Rational® software

Deloitte Consulting Builds High-Quality e-business Applications Faster with the Rational Unified Process

Bringing California's Medi-Cal and Healthy Families Enrollment On-line

During a period of unprecedented economic growth and with a new national health insurance program aimed at uninsured children, more Californians are without health insurance than ever before. To enroll their children in the new health insurance program, parents were asked to fill out a complex 28-page booklet of forms and worksheets. For some, completing the application alone was a barrier to coverage. There had to be a better solution to public health insurance enrollment for these families.

The California HealthCare Foundation (www.chcf.org) is a three year old philanthropic organization based in Oakland, CA. It's mission is to improve the health and well being of Californians, with a special emphasis on low-income Californians. In an effort to bring streamlined business practices to the Medi-Cal and Healthy Families Programs, CHCF and its Medi-Cal Policy Institute (www.medical.org) recently decided to develop an e-business solution to improve the enroll-ment process. What soon became apparent in the early project planning stages was that on-line enrollment would involve far more than simply creating Web-enabled versions of the existing paper forms. A brand new e-business solution that offered an interactive, interview style application, and that was both highly accurate and easy to use would have to be developed, tested, and quickly brought on-line. The cost of system malfunctions, both in human and economic terms, could be high. For CHCF, which had limited prior experience hosting business applications, the venture, while necessary, was also a potentially risky investment.

CHCF deploys the nation's first e-business application to enroll low income residents in public health insurance programs.

Reducing Risk with the Rational Unified Process

"We needed an experienced e-business solu-tions partner," said Sam Karp, CHCF's Chief Information Officer. Through a competitive bid process, CHCF selected Deloitte Consulting and it's Western Region Solution Center in San Francisco for help. The Deloitte Solution Center is part of a business unit within the Deloitte organization focused on providing clients with e-business solutions.

To develop better e-business solutions faster and with reduced risk, the Deloitte Solution Center has standardized on the Rational Unified Process™ (RUP), the industry-leading software development process from Rational® Software.

Guided by the RUP, Deloitte could confidently offer the CHCF a software development approach that minimized risks, increased quality through proven best practices, and provided enhanced time-to-market through the RUP's iterative approach, standard templates, and rapid development methodology. Reduced risk, proven process and quick delivery: pre-cisely what the CHCF was looking for in this project and precisely what Deloitte could deliver through its talented team empowered by the RUP.

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An Unusual Set of Challenges

The CHCF project presented the Deloitte Solution Center team with some interesting challenges. The first had to do with the enrollment forms themselves. The existing paper forms were complex and difficult to use. Moreover, they did not accurately capture some key information.
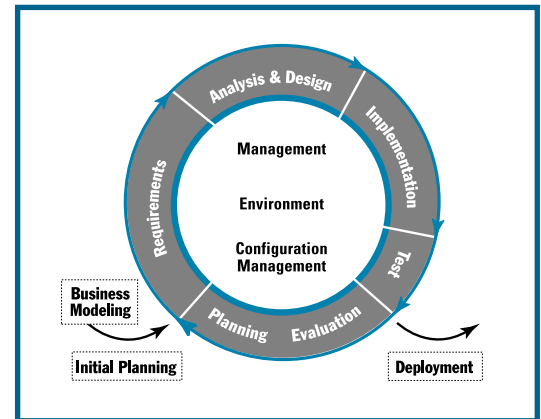
This necessitated redesigning the application to create an on-line version that would be highly user-friendly, while capturing a wide spectrum of complex data. The application would need to contain error checking processes to increase the quality and validity of the data. And it would need to ensure the security and confidentiality of the data that is collected, stored and transmitted.

The second challenge related to the users themselves. Essentially they would comprise two groups: "institutional users" or professionals who assist and enroll people on a regular basis; and "beneficiary users," or those seeking to self-enroll directly on the Web from home or their local libraries. Whatever forms and procedures were developed would have to address the needs of and work effectively for both groups. Usability was determined early on to be one of the key factors in the success of the enrollment Web site. A third challenge pertained to the State of California's legacy mainframe system. Any new e-business application would have to seamlessly integrate with this existing system.

"We looked carefully at all these challenges when we took on the project," said Michael DeBellis, Director of Deloitte Consulting's Western Region Solution Center. "We had to take the complex information that was needed and design something that would be usable for the different levels of stakeholders. It had to work with an existing mainframe system and we had to design, implement, and test very quickly. While speed to market was a critical factor for our client, we could not compromise on quality."

Overriding all requirements was the need for end-to-end accuracy. Submitting incorrect or incomplete data could delay eligible applicants from receiving access to needed health benefits and require costly manual intervention on the part of the state or county health departments.

Each project iteration cycle begins with a plan for what will be accomplished and concludes with an evaluation of whether objectives have been met.

Conquering Deadlines with the Rational Unified Process's Iterative Approach

The Deloitte team found the RUP's iterative approach essential to meeting these challenges within the three to four month development window. "To develop e-business applications in these short time frames, you need to use an iterative approach," DeBellis commented. "The RUP gave all our team members the guidelines they needed to effectively plan and execute iterative development. Through the RUP, we could better understand how to structure and organize the project. The RUP was also most helpful in giving us a process and proven best practices for working with the expert user panel for doing the usability design and testing."

