six key principles that IBM Rational has gleaned from involvement in tens of thousands of software development projects supporting customers throughout the world, as well as within IBM itself.

The evolution from the practices to the principles are in alignment with industry trends. For those of you in larger organizations, you may be working in an environment of IT governance, geographically distributed development, or SOA governance, to name just a few relevant items in a world of outsourced IT and business processes. The key principles are a wonderful evolution of a tried-and-true foundation that has served its adopter well.

The key principles are as follows:

- Adapt the Process.
- Balance Competing Stakeholder Priorities.
- Collaborate Across Teams.
- Demonstrate Value Iteratively.
- Elevate the Level of Abstraction.
- Focus Continuously on Quality.

The best practices are as follows:

- Develop Iteratively.
- Manage Requirements.
- Use Component Architectures.
- Model Visually.
- Continuously Verify Quality.
- Manage Change.

Many of the good books written on RUP that are noted in the Preface, such as *The Rational Unified Process: An Introduction, Second Edition*³ and *The Rational Unified Process Made Easy: A Practitioner's Guide to the RUP*,⁴ do a great job of getting into the nuts and bolts level of detail of the best practices for project team practitioners. My goal is to arm you with information on what the six best practices and the six key principles will mean to your company and how you can clearly articulate the value they will have in your environment.

There are a lot of ways to sum up what the key principles or best practices are, both in technical terms as well as in laymen terms. I will provide some guidance for you to use in discussing both from a laymen's perspective, a midpoint between the laymen and technical perspectives, and finally provide some thoughts on how to tie them into your environment. Generally, your executives and decision makers are going to need the laymen terms, but every once in a while, you will encounter someone who needs something deeper. Rarely have I seen the case where you will need to give a decision maker a very technical viewpoint, especially early on.

³ Philippe Kruchten, *The Rational Unified Process: An Introduction, Second Edition*. Boston, MA: Addison-Wesley, 2000.

⁴ Per Kroll and Philippe Kruchten, *The Rational Unified Process Made Easy: A Practitioner's Guide to the RUP*. Boston, MA: Addison-Wesley, 2003.

If you do take a technical deep dive into the key principles or best practices, I would recommend that you either have a current technical background and/or recent and thorough experience with RUP as well as the Rational tools. When you are just trying to float the idea of an improved process solution and set of tools, which is going to take a fundamental cultural change to be effective, being challenged early on and answering ineffectively can damage your efforts tremendously. If you don't have the background and experience for the technical deep dive, don't take it. I have rarely seen a lack of technical expertise be a negative when you disclose it from the beginning. Try this: Answer that you can discuss the business drivers for moving the company to the RUP and the Rational tools (which this book will provide), but for a deeper technical discussion, you would have to get one of the candidate future implementation team mentors to join the discussion. Rest assured, there are going to be the technical types that are going to challenge the idea of the RUP and Rational tools, but I have yet to see them want to continue the debate when you start discussing business drivers and returns on investment. My intention here is not to put off the technical side of the equation, as it is critically important. If you truly feel that you are qualified and will do more good than harm, then by all means press forward. However, if you don't feel that you are qualified, rely on someone who is. To get to the future, you will have to get buy-in, funding, and momentum; often a little damage avoidance goes a long way this early in the process.

Note that it is also important when you are in the initial stages of introducing the idea of bringing in the RUP and the tools to your organization that you don't bore people when trying to get them interested and planting the seeds for making the next steps a reality. Just as with the vision, having a well-prepared elevator speech for when a high-level response is warranted will help you clearly communicate a visual of the future based on why the person you are addressing should strive to be a part of that future you just painted.

Laymen Terms

Let's start with the elevator speech type of guidance you can give when a high-level response is warranted. For the six *key principles*:

Adapt the process, **balance** competing stakeholder priorities, **collaborate** across teams, **demonstrate** value iteratively, **elevate** the level of abstraction, and **focus** continuously on quality are proven to help organizations such as ours make proper decisions for development driven by key principles. By adapting the process, we evolve the required formality over the project's lifecycle, as uncertainties are resolved. We balance competing stakeholder priorities by taking the time to define, understand, and prioritize business and user needs and align our applications to those needs. Through collaboration across teams of business, software, and operations, we will motivate people and increase efficiency. Employing adaptive management using an iterative process, we will be able to demonstrate value iteratively. This will drive early risk reduction, reducing our project costs and increasing trust among our stakeholders. Complexity has become an issue in our software-intensive systems over time. By elevating the level of abstraction, we can reduce complexity and documentation by reusing existing assets and high-level modeling tools. By making the team responsible for the end product that will be delivered, everyone will focus on quality, which will happen continuously from the beginning to the end of our project's lifecycle.

