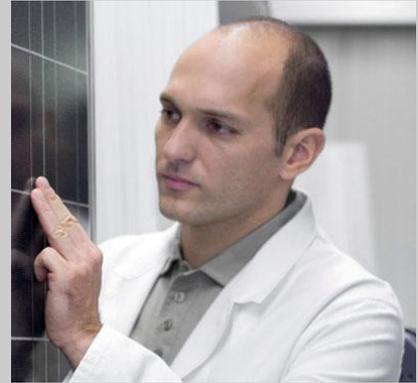


**REAL WORLD RETURN OF INVESTMENT
SCENARIOS WITH BUSINESS RULES
MANAGEMENT**

Enterprise SOA with SAP NetWeaver



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**SAP NetWeaver Product Management SOA
Business Rules Management**

THE BEST-RUN BUSINESSES RUN SAP™



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This document represents several real world customer scenarios.

Each scenario demonstrates a breakdown of the challenges in each organization before business rules management implementations and the real benefits realized after implementations have been completed.

Disclaimer:

These are all customer use cases based on implementations of the business rules management product 'QuickRules' of YASU Technologies, acquired by SAP AG in October 2007.

Business rules management functionality will be embedded and delivered by SAP with SAP NetWeaver Composition Environment as of 2008.

Introduction to SAP NetWeaver Business Rules Management



SAP NetWeaver enables organizations to manage business rules for decision automation. Business users and IT professionals participate in and control rule definition and change, while business process experts model, validate, deploy, update, and archive business rules through their life cycle. As such, IT organizations can work with business users to manage business rules that drive process flow and execution. The benefit is improved decision-making transparency and efficiency, as well as error reduction.

SAP NetWeaver Business Rules Management sub-capabilities are as follows:

- Modeling and Implementation
- Informed Decision Automation
- End to End Rule Management

For complete information please access [SAP NetWeaver Business Rules Management home page on SDN](#).

Manufacturing: Leading Truck Manufacturer



The Company

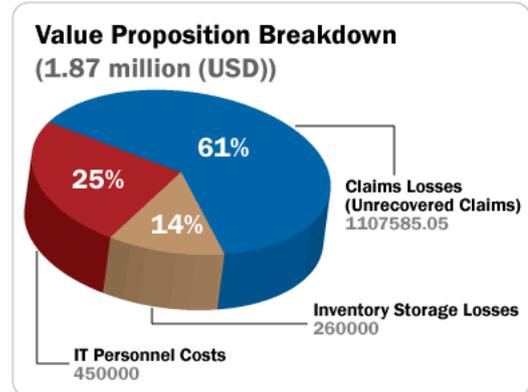
- Fortune 500 company
- Leading truck engine manufacturer

The Challenges

- Warranty claims processing – each warranty took 1 week to process
- Several parts were not even sent to suppliers
- Complex warranty arrangements with suppliers

The Results

- Warranty claims processing reduced to 6 hours instead of 1 week
- Costs reduction of up to 1.87 million US\$
- IT personnel costs reduction
- Inventory storage losses reduction
- Reduction in losses arising out of un-recovered claims



Company Background

A Leading Truck Manufacturer has been looking for a consolidated system to automate the supplier responsibility and financial responsibility for warranty claims made on products and parts supplied by the company. The objective was to move business logic out of IT arena.

A business rules engine was found necessary for an integrated automation of the company's various business processes:

- Suppliers Contracts Management

The company needs to source some parts from other suppliers. Contracts with these suppliers are based on negotiated shares of responsibility in case of warranty claims.

- Claims Processing

Each received claim needs to be validated along with the calculation of supplier's financial responsibility based on contract terms and conditions. Afterwards invoices are generated and dispatched out to individual suppliers.

❑ Product Returns

Inspection of the returned products/ parts - includes some analytic rules for random sampling. Based on the contracts signed, the returned products/parts are sent back to their respective suppliers.

❑ Reports Generation

Generation of reports to detail the trends in warranty claims, the company's portion of payments, and the different areas in which claims are being made.

Company Challenges

❑ Low Visibility of Business Rules

Hard-coded business rules in systems across different locations lacked consolidated documentation for the business users. The low understanding of the rules implemented resulted in an additional burden on the IT team to keep the business user informed.

❑ Loss of Domain Knowledge

Typically, business rules references resided in different business users' minds. Changes in the rules meant a long learning curve for new business users which included training process with its own cost implications. The IT team also had to train business users to use the system, and in turn the IT team also had to provide knowledge transfer on the business logic involved.

❑ Loss of Application Knowledge

The hard-coded business rules offered no institutionalized knowledge for the IT team. Any changes in the IT team resulted in training new resources, meaning longer response-to-request turnaround times.

