PMC103
Business Rules Management with SAP: BRFplus and SAP NetWeaver BRM

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Agenda

Business Rules in the enterprise architecture
- Business analysts about business rules
- Agility versus automation
- Business Rules in the enterprise architecture

Business Rules Management with SAP
- BRFplus - live demo and components
- NW BRM - live demo and components
- Usage recommendations

Outlook: News from the Labs

Q&A
Business Rules in the Enterprise Architecture
The Top 15 Technology Trends EA Should Watch: 2011 To 2013
(Forrester Research, Oct 2010)

A key trend in application architectures is the **externalization of the policies and rules** that drive key decision points in application logic. Externalization exposes rules to policy subject-matter experts for explicit development and maintenance. Business rules processing enables **rule management by business-side experts**. Applications based on business rules processing are **moving from niche into mainstream as rules enable the creation of more-responsive, more-personalized experiences** based on more-complex conditions. Rules engines with the appropriate configuration management infrastructure enable business managers to maintain rules and more quickly explore ways of optimizing business processes.
No organization can be more effective than its systems.

[...] Adding decisioning to business process-oriented thinking creates **simpler and more agile processes, and more flexible business applications**. Externalizing decisions and applying business rules technology to effectively manage those decisions improves visibility, **builds in a capacity for change and helps ensure business/IT alignment**. In each case – simpler processes, more flexible business applications, an increased capacity for change and improved alignment – decisioning enhances a business process orientation to **deliver greater value to the business**.

[...] **SAP has developed two robust business rules management platforms, supporting both its Java and ABAP environments**. These technologies can be used to ensure that decisions are effectively managed and integrated throughout an SAP enterprise backbone.
Agility vs. Automation

Automation: Full  Semi  No

Rules inside Code/DB  Rules in Documents  Rules as Tacit Knowledge

Agility:  Low  Medium  High

Questions:
- What are my costs for changes?
- How to gain transparency for business users?
- How to enforce policies in business operations?
- How to achieve legal compliance?
Business Applications, Business Processes, and Business Rules

Application
- Completeness check
- Data validation
- No-go criteria

Credit Score
- Calculation of credit score
- Enable/disable contract terms

Approval
- Automatic/manual approval
- Compliance rules
- Risk management

Business Application
- Banking

Business Process
- Loan approval

Business Rule
- Calculation of credit score
Evolution of Business Application Architecture

Use of a database management system (DBMS) helps separate application data and application logic
- Tools optimized for data management

Use of a business rule management system (BRMS)
- Tools optimized for business rules management, targeting also non-technical user groups
- Once the BRMS services are defined and plugged into the application, rules changes do not require programming skills
- Business rules should be considered early in the application lifecycle
Benefits of Using Business Rules Management

**Business Rules Management**

- Flexible & agile business systems
- Faster turnaround times for changes
- Reduced cost for changes
- Precise & informed decision making
- Improved visibility for the business

**Business Rules Management**

<table>
<thead>
<tr>
<th>Model</th>
<th>Refine</th>
<th>Manage</th>
<th>Automate</th>
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<tbody>
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</table>

**Benefit**

- **Separation** of business rules and code: Agile and maintainable systems
- **Modeling** of complex business logic: Automation of key business decisions
- Central **management** of business rules: Consistent application of corporate policy and government regulations
- **Business Experts** can find, change and test critical business rules: Visibility, accountability and error-free business

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Ubiquitous Business Rules

**Banking:** Relationship based Pricing, Scorecards, Credit Decisioning

**Education:** Fee Calculations, Course Selections

**Healthcare:** Claims, Patient Monitoring, Fraud Detection

**Logistics and Shipping:** Parts Management, Duties Calculations, Pricing Calculations

**Public Sector:** Tax Calculations, Customs Duties, Land Regulations, License Fee Calculations

**Insurance:** New Products, Claims Settlement, Agent Commissions
Business Rules Management with SAP
SAP Business Rules Offerings
Taking Control of the Rules of Your Business

SAP NetWeaver Composition Environment & SAP NetWeaver Business Process Management

SAP Business Rules Offerings

- NetWeaver BRM
  - Validation
  - Calculation
  - Decision
  - Suggestion
  - Security
  - Versioning

- BRFplus
  - ABAP

Supporting your preferred technology environment

SAP NetWeaver

SOA-enabled SAP Business Suite

Enhancement Packages

3rd party
Business Rule Framework plus
Components and Key Features

Business Rules Authoring

- Web-based user interface
- Testing, validation and refinement of business rules (no code)
- Various rule representation formats
  - decision tables/trees
  - rule flows
  - text rules (IF-THEN-ELSE)
  - custom Types
- Support for business user and expert modes
- Multiple tools available (dependency analysis, consistency checks, simulation, MS Excel integration, …)

Business Rule Engine

- Invocation by ABAP API, RFC or Webservices
- Logging and tracing of rules execution
- On demand code generation
- Webservices and RFC module generators

Business Rule Repository

- Life-cycle management optimized for ABAP server
  - Versioning services
  - Optional client concept, customizing, system and application data rules
  - Integrated with data dictionary and change and transport system (CTS)
  - Access, change and usage control
- Organization and grouping (in business rule catalogs)
- Search and browsing
- Auditing and reporting services
Business Rule Services with BRFplus

BRFplus Function: Service Definition
- Input (Context), Output (Result), Purpose
- Can be called by ABAP API, RFC, or Web Service

BRFplus Rulesets: Service Implementation
- Collection of rules
- Preconditions, priorities, validity
- Context enrichment (additionally needed data)

BRFplus Rule: Step Implementation
- IF <condition(s)> THEN <operation(s)> ELSE <operation(s)>
- Usage of expression types (decision tables, decision trees, formulas, table operations, …) to define complex conditions and value derivations/calculations
- Usage of action types (message log, workflow, email, …) to trigger side effects
Rules Authoring with BRFplus
Business Applications
Powered by BRFplus

Customization and Configuration

- Simple configuration
  - Limited scope
  - Too many tables

- Sophisticated configuration
  - Inappropriate for simple cases
  - Locks out Business Experts, Developer needed

BRFplus

- From simple to complex configuration
- Addresses business and IT requirements, models logic instead of coding
- Multiple visualizations (decision tables, trees, formulas, text rules...)
- Tools for versioning, simulation, consistency checks, ...

