Business Rules Management – More than a Buzzword

SI-SE Fachtagung

Zurich, 25 January 2008

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Agenda

- Challenges at Credit Suisse
- Types of Business Rules
- Our BRM Case
- Experiences
- Some Open Questions
- Summary
Challenges at Credit Suisse

- providing excellent products and services globally
- compliance with regulatory requirements
- managing complex products
- short innovation cycles
- banking products impact business processes
- fast and reliable business processes

- high degree of automation
- fast implementation of changes
- rapid alteration of applications
Purpose of Business Rules Management

- **Objective:**
  - Fast implementation of changes
  - Fast adaptation of behavior of IT systems

- **How?**
  - avoid functional redundancy
  - build services with std interfaces
  - **separate handling of Business Rules**
Business Rules: example (1)

<table>
<thead>
<tr>
<th>Währung</th>
<th>EUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Für Kunden mit Domizil im Ausland</td>
<td>ja</td>
</tr>
<tr>
<td>Zinssatz</td>
<td>Siehe Zinssatzflyer (PDF)</td>
</tr>
<tr>
<td>Verrechnungssteuer</td>
<td>35% des Bruttozinstertrags</td>
</tr>
<tr>
<td>Verzinsungslimiten</td>
<td>EUR 500'000.- darüber derzeit gleicher Zinssatz</td>
</tr>
<tr>
<td>Kontoeröffnung/-saldierung</td>
<td>kostenlos</td>
</tr>
<tr>
<td>Kontoführung pro Monat</td>
<td>CHF 6.- bei AV* bis CHF 15'000.- kostenlos bei AV* ab CHF 15'000.-</td>
</tr>
<tr>
<td>Buchungspesen</td>
<td>keine</td>
</tr>
<tr>
<td>Porti</td>
<td>Schweiz: A- oder B-Post-Tarif (Standard B-Post) Ausland: jeweiliger Auslandtarif</td>
</tr>
<tr>
<td>Fremdpesen</td>
<td>werden weiterverrechnet</td>
</tr>
<tr>
<td>Kontouberziehung</td>
<td>Nach Rücksprache mit dem Kundenberater, derzeit ist keine AUAL möglich. Zinssatz 12.50 %</td>
</tr>
<tr>
<td>Abschluss</td>
<td>kostenlos; jährlich mit Zinsausweis</td>
</tr>
<tr>
<td>Postenausziege</td>
<td>monatlich (zwischen 10. und 20.), kostenlos; andere Zustellvarianten möglich (z.B. Ende Monat, Gebühr CHF 2.- pro Monat)</td>
</tr>
<tr>
<td>Verfügbarkeit</td>
<td>EUR 500'000.- / Jahr, höhere Beträge 6 Monate Kündigungsfrist**</td>
</tr>
</tbody>
</table>
Business Rules: example (2)

<table>
<thead>
<tr>
<th>ATC</th>
<th>Account description</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>851</td>
<td>Contact private account</td>
<td>12 to 20</td>
</tr>
<tr>
<td>852</td>
<td>Academica private account</td>
<td>18 to 30</td>
</tr>
<tr>
<td>854</td>
<td>Privatkonto Academica plus</td>
<td>up to the age of 30</td>
</tr>
<tr>
<td>881</td>
<td>Private account</td>
<td>from 20</td>
</tr>
<tr>
<td>883</td>
<td>up to CHF 15,000 gross tangible assets</td>
<td>from 60</td>
</tr>
<tr>
<td>840</td>
<td>Private account</td>
<td>from 20</td>
</tr>
<tr>
<td>845</td>
<td>from CHF 15,000 gross tangible assets</td>
<td>from 60</td>
</tr>
<tr>
<td>843</td>
<td>“Private Banking” private account</td>
<td>from 20</td>
</tr>
<tr>
<td>844</td>
<td>Clients with gross tangible assets in excess of CHF 1 million who are unwilling to pay minor charges on their accounts</td>
<td>from 60</td>
</tr>
<tr>
<td>873</td>
<td>Private account euro</td>
<td>no limit</td>
</tr>
</tbody>
</table>
Types of Business Rules

(1) Pricing Rule
   - “If the withdrawal limit is exceeded, there is an automatic charge of 1.0% of the amount exceeding the withdrawal limit.”

(2) Classification Rule
   - “Age of majority in Switzerland is 18 years.”
   - “Age of majority in Pakistan is 18 years for males.”

(3) Conditional Rule
   - “Maximum withdrawal for a Private Account Euro is EUR 500,000 per year.”

