

VIVEO ToolObject Establishes Unique Market Position with UML, IBM Rational Tools for Model-Driven Development, and RUP

Overview

■ **The Challenge**

VIVEO ToolObject wanted to capitalize on its expertise in banking and information technology, and needed effective tools and a widely accepted modeling language to create an Enterprise Component Model (ECM) for the banking market that provides full traceability from business needs to implementation.

■ **The Solution**

The company adopted IBM® Rational® tools for model-driven development, the Unified Modeling Language, IBM Rational Unified Process® and a Model Driven Architecture (MDA) approach to develop a business-focused, technology-independent ECM for the banking industry.

■ **The Benefit**

VIVEO ToolObject's flagship product, ECM finance, has been proven stable, flexible, and highly effective by several leading financial institutions in France, resulting in strong client references, increased interest from prospective customers, and continued revenue growth for the company.

As a subsidiary of the VIVEO Group, VIVEO ToolObject has developed a reputation for delivering strategic information technology solutions for the banking and finance industry. In 1997, the VIVEO ToolObject team recognized that too many IT projects in the banking domain were being built by defining the technical architecture before even thinking about the business architecture. This resulted in systems that were fragile and prone to becoming obsolete in the face of rapidly changing market demands and technology advances.

Seizing the opportunity to combine its banking know-how with information technology expertise, the VIVEO ToolObject group developed a solution based on the customization of a modular banking business model using an iterative approach to meet client needs. By uncoupling business strategies from underlying technology implementations, VIVEO ToolObject has packaged its business model of banking and finance along with its methodology in ECM finance, a customizable business framework for financial institutions.

Proven, Industry-Standard Solutions a Must

Based on Model-Driven Architecture, ECM finance is an Enterprise Component Model (ECM) for the

banking that incorporates years of banking business know-how in a technology independent framework. From the start, ECM Finance was designed to be customized by the customer working alongside VIVEO ToolObject's high-level business experts. For this reason, the company needed to use modeling tools, a modeling language, and a methodology with wide industry acceptance that would enable its developers to first develop the ECM, and then allow its customers to easily customize the solution to their specific needs and technology platform. With these requirements in mind, the company selected the Unified Modeling Language (UML) and modeling tools from IBM Rational that support it, including IBM Rational Rose® and IBM Rational XDE™, which are both included in IBM Rational Rose XDE Developer. VIVEO ToolObject also adopted IBM Rational Unified Process, or RUP®, a configurable software development process platform that delivers proven best practices and a configurable architecture of its own.

Florence Bascans, CEO of VIVEO ToolObject, explains, "In order to pursue our main business goal—providing our clients with valuable business content in the banking and financial domain—we had to use

a modeling tool that was a market leader with a robust methodology. This is why we chose Rational Rose at the start, and more recently the RUP methodology. The Rational tools have helped us gain significant market share, particularly because many of our prospective customers are moving towards new technologies such as object-oriented methodologies and often choose IBM Rational for their modeling tools.”

Establishing Common Ground

Employing leading tools and an industry standard modeling language such as UML was an important part of VIVEO ToolObject’s business strategy, because the company wanted a solution that would be easily adopted by its target customers.

Martial Chrisment, Architecture Manager for VIVEO ToolObject, explains, “We place the business at the center of the solution that is developed. We start from all the business needs, and we model all that business knowledge into our ECM using Rational tools and UML. Then together with our clients, we develop applications from those models, and derive implementation solutions that are maintained by our clients.”

Use cases provide a starting point for ensuring the business users will be able to understand and contribute to the process of developing an effective solution. Chrisment adds, “It is easy for our business clients to understand use case specifications, as these specifications are written in the user’s language. The use of UML models

makes the navigation through these specifications easier. When we get to more detailed analysis and design models, these are intended for use by the software designer. And he can understand them easily as well because they include elements he is familiar with such as class diagrams. With UML, ECM Finance becomes the common ground for both groups. By facilitating communication between users and software designers, the solution better corresponds with actual needs.”

The widespread use of Rational modeling tools among the company’s prospective customer base was another key advantage of using the tools for ECM Finance. “We find many of our clients also use Rational tools. And, if they instead use older tools, there is usually an import/export capability that will enable the client to work effectively with our UML based models and Rational modeling tools. That is very important because it makes our solution easy to adopt and portable,” notes Chrisment.

Traceability from Business Needs to Solution

One of the most important goals of VIVEO ToolObject’s approach is to ensure that the team’s considerable experience in the banking domain is effectively applied in helping customers build systems that provide real business value. Chrisment reports, “Many of our team worked in the IT departments for French banks, and they frequently saw that the solutions were driven by the technology and not by the business.

There was often misunderstanding between the business people, the users, and the developers. Our goal was to create a solution that was business-oriented. The idea is to start from the business and have full traceability to the solution.”

This traceability ensures customer satisfaction with the delivered system. “Starting from the user specification, we model the solution using the RUP disciplines, including business modeling, requirements, analysis and design. And using a Model Driven Architecture (MDA) approach we ultimately develop an implementation model that we use to generate code and then develop the final applications. It is that full traceability — and following the RUP approach in which we refine the user requirements down to the code — that ensures the user needs and specifications are fully reflected in the solution that is ultimately delivered. That is what our customers want, and that is what we want,” says Chrisment.

“Urbanization” Adapted to UML

In France, many financial institutions use the concept of city planning as an analogy for information technology systems. Translated as urbanization, this approach modularizes related information and processes into city blocks, with roads between them representing channels for communication.