Migration

Consolidation of tools and engines towards BRFplus for next generation business rules management in ABAP applications with better user experience and performance at lower TCO.
Demo

Pricing Scenario
NetWeaver Business Rule Management (BRM)
Components & Key Features

Business Rules Authoring
Rules Composer
• Business friendly rich rule formats
• Support for multiple data formats for rules vocabulary
• Validation, testing and refinement of business rules
Rules Manager
• Web-based interface for business users
• Support for import/export of Microsoft® Excel

Business Rule Engine
• High-performance rules engine
• Rete-based inference and sequential engines
• Integrated with NWA to support monitoring and logging
• Rules engine can be invoked as:
  – Stateless session bean
  – Web service

Business Rule Repository
• Supports end-to-end change management
  – Rules versioning
  – Access Control & Governance
• Design time repository integrated to NWDI
Business Rule Representations

Decision Tables
- Powerful visualization - compact and structured
- Completeness and consistency - error prevention made easier
- Modular knowledge organization - rules grouped into a single table

Text Rules
- IF-THEN format
- Easy to learn and use
- Rules in natural language

Flow Rules
- Rules laid out in a flow like structure
- Perfect overview of the rule implementation
- Gateways and iterations

Decision Table: MaxInvestment

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<th>Context Menu</th>
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Rule: Calculate Discount
Effectivity: Always

Preconditions:

IF customerStatus Equals Gold

Then
assign :: discount = 3.0

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Authoring, Deploying, and Managing Business Rules

- Rules Composer
- Rules Engine
- Rules Manager

Business Rule Authoring
Deploy & Manage
Business User Rule Authoring & Management
SAP NetWeaver BRM: 2 approaches to modeling rules

Stand-alone Rules Modeling
- For wider consumption across applications
- Via reusable business rules services

Embedded Rules & Process Modeling
- Allow process modelers to instantly embed rules in a process
- For consumption by a specific business process
- SAP NetWeaver BRM is embedded in SAP NetWeaver BPM
Rules in Integration Processes

More in PMC 166: Combining SAP NetWeaver BRM and SAP NetWeaver Process Integration …

**Decision Rules**

Automate complex decisions, e.g. decide on administrator involvement or workload dependent message distribution.

**Validation Rules**

Check message contents considering field relationships.

**Recommendation Rules**

In case discrepancies in a message have been detected, provide rule-based derived recommendations for business experts.

**Calculation Rules**

Complete messages by calculating e.g. prices, discounts, taxes, and rebates while messages are passing the integration engine.

**Alert Rules**

Trigger alerts for critical business events in case of suspicious message content, e.g. to detect fraud.
Demo

Scenario: Home Loan Processing Application
## Usage Recommendations

### Suite Core Processes

- Solving decisioning problems using Rete rules (not available yet in BRFplus)
- ABAP applications in a heterogeneous landscape having tight integration with 3rd party applications
- Extend core business applications in the Suite by externalizing business rules
- ABAP custom-development projects

### Composite Processes

- Loosely coupled composite applications, modeled business processes
- Rules embedded in Business Process model to support gateway decisioning (to control process flow)
- Reuse of existing business rules in composite applications and modeled business processes
- Data on which business rules are supposed to be invoked is in the suite
Outlook: News from the Labs
BRFplus
Improved User Experience, Remote Code Generation, BRM alignment

User experience
• Reworked editors: rules, decision tables/trees, formulas..
• Flow expression type (like in NW BRM)
• Drag’n’Drop

Alignment with NW BRM
• Vocabulary Alignment
• Rules Exchange

Remote code generation
• Trusted Connection
• Design Time
• Runtime
• ERP
• CRM
• Plug-In
NetWeaver BRM
Improved Lifecycle Management of Rules for Business Users

Several improvements in managing rules artifacts using Rules Manager for Business Users

Capabilities:
- **Import/Export** of decision table with other conditions and other actions
- **Edit** common definitions and re-usable rulesets in Rules Manager
- “**Diff**” of ruleset entities in rules manager
- **Fine-grained** access control for ruleset entities in Rules Manager

Value Proposition:
- **Improved** business user experience to manage rules
- **Improved governance** due to fine-grained access control to rule entities
**NetWeaver BRM**

Decentralized Business Rules Deployment (Lean Business Rules Engine)

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### Decentralized Deployment of Business Rules Outside of JEE Application Server

**Capabilities:**
- Download of Business Rule from **BRM Rules Manager**
- Extract and deploy **Lean Rules Engine** decentrally on a JVM

**Value Proposition:**
- Lean business rules engine for **distributed deployment of business rules**
- Lean development and deployment of business rules, e.g.,
  - Embedded in applications
  - Distributed across multiple local branches or plants (or business departments)

Note: Feature is downported to BPM 7.3 SP01

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Q & A
Further Information

SAP Public Web:

SAP Press

Related Workshops/Lectures at SAP TechEd 2011
PMC101 Overview of SAP NetWeaver BPM and SAP NetWeaver BRM
PMC163 Business Rules with BