



Credit Decisions

Credit Decisions in the Subprime Market

In the Pole Position for Growth

Bosch Software Innovations



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Success Story

Project Goals:

- ▶ Automating the credit decisioning process
- ▶ Credit rating models across all sales channels
- ▶ SOA for highest degree of flexibility

The Target

In September 2008, a retail bank in the subprime market embarked on a project to make its IT infrastructure capable of accommodating its ambitious growth plans. One key objective of the project was to consolidate and automate the credit decisioning process, while keeping the credit decision system flexible and expandable.

The Catalyst and the Challenges

Automation of credit decisioning in the subprime market presents its own conceptual challenges for systems. This has led many financial institutions to continue making this type of credit decisioning without any system support. Previously, several systems were involved before the bank reached a decision on whether to extend a loan, and on what terms. Given the bank's planned expansion, however,

the existing credit decisioning process was in several respects no longer suitable:

- ▶ Agency brokers had to fill out paper loan applications and send them to the bank's risk analysis department. There was no immediate feedback for the credit applicant about the prospects for or conditions of a loan. For the brokers, it is of key importance to be able to give the client a prompt response, with an explanation for the decision.
- ▶ The drain on resources for processing applications was immense, both for the agents and the bank's loan underwriters. Given the thin profit margins in the small retail loan market, this made it almost impossible to turn a profit.
- ▶ The small retail loan business is dynamic, and both customers and brokers depend on special offers and promotions. Such marketing promotions were tied up with significant effort and expense, and were only possible on a long-term basis. The sales department urgently wanted flexible commission and pricing models to quickly introduce new promotions.

A Service-Oriented Credit Decision System

An analysis of these requirements determined that a service-oriented architecture was best suited to meeting these forward-looking challenges. The Visual Rules Business

Rules Management System was defined as a core component, though it is used for far more than only business rules:

Application Areas of Visual Rules

Decision Logic

- Approximately 1,000 rules in several business areas:
- ▶ Credit decisioning logic
 - ▶ Rules for calculating commissions and pricing
 - ▶ Rules for sales-oriented prioritization of credit options
 - ▶ Potential residual debt insurance options

Workflow Logic

Rules for process control, depending on the sales channels broker portal and internet

Integration Logic

- Integration and orchestration rules:
- ▶ Orchestrate all decision services, including the encapsulation and integration of external services
 - ▶ Integrate data from different sources, consolidating the results in the core bank system

One example of dynamic rules is the logic used to calculate commissions. This dynamism makes it possible to offer successful brokers attractive conditions and commissions in real time – a crucial factor for the success of the business model in the subprime market.

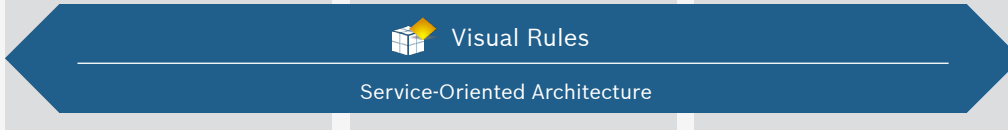


Figure 1

With a service-oriented, rules-based architecture, two decisive goals are achieved: One, all dynamic logic components remain flexible and expandable and two, business units can

maintain and update rules without having to call on their IT department, thus becoming independent on change requests and release cycles.