❑ Low Turnaround Times

As all requests for even a small change had to be routed to the IT team, the response times were long. This led to slowing down claims processing and longer time frames for collecting payments from suppliers.

❑ Slow Process Times

The claims were processed once a week as it took that long to make changes to the rules related to supplier responsibilities. The business users had to wait to kick off the invoicing process further slowing down the payments from the suppliers.

❑ Manual Intervention

Most of the processes like calculating supplier responsibility, generating invoices, and scheduling inspections had to be done manually. This required larger teams to handle workloads.

The Company

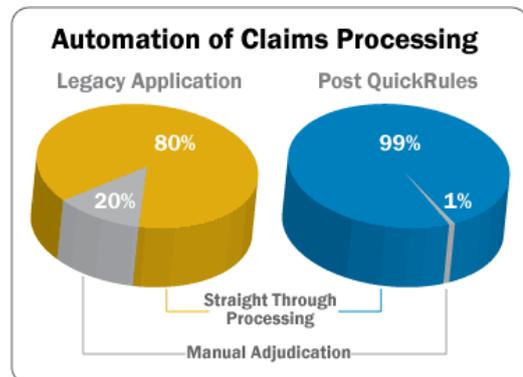
- Leading insurance company

The Challenges

- Claims decision making was a H2H (Human to Human) process
- Cross selling - same
- Legacy system with inflexible rules component

The Results

- Claims adjudication process automation improved from 20% to 99%
- Better up-selling and cross-selling capabilities of the call center after recommendation decision-making was introduced
- Streamlined field force incentive system



Company Background

Claims processing solution employed at a leading insurance provider was, at best, a semi-automated processing application with the business policies scattered in data dictionaries, application code and in a database as stored procedures.

Company Challenges

An increasing demand for more flexibility and agility in the industry processes was evident based on key factors like convergence of financial services, new insurance regulations, changing customer preferences, ever-increasing claims amount paid, and the competition itself. Observations showed that most of the challenges come from required rapid changes to the major insurance functions – Call Centre Management, Claims Processing, and the Policy Formulation process itself.

□ Call Center Management Inefficiencies

The initial claims registrations are performed by the call centre operators, hence it is an important unit in the claims management process. Customer Support Executives required real-time information data to help prospects, customers and claimants with new policy registrations, renewals, claims applications and even for coordinating outbound campaigns. All data captured at this state required strict correctness and completeness validation. The difficulties with existing architectures were:

1. Delayed Information on Desktop

The Customer Support Executives use an application that supplies a series of screens for data input as well as for seeking policy information. The lack of synchronization between data input and real-time policy information displayed on the screens led to overall delay in claims processing, sometimes even causing customer dissatisfaction. In such a scenario, it was also difficult for the call center executives to co-ordinate outbound campaigns.

2. Outdated Data Validation

Inefficient syntactic and semantic validation at the data entry stage leads to insufficient and/or inaccurate data for claims processing. This often caused wrong appraisals, incorrect payments, and longer turnaround times.

□ **Claims Processing**

The core claims process is where the claims received are verified, adjusted and settled. When the claim is legitimate, the claims adjuster negotiates with the claimant to settle the claim. An outcome of inefficient call center management, one of the challenges faced by Combined Insurance in this phase is that 75% of the claims received have to be processed manually. This lead to:

1. Increased Manual Intervention

The errors in the data entry stage lead to increasingly long claims processing time cycles. This was a bottleneck since the longer the processing cycle, the less likely a claimant will stay a customer or refer another.

2. Requirement of Experienced Manpower

Manual reprocessing required the Claims Adjusters to manually look up the claims for discrepancies implied that these resources needed to be well-versed with the company's insurance products. Manual processing was a big challenge as it not only increases the potential for human error, but also requires experienced manpower that is often difficult to recruit and retain.

□ **Policy Administration**

Policy administration is the enveloping phase where the actual policy takes shape, and is centrally managed. Claims Processing is directly influenced by all the changes that are brought in at this strategy center. At the Policy administration phase the company experienced:

1. Difficulty in Localization Processes

Insurance provider is present in Australia, the UK, and the US. Appropriate localization of policies across these locations is, therefore, an essential requirement for the insurance major. This required frequent tweaking of the policy implementation in the IT systems, which caused problems, because the systems were not easily modifiable and could not maintain multiple versions of one and the same policy simultaneously.

2. Dependency on IT Department

Given the before mentioned architecture at the Insurance provider company, change required experienced database administrators and IT personnel. Visibility of process and rules was at a very low degree for business users.