In an interview with *Chips Magazine*,⁵ Grady Booch⁶ (IBM Rational's Chief Scientist) responded to a question on what the six *best practices* were. His response was one of the best I have seen:

Architecture [design] first, develop iteratively, test continuously, model visually, manage requirements, manage change—exist because they are proven to help an organization make the proper engineering and business decisions that balance the forces upon the software development organization. By focusing on architecture first, one intentionally attacks the highest technical risks in the system; by developing iteratively, one has the opportunity to reach closure on a regular rhythm and then make intelligent midcourse corrections relative to the current business and technical risks. Testing can then happen continuously, with each new release representing a baseline against which the emerging product can be measured relative to the current (and more deeply understood) requirements of the system. Modeling permits the team to visualize, specify, construct, and document the artifacts of a software-intensive system so as to control its architecture and reason about elements that cannot be known at the level of pure code. The management of requirements and the management of change refer to the intentional consideration of changing user needs (for the mere presence of a release will tell the user things they could not have known or asked about initially) and of the artifacts that constitute the developing product itself.

Midway Between Laymen and Technical Terms

Now let's get a little deeper, say at the midpoint between laymen and technical. The simplest way to relate either the key principles or the best practices is to know a little about the person you are conversing with and target a key principle or best practice that relates to their role. State that RUP has a key principle that will help them and their team by taking some of the chaos out of their day-to-day work.

For example, the key principle to balance competing stakeholder priorities in RUP means that you are solving the right problem and building the right system. RUP provides discussion on how to understand and prioritize business and stakeholder needs, as well as providing prescriptive guidance on how to elicit, organize, document, and finally manage requirements. It will provide you with workflows and activities that will help you analyze the problem, understand what your users need, and help them distinguish between what is really needed and what they may only feel they need. It will show how to put boundaries around the scope of what the system and/or the specific project is going to include and manage the inevitable change and its impacts on the existing requirements.

The two most significant items that RUP and RequisitePro (the requirements management tool) will provide to you are capturing the functional (behavioral) requirements of the system with the Use Case technique, combined with a tool that facilitates the requirements management by combining both document-centric (through Microsoft Word) and database-centric (Access, SQL, DB2, etc.) methods. You will be able to organize your requirements and provide traceability and change management throughout the entire project lifecycle.

Then ask, so how are you doing it now? With email and spreadsheets? Where are your pain points?

⁵ This quote is from the Fall 2002 issue of *Chips Magazine* and can be found at the following web site: http://www.chips.navy.mil/archives/02_fall/index2_files/interview_with_grady_booch.htm

⁶ <http://www.-306.ibm.com/software/rational/bios/booch.html>

Common Problems RUP and IBM Rational Solutions Solve

There are many problems that this process solution and toolset can solve. I will take you through three of the most common ones that are seen time and time again in the industry. If a company has any process for developing, they usually have many varying processes, have to deal with the complexity of today's software, and never have enough time with their end users. These three examples also represent that what is best for the organization may be slightly less optimal for a given project; however, for the organization as a whole, it is optimized and the project may have to bear some additional overhead.

Multiple Software Development Processes and Development Tools

Companies often have multiple software development processes and a wide range of tools from varying vendors. Processes are rarely followed the same way from department to department, as well as within department's sub-departments (or projects). This causes multiple problems, such as the following:

- Team members are not easily interchangeable when matrixed to another department's project team.
- It is hard for team members to transfer to a new area, as they have to learn the new area's process.
- The interaction with the business users is so varied that it leads to confusion and frustration due to the lack of consistency in the engagement model and differences in process steps and deliverables.

RUP and Rational tools solve these problems by providing an industry accepted and proven process solution that was created integrally with a set of development tools. The strength of this process and toolset is that it provides the following:

- A tailorable process framework for projects of different types
- Promotes proven industry best practices
- Prescriptive guidance on roles, responsibilities, accountabilities, workflow, and activities
- Provides clarity for team members timing of events
- Guidance on inputs to deliverables, as well as how to use the inputs, templates, examples, and guidance on how to create deliverables
- Guidance on the consumers of deliverables
- Ability to capture your own best practices and easily and seamlessly incorporate them into the underlying framework

Working in a symbiotic fashion with the process is a set of development tools that support the best practices that are fully integrated. This is a solid foundation to propose RUP and Rational tools to solve current efficiency problems that affect your company's software development initiatives every single day.