The VIVEO ToolObject team leveraged this framework and incorporated it into ECM finance using the Unified Modeling Language. “For the banking

domain, the urbanization of the business architecture was a de-facto standard that VIVEO ToolObject adapted to UML. This methodology defines a business map which organizes the business knowledge into systems, quarters and blocks, thus allowing the parallelization of business tasks,” says Bascans.

The target enterprise IT model must describe precisely the various business processes so that they can be used efficiently in the MDA approach when building the user applications. This cannot be done without a strong vision of the business itself. ECM Finance contains fully detailed business processes which define services and interfaces for building user applications. As a result, these processes can be integrated in many implementation architectures including the Services-Oriented Architecture (SOA).

Analysis Phase 60 Percent Faster

ECM Finance and VIVEO ToolObject’s approach offers customers an opportunity to significantly reduce the amount of time spent in the analysis phase of software development. “Our customers are not starting from scratch; they are starting from an existing model. It is much faster for them to start their projects and add new features. We have found significant gains in the modeling and analysis phases, which include business modeling using IBM Rational tools. Our solution is more than 60 percent faster.”

Code Generation Streamlines Development

In a typical client engagement, ECM finance is applied in a multiple step process. First, the ECM’s Platform Independent Model (PIM) is adapted and personalized to the client’s specific business requirements. The PIM is then mapped to the technology-specific aspects of the client’s platform, and Platform Specific Model (PSM) is created using Rose Scripts or technical patterns to perform the PIM-to-PSM transformations. In the last step, Rational Rose is used to generate Java™ or C++ code from the PSM.

“From our design model, we define automation rules to create that platform specific model, which will be dependent on technical platform, for example J2EE or .NET. Once the automation rules have been defined, we set up the scripts to generate the implementation model and then from the implementation model, we generate the code. Through the use of MDA transformations, the ECM serves as the single source from which all new models — including PIM and PSM — are derived according to the business requirements and technical constraints of the client,” explains Chrisment.

RUP Improves Responsiveness and Efficiency

Bascans notes that in addition to IBM Rational modeling tools, IBM Rational Unified Process methodology has been contributed to the success of ECM Finance by accelerating the development process and increasing

responsiveness. She explains. “VIVEO ToolObject chose RUP as the basis of its methodology to better manage the development process and reinforce the efficiency of the business modeling. This approach links guidelines, recommendations and technologies. Using short iterations in an iterative development approach has resulted in time-savings, instant feedback at the end of each iteration, and better responsiveness.”

Sébastien Acquier, team leader at VIVEO ToolObject, adds that RUP has provided advantages in the development of ECM Finance and in the customization work they perform with their clients. “We work with RUP at two levels. First we use it to organize all the business components and business processes in our product. The models are all artifacts produced by the different disciplines of RUP. Secondly, when we work with our customers, we help them learn how to apply the support disciplines — change management, project management and environment — to provide guidelines for customizing ECM finance content. Our clients are domain experts in banking and they are very comfortable with RUP concepts like use cases, because use case specifications are written in a language they easily understand, the user’s language,” Acquier says.

Rational XDE and Support for MDA

The Model Driven Architecture toolkit for IBM Rational XDE is a set of tools and documentation that provides

VIVEO ToolObject with enhanced support for the task of applying MDA to application development using IBM Rational XDE and UML models. This kit is founded on two existing and very powerful automation mechanisms: patterns and code templates, to make it easier to create and deploy MDA style automation.

According to Bascans, Rational XDE and support for MDA have provided additional value to VIVEO ToolObject as well as its clients. She explains, "IBM Rational XDE has added a new dimension to our offering by providing our clients an integrated solution where one can define and analyze specifications right down to the code of the application using IBM Rational Application Developer for WebSphere® Software and the Eclipse platform. By opening our solution to existing technical frameworks implemented within Rational XDE, we have given an incentive to new clients to acquire our solution in order to have a complete and robust development cycle fully driven by the business side."

"In addition, full support for MDA in the Rational XDE is a key benefit as it provides new facilities to separate the business side from the technical side and validates our approach to our clients — who now gain a better understanding of our solution. The selection of Rational Rose and Rational XDE has proven to be the right one as they integrate MDA

capabilities and follow closely all the latest development in that area," she adds.

Flexibility, Stability, Reusability

Already in use by several leading financial institutions, ECM Finance has proven its stability, flexibility, as well as its ability to address common problems encountered when extending existing information systems through legacy integration and business process reuse. The success of the product has contributed to continued revenue growth for the company and strong customer references from France's leading retail and consumer credit banks.

Josiane Colire, R&D Director at VIVEO ToolObject, reports, "One of the main benefits for our customers is that they really get a running start. We have been able to model our business knowledge and experience with the IBM Rational tools, so the client can capitalize on that. Also, our product is designed to integrate with legacy applications and existing tools. IBM also offers other connectors and technology for integrating with legacy systems. This helps us ensure that we can keep our client's legacy systems intact, and communicate with them using IBM and IBM Rational tools."

She adds, "With the experience that we have, we are to provide a very stable, technology-independent solution. It facilitates maintainability and reusability of both new and legacy

components, and it enhances the flexibility of the overall system. With Rational tools, UML and RUP, we have provided our customers with the missing layer between their existing systems and new technology — so now they are able to open their legacy systems to new opportunities."

Bascans concludes, "IBM Rational provides us with the tools and language to model business knowledge, a process — RUP — to create and modify a business model, and a way to facilitate teamwork and the sharing of business expertise. And, with its support for MDA architecture, implementation architectures such as J2EE and .Net and languages such as Java and C++, Rational provides a wide range of solutions for our clients when they implement their business model into business solutions."



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01-05
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