(4) Calculation Rule
   - Monthly Weighted Return is calculated by:

\[
R_{\text{mwx}} = \frac{MVE - MVB - F}{MVB + FW} \times 100\%
\]

(5) Procedural Rule
   - “The Contact private account (ATC 851) is automatically converted into a private account (ATC 840) at the beginning of the year in which the client reaches the age of 21.”
Where are the Business Rules today?

- Intranet / Word / Excel
- Business process definitions
- IT systems:
  - 700 applications (partially over 20 years old)
  - 15 Mio. SLOC PL/1
  - 10 Mio. SLOC Java
  - COTS software
  - many applications with 2 or 3 languages

▸ Rules coded in PL/1, Java, DB constraints, PLSQL, ..
Case: many products for many customer categories

- **use of application:** managing contracts of customers
- **problems in the past:**
  - ~25'000 rules
  - high complexity
  - redundancy
  - poor adaptability / long time to market
  - high maintenance costs
  - dependency on key people
Case: many products for many customer categories

- **Requirements for the new application software**
  - Users: >3000 relationship managers
  - Main functions:
    - creation of new and modifying existing relationships (contracts) for new and existing customers
    - managing >100 products
    - considering legal aspects (e.g. joint partnership, beneficial ownership, country-specific restrictions, ...)
    - 'intelligent' user interface
    - creation of contracts

- **decision: reengineering of existing application and use of a COTS BRMS**
Use of BRE: general setup in present case

- Business Rules are authored by a mixed team and stored in a repository
- BRs and Code are deployed together via JAR files
Case: Relationship Opening Process

- A BR-based application guides the relationship manager through the process of opening and modifying customers’ relationships.
How does the BRE-based application look like? (1/2)
How does the BRE-based application look like? (2/2)

Relationship opening - Product selection - segment-specific & Powers of attorney

Product selection - non-segment-specific

Transaction accounts
- Private account Contact - ATC 851

Safekeeping accounts
- Securities safekeeping account - DAS 100

Savings accounts
- Savings account for young people - ATC 837
- Flex investment account - ATC 828
- Interest growth savings account - ATC 825

Card products
- Maestro card
BRM: Experiences from a Business Perspective

**Design-time:**
- improved visibility of BRs
- improved knowledge sharing and collaboration
- improved adaptability of BRs

**Run-time:**
- business process quality: first-time right ratio increased (less rework)
- increased efficiency for relationship managers
- Policies and directives are followed automatically
BRM: Experiences from an IT Perspective

Strengths:
- Application works reliably and is used by 4000 relationship managers
- less rules (~7'000 vs. ~25'000)
- better adaptability of rules
- improved modularity

Comments:
- new application is still complex:
  - rules for product selection, screen definition, data mapping, and creation of documents
  - BRs, Java-Code, master data, pdf templates
BRM: Lessons learned

- Select development & maintenance team carefully:
  - different skills are needed
  - BAs need some SW engineering skills, SW engineers need banking knowledge

- Rules specification:
  - business rules gathering has to be part of the ReqEng process
  - in many cases, decision tables are appropriate to specify business rules.

- A sound Business Object Model (BOM) is important:
  - allow sufficient time for the development and iterative verification of the BOM.
Where do Business Rules come from?

- Analysis of regulatory requirements and CS Policies
- Analysis of Banking Product
- Analysis of existing Program Code
- Analysis of functional Requirements/Use Cases

Establish a set of consolidated Business Rules

Business Rules to be implemented via BRMS

Business Rules to be implemented via other mechanism

Part of Requirements Engineering Process
Some Open Questions

(1) How to practice traceability of BRs?
   - from general statement to implementation

(2) How to structure BRs?
   - according to scope, ownership, sensitivity, volatility, content, ??
   - BR vs master data

(3) How to practice QA, testing, and deployment of BRs?
   - creation of test cases, OK–NOK

(4) How to integrate BRM into SOA?
   - application-internal logic vs external logic, granularity of rule sets

(5) How to manage BRs organization-wide?
   - e.g. ownership of rules
When to use a BRMS?

A BRMS should be considered if:

1. BRs have to be adapted often
2. BRs have to be visible and understandable to the business community
3. The system (application) must show ex-post the BRs that have fired
4. BRs have to be activated or de-activated by a certain date
5. BRs have to be managed by different teams
6. The number of BRs is large
Summary

- Separation of Business Rules from Program Code is very valuable.
- BRMS are helpful to involve business people in rules management.
- Efficient application of BRM requires adequate software engineering processes and know-how.

- When rule-intensive applications are to be built, consider the use of a BRMS.
- Build-up project-independent infrastructure.