Use Case Modeling: Developing from the User's Point of View

The software development cycle for the CHCF project began with strategic planning sessions that defined the project goals and what the system had to do. Use case modeling, an approach specific to the Rational Unified Process, was important to DeBellis's team throughout development. "Use cases are essentially ways of describing a system from the user's standpoint," DeBellis said. "It's a very intuitive approach that can be depicted in workflow diagrams or in text. The RUP ensured that we asked such key questions as: 'What are the services the users need from the system? What are the steps in developing a robust architecture that can support all identified

use cases? How do we transition requirements-definition use cases to development and testing?' The RUP made sure that all team members were working towards a common goal: to develop the system the users needed."

Reducing Risk for New e-business Ventures

The expense of developing and hosting an e-business application can create an understandable level of client concern and anxiety, especially for businesses developing their first large scale e-business application. Such was the case for the CHCF. "This was the first time we developed an e-business application for such broad use or that was component-based," Karp said. "So it was tremendously useful for us to have a proven process like the Rational Unified Process guide us through the deliverables that needed to be constructed, implemented, and tested."

DeBellis noted that the RUP provided check-points for all activities, asking the development team: "Have you thought through these aspects of the system to make sure that you haven't missed anything?" He added, "The RUP allowed us to overcome the risk and concern factor the client had about going to the Internet and using new technologies. It helped us control and manage risk and move this project towards completion, on time and on budget."

Reaping the Benefits of Expert Knowledge

One of the Rational Unified Process' greatest benefits is the wealth of expert knowledge and proven experience that it brings to a developer's desktop. "It's great to work under a methodology that's based on the knowledge of Grady Booch, Ivar Jacobson, and James Rumbaugh," DeBellis said. (Booch, Jacobson, and Rumbaugh, along with Philippe Kruchten, are among a group of Rational Software scientists who are internationally recognized experts in the Unified Modeling Language, use case modeling, software architecture, and iterative development.) "With other methodologies we'd be developing without the benefit of the great knowledge and experience base about component-based analysis and design that Rational brings together in the

RUP," DeBellis observed. "This is another added plus of the RUP which makes it our preferred methodology for e-business software development."

Solving the e-software Paradox

Until recently, a software development company could focus on creating a high-quality product with a slow time-to-mar-ket, or it could focus on speed-to-market with the expectation of bugs to be fixed in subsequent releases. But now with the Internet's dependency on high-quality software and emphasis on fast business, these options have vanished. It's been replaced by the "e-software paradox" which states that for a company to compete it must not only develop very high quality software but deploy that software at "Internet speed."

Like many software companies, Deloitte is confronting this e-software paradox and using the Rational Unified Process to overcome it. "We came up against it with the CHCF project," said DeBellis. "We had to do it fast, but we also had to have high quality. If it was bug-ridden or hard to use, it would have been a failure. At the same time, if it wasn't tested and delivered within the short development window, it would also have been considered a failure. Because we're using the RUP, we can offer our client both high quality and fast development. No more paradox."

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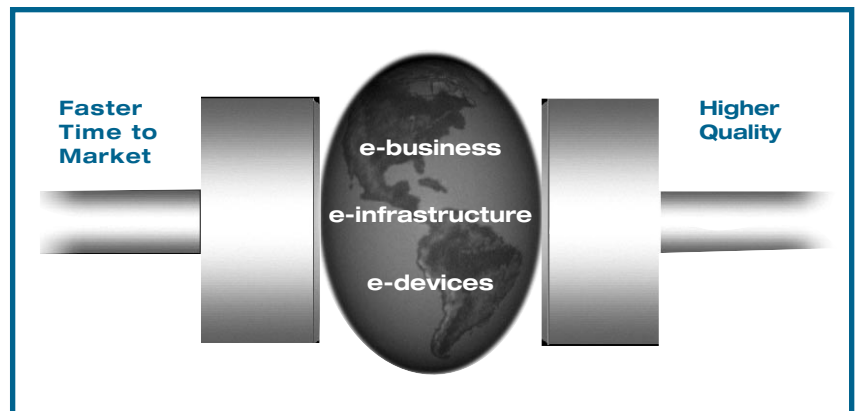
Today, software development organizations face shorter development cycles, yet must produce higher quality in Internet time. This is what is often referred to as an e-software paradox.

The Rational Unified Process: Deloitte's Choice for Better e-business Applications

Competing successfully in the e-business and e-commerce arena is crucial to many software companies as they em-brace the business environment of the 21st Century. Deloitte is one of these firms that is rapidly retooling to lead and succeed in this exploding market. "Our whole firm is now focused on e-business," said DeBellis. "Our particular business unit is the engine that's going to help Deloitte reposition itself as an e-business company. Solving this e-software paradox is vital to our success and the Rational Unified Process is already playing a crucial role in this process. It's our standard process for building e-business systems."

About Rational

Rational provides a software development platform that improves the speed, quality, and predictability of software projects. This integrated, full life-cycle solution combines software engineering best practices, market-leading tools, and pro-fessional services. Ninety-six of the Fortune 100 rely on Rational tools and services to build better software, faster. This open plat-form is extended by partners who provide more than 500 comple-mentary products and services.

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Dual Headquarters

18880 Homestead Road
Cupertino, CA 95014

20 Maguire Road
Lexington, MA 02421

Toll-free: (800) 728-1212
Web: www.ibm.com/rational