Health Insurance: Leading Healthcare Insurance Provider



The Company

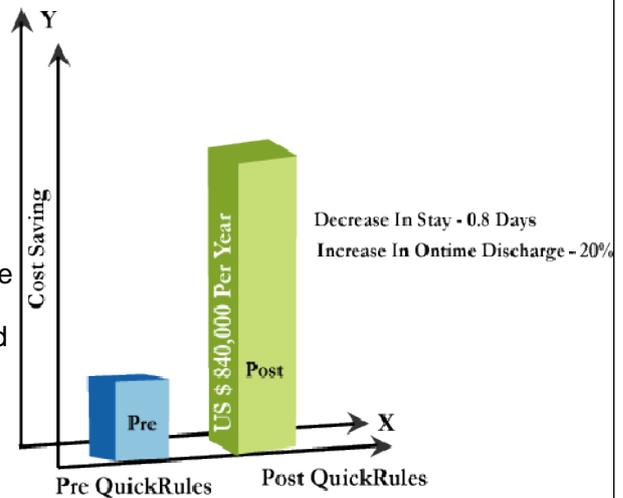
- A leading healthcare and medical scheme administrator
- Used Medical Event Management System

The Challenges

- Emergency Admission Procedures abused by staff
- Tactics calculations was not always obvious to the support personnel allowing system misuse
- Higher Loss Ratio cases were not easily identified earlier

The Results

- Hospital overstay was decreased on the average by 0.8 days
- Cost savings of US\$70,000 per month
- More than 20% increase of on-time patients discharge



There are a number of business processes in the main application where a Business Rules Management Systems (BRMS) has been integrated up to date.

Verification of coding

When an event is captured, two pieces of information are required:

1. Codes that define what is wrong with the member (diagnosis codes) and
2. Codes that define how the member is going to be treated (procedure codes) are captured.

There are a number of rules in regard to the codes, such as age and gender rules, that have been implemented in BRMS.

Workflow Routing

It is necessary to route to specific workflow pools, based on certain clinical criteria, at various steps in the application flow. The rules to determine where one needs to route to, based on the clinical criteria, is specified via BRMS.

Electronic Messaging Rules

One of the entry points into the system is via a message broker that supplies all required event information electronically. Such an electronic message can be either supplied as part of the pre-authorization process (i.e. registering a new event on the system) or as part of the re-authorization process (i.e. making a change to a current event on the system). A number of rules have been built around these two processes, including determining whether a request is a duplicate of one of the current events within the system. Specialized routing and categorization rules are also included.

Emergency Admission Rules

When an event is defined as an emergency, a number of checks and balances in the system are bypassed to enable a rapid authorization of this event. In the past staff has been abusing it by bypassing the necessary checks and balances and turning a non-emergency event into an emergency one. Rules have been put in place to verify and approve events as being an emergency.

Common Tactics Rules

There are a number of medical protocols (defined by diagnostic and procedure code combinations) for which tactics have been defined. A tactic supplies the user with guidelines and standards in terms of additional information required, period to be authorized as well as information to be provided to the member.

Each applicable tactic is determined by three conditions:

- a diagnostic code
- a procedure code and
- the age of the member for whom authorization is requested.

Based on the three conditions, a tactic is calculated. Due to the nature of coding, there may be multiple tactics calculated. If multiple tactics are calculated, these are ordered by priority and the user is prompted with the applicable tactics information. Per example, a tactic may prompt the user to ask for a second motivation or to authorize a length of stay of two days.

Loss Ratio Rules

In an attempt to control the loss ratio of the scheme, a number of checks have been put in place to identify high-cost coding combinations. Such combinations are flagged upon coding and forwarded to a specialized unit that can handle such authorizations on a case-by-case level.

A lot of the rules are based on the different diagnostic and procedure codes that are captured in the system during the authorizations process. Therefore it is important that such codes are captured correctly, as the codes along with all ancillary information are used to drive other rules.

Mortgage: Leading Mortgage provider



The Company

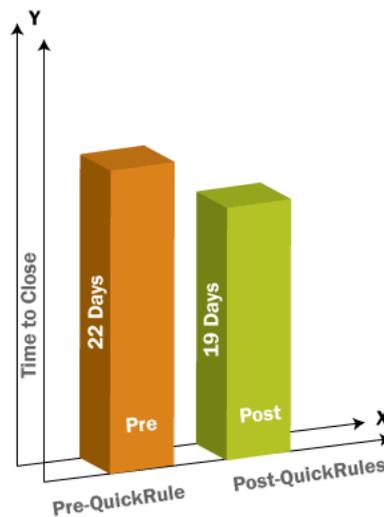
- Leading mortgage provider in the USA
- 8 billion in loans approved

The Challenges

- Lack of automation - underwriting process took almost 4 days
- Pricing rates took almost 2 days to be changed
- New investors took months to add (now a week to two weeks)

The Results

- Time to close loans (key metric) reduced from 22 to 19 days
- Leading to retaining revenues in a market with a 30% downturn
- Loan agents training costs reduction by 30% - for 500 loan agents
- Reduction in managerial oversight by 50%
- Improved quality of loans processing



Company Background

A leading mortgage provider offering a wide range of mortgage programs and products to suit varied customer profiles. Its in-house sales team uses different channels like telecommunication, internet to sell mortgage programs and products directly to customers.