Points to articulate when discussing the benefits of RUP and Rational tools as an Enterprise standard process and set of supporting development tools include the following:

- **Complexity reduction.** Process and tools that promote scope management, higher levels of abstraction through visual modeling, and reduction of human-generated artifacts (code, documents, etc.).
- **Increased efficiency.** Enhancing the project team performance, as well as individual contributor's performance, through guidance on who is responsible for what and when.
- **Automation with tooling.** Tools that improve human productivity through automation of repetitive activities that are time consuming and prone to error.
- **Reduction of expensive scrap and rework.** RUP, combined with utilizing the Rational tools, will attack the architectural risks sooner in the project, pushing rework and scrap to earlier in the project timeline (where it is much less expensive), thus reducing the amount of rework and scrap in later stages of the project (where it is much more expensive).

Software Development Has Never Been So Complex

Take a look at your current software development initiatives. More than likely, they are more robust and feature-rich than ever before, but at what cost? Software has become so complex in terms of getting the scope nailed down and agreed to, along with ensuring that the software has good requirements, solid architecture, and good testing coverage, just to name a few aspects. Looking back at the last 12 to 18 months worth of projects, how many were truly successful in delivering real value to the customer? I am not just referring to giving them what they asked for—many times, project teams can deliver a good portion of what was asked for in an agreed-upon scope statement made 8 to 12 months earlier or, in some cases, 24 to 36 months earlier. But did the newly delivered capabilities actually help the business in some quantifiable way? Did a given project provide increased revenue through new ways to sell a product or accommodate existing customers, open opportunities that were not possible before? Did a project reduce expenses through cost avoidance by increasing efficiency and eliminating redundancy? There are no crystal balls (yet) that can look far into the future and ensure that what is being developed will hit the mark over the course of many, many months of work.

RUP helps to solve this problem by embracing iterative development, which gives the end users the opportunity to see slices of the new capabilities being developed and evaluate them every 4 to 8 weeks, as opposed to a single, massive review at the end of the project timeline, when it is too late to react quickly and within reasonable costs. RUP and the key principle of demonstrating value iteratively (best practice of iterative development) helps project teams and end users determine and understand what needs to be changed much earlier in the project timeline. The earliest iterations address the biggest technical and business risks, looking under the rocks for the really tough things and attacking them instead of putting them off while doing the easy stuff first. Such an approach leads to a false sense of progress. Each iteration produces an executable that is integrated and tested.

Some of the benefits of RUP and iterative-based development that should bring considerable return on investment to your company are the following:

- Risk mitigation guidance. Inclusive of requirements, architecture, testing, management, and technology.
- Assessing status by reviewing working and tested code, as opposed to reviewing specifications.
- Process feedback loop. Learning as the project timeline progresses—each iteration is assessed and captures the lessons learned, allowing midcourse corrections for issues and unexpected opportunities.
- Change management practices. Change will and should happen as more and more is known on a given project, including functional, technical, tactical, and strategic changes.
- Increased precision and predictability in projects. Not only do successful projects come in on time, RUP helps you determine failure earlier, enabling cancellation before all the funding or budget is already spent.

Never Having Enough Time with Your End Users

In most companies, the end users are not available nearly as much as they are needed when it comes to requirements sessions and reviewing functionality. There are many factors that have contributed to this common “arrangement,” but the one that I have seen the most is that end users—the business representatives who are going to have to actually use the software being developed—carry quite a bit of baggage from being misled about what they are going to get and feeling bamboozled by all the “techie” babble they are fed. Over time, this has led to the end users feeling that their time is better spent elsewhere because their input has been rarely taken to heart.

RUP techniques will change the way you interact with your business stakeholders and how they interact with you. They will need to be more involved in Use Case workshops and review sessions, to name just two of the ways things will change. Getting more of their time will be a challenge early on, but once they have gone through an iteration or two, they will begin to see that they are going to be driving the functionality that is actually being delivered in each iteration’s executable and not just being told what they will get.

Early on in the process, where we are from a timeline perspective, you will need to start laying the groundwork with them, in a fashion similar to how you are interacting with your IT leadership members and decision makers. Find a champion, and begin to discuss the benefits of RUP and the Rational tools from a business perspective. Focus in on how they will be able to see results much sooner and have a clear vision of what the ultimate result will be once it goes into production toward the end of the project.

Selling Your Executive Management/Decision Makers

The concept of bringing in RUP and the IBM Rational solutions is going to take some selling. Larger organizations that implement RUP and IBM Rational solutions will spend a significant amount of funding on them. Total implementation costs at these larger organizations are typically millions of dollars over the course of two to three years. So what does that mean to you? Well, you

are going to need to seek out an executive champion and win them over with the business drivers of such an initiative. You will need to find and create supporters, basing your proposal on both emotional and financial factors that will motivate your executive leadership and decision makers to provide the funding for the next step, building the business case for change (see Chapter 3, “Assessing Your Organization and Building Your Business Case for Organizational Change”).

As you build the business case for change, among other activities, you will assess your organization, analyze where RUP and Rational tools can add value that is specific to your company’s current state, and then perform financial calculations and write an ROI assessment. Some of the key elements⁷ in your selling should be the following:

- **Simplicity.** All jargon and technobabble must be eliminated.
- **Metaphor, analogy, and example.** A verbal picture is worth a thousand words.
- **Multiple communication forms.** Elevator speeches, hallway conversations, lunch discussions, short emails, any way you can effectively spread the word.
- **Repetition.** Ideas sink in deeply only after they have been heard many times.
- **Explanation of seeming inconsistencies.** Unaddressed inconsistencies undermine the credibility of all your selling.
- **Give-and-take.** Two-way communication while selling your ideas will always be more powerful than one-way communication.

Techniques to Create Awareness and Excitement

While you are selling your idea to the executives, you will need to be creating awareness and excitement. There are many techniques to do this; however, some lessons learned are that you should start gradually. Having formal presentations that are an hour or two long is a bit much early on. You can end up with departments of people who think you are pushing a gigantic process that will add work to everyone’s day and alienate them from supporting you. I have also found that “lunch and learn” or “brown bag” sessions add value, but typically later in the implementation process when awareness and excitement already exist. Having a group come to long lunchtime presentations, where their normal eating schedule is affected, has produced sub-optimal results. At this point, you should be focused on creating buy-in, not thoroughly educating the masses. Even with magic tricks and incredible presentation presence, it will be very difficult to keep your audience’s attention when essentially you are just trying to float the concept.

There are some techniques that have worked very well. One is that you ask to come to departmental meetings and give a five-minute overview, which should be your vision statement. Leave on a high note and keep the first contact short. Let them know that you would be happy to return and go over the foundation of RUP—the key principles—if they would kindly give you 15 minutes in their next meeting. This will plant the seed for future, more detailed follow-up and not encroach too much on their valuable time.

⁷ Adapted from the key elements in the effective communication of vision from John Kotter, *Leading Change*. Boston, MA: Harvard Business School Press, 1996.

Another technique that has been effective is what I call the “Nick Wave.” I was at a company where one of the junior executives dedicated 10% of his time each and every week to walk the halls and meet with everyone he could. He had a funny little wave that he did to everyone he saw, whether he knew them or not. He would talk to anyone and everyone he came across. The duration would range from literally seconds to an hour; it would all depend on how long they would give him. He used this time to create awareness on a topic he was trying to drive forward, float new ideas he wanted to test, or find out what issues people were having. He did just as much listening as he did talking. This was a very effective tool for him to disseminate information as well as collect information, and everyone knew him. It became known as the “Nick Wave,” and I still practice it today, especially when I come to a new company or get involved with a new area that I have not had much, if any, contact with. This is a great technique to get the word out, begin to raise awareness, and generate interest in the RUP and Rational tools. Before you know it, others will be asking about it, trying to find out if anyone has worked with it in their past or knows someone who does. It will amaze you how much of a “buzz” you can create with something as simple as a silly little wave.

Summary

In this chapter, I have assumed that you reached the point where you have realized that you want to explore an improved process solution and have determined that RUP and the IBM Rational solutions were the ones you were going to help champion in your company. Your next step is to create interest and excitement, as well as raise awareness of this improved process and the supporting set of development tools.

First, you will need to develop a vision on why the RUP and Rational tools are the right solution for your organization and practice delivering it in varying time lengths, from a simple 30-second elevator ride to a 5-minute hallway conversation. Next, you will need to start looking under the covers of RUP at the key principles/best practices on which it is based. You should be able to explain them in both laymen terms and in a midpoint fashion between laymen and technical language. Once you have that down, begin to understand the common problems that RUP and the tools solve and determine how you can relate it to your company’s environment. Finally, you will need to begin selling your idea to executives and decision makers while simultaneously creating awareness and excitement. Congratulations—you are on your way!