Credit Decisioning Rules in the Rules Management System

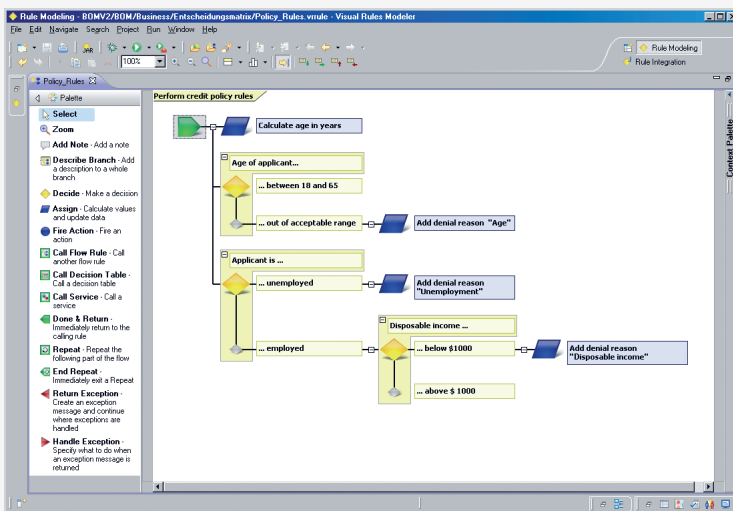


Figure 2

The Rule-Based Credit Decisioning Process

Visual Rules is the central component for implementing and controlling the credit decisioning process. All business and technical services are offered or encapsulated as a Web Service with Visual Rules and thus integrated into the decisioning process:

Quick Check

1. The broker uses a so-called quick check functionality which applies the general credit policy rules of the bank. As a direct output of the credit policy rules, the broker knows whether the loan can be approved, and on what terms.
2. In the next step, the applicant's financial information (income, etc.) is fed into the budget calculation. The extensive calculation logic is depicted in a transparent rule model.
3. Along with the applicant's desired loan conditions (loan amount, repayment period, payment amounts, etc.), the pricing engine calculates possible options. This pricing engine is accessed through Visual Rules. The results are presented in the broker's portal, prioritized according to sales considerations.

Loan Application

4. In the next step, master data from the core bank system flows into the loan application; results of credit bureaus are also added. Both data sources are accessed as services through Visual Rules.
5. Visual Rules transfers the input data to the credit pricing engine. In addition, rules are employed to determine residual debt insurance options and prioritize them for sales purposes.
6. After the credit pricing, the final rule-based scoring is performed with Visual Rules. The result of the loan request is a score value.

Credit Decisioning

7. Based on the score and additional rules for compliance with legal and regulatory requirements, Visual Rules provides a red, yellow, or green light for each credit decision, including explanations, on the broker portal: a red light means automatic rejection, a green light automatic approval, and a yellow light results in manual processing of a loan application. The goal is to automate 80% of all credit decisions.

Decisive Advantages

This new, rule-based system automates the decision logic in the small retail loan business; the bank succeeded in implementing selective decisioning models consistently across all sales channels. Now, brokers can respond quickly to loan requests and provide optimal service to clients.

In terms of transparency, traceability, and auditability, the rule-based credit decision system is a complete success. Each application of a rule is documented in detail. With the documentation generated by Visual Rules for the decision logic, every department of the bank has access to a complete credit manual that serves as a credit policy for the entire company.

The service-oriented system architecture provides optimal support for the bank's growth targets. Decisioning components can be flexibly modified and expanded. Responsibility for maintaining the credit scorecards and workflows is assumed by the risk department.

The modular architecture permits flexible adaptation of all business related rules in the risk and management departments. It also makes it possible to restructure the underlying decisioning process as needed and flexibly orchestrate those services involved. Changes to individual rule models or services can be executed independently of one another, and carried out exclusively by those employees authorized to do so.

Initially, the primary challenge was to optimally implement decisioning models on the basis of the long-term outcome history and to determine through analysis and simulation that only correct rules enter production. An important aspect of this was that the rule-based approach encourages clear definition of business requirements. Over time, the risk managers have succeeded in automating the majority of credit applications using Visual Rules. Champion-challenger tests enable to continuously align the decisioning logic more and more closely matched to the bank's risk appetite.

Project Achievements

- ▶ Companywide consistent credit rating models implemented
- ▶ Service-oriented architecture supports flexibility of decision, process and integration logic
- ▶ Transparency, traceability, and documentation of rules serve as the credit manual for the entire company
- ▶ Iterative optimization of credit decisioning rules

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