Company's Existing Processes

- Loan products are uploaded to the website/clients application.
- Sales Agents login to the website and validate the prospect.
- The Enterprise Decision System suggests a suitable product and displays its price.
- The system calculated and displays agent's commissions.
- Each agent locks the respective rate and completes the sale.
- Agents collect all required documentation and underwrite loans.
- The company processes loans and disburses them to the customers.

Company Challenges

- Decision making process lack of visibility, which resulted in that sales agents:
 - did not know the exact reason for each qualification / disqualification as the system could not display conditions or disqualification messages
 - needed significant amount of training to keep up with the ever changing guidelines
- Credit grading was not possible with the existing system.
- Sub-prime or equity loan could not be handled.
- Loan product and pricing updates took days to be implemented in the system.
- More chances for manual errors, response time was slow.
- Full underwriting was not possible. At best automation of prequalification phase was achieved.

The Company

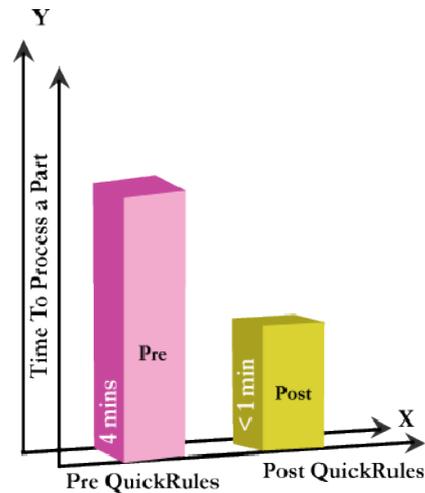
- Airline logistics company
- Used in Parts Management

The Challenges

- Manual processes - high number of staff required to process parts
- Application of incorrect policy leading to errors and re-runs
- Significant amount of time for cross-verification between various departments

The Results

- Increased automation levels to more than 75% from almost non-existent automation
- Improved rules testing and verification leading to lower re-runs
- Reduction in manual resources required to process parts



Company Background

Providing aircraft maintenance, repair and overhaul services (MRO services) for its customers is the major area of operations for a major airline logistics company. The company handles the aircraft spare parts from manufacturers or repair shops, as well as removed parts from aircrafts. The imported parts, e.g. from the USA, UK and other countries, are received by the Receiving Department, tagged with metadata and stored in the customs warehouse area, delivered to aircraft or to the internal / external workshops..

Customs taxes are levied on a part only when it is physically taken out of the warehouse. The tariffs are fixed according to the country's standard regulations. Exceptions, if any, to those regulations based on trade agreements, etc. are also incorporated into the calculations. This process was carried out manually by the Customs Department of the company.

Once the calculations are finalized, the data is filed with the Government Customs Agency. In case of calculation discrepancies, the Government Customs Agency would get back to the Customs Department and ask for a process re-run.

The company processes around 70,000 aircraft parts a month at its German operations centre. The sheer scale of operations made the process of applying Customs Regulations very challenging.

Company Challenges

□ Resources Requirements

Applying the complete set of Customs Regulations on an aircraft part required 3 – 5 minutes of manual effort. Since the volume per month is about 70,000 parts, the company required a large number of resources to manage workloads.

□ Incorrect Declarations to the Govt. Customs Agency

The Receiving Department is responsible for tagging any aircraft part with the metadata required for customs duties calculations. Since the nature of the metadata is subject to various factors like the country of manufacturer, and customs regulations, not securing the correct metadata of a part definitely leads to incorrect customs declarations. The manual decision process of which information needs to be tagged to the aircraft part, sometimes led to incorrect or incomplete information being logged. This, in turn, forced a significant amount of cross-verification between the Receiving Department and the Customs Department, resulting not only in high manual effort, but also a high potential for errors.

□ Application of Incorrect Policies

The Customs Department decides which taxation policy has to be applied to an aircraft part, and then calculates the customs tariffs according to that policy. These decisions are driven by the metadata tagged to the aircraft part. The manual process for applying the customs policies could lead to the wrong policy being applied. It also led to errors in the calculations, resulting in the process being re-run on the same part.

□ Institutionalization of Knowledge

The knowledge about mistakes that were made in the application of the customs policies, or about changes to the regulations, could not be easily institutionalized. An extra process had to be established to ensure knowledge transfer about changes or mistakes within the Department. Not only the danger of knowledge loss, due to changes of the personnel was faced, but also the same mistakes tended to be repeated more than once before the entire customs team got familiar with the issues.

Thank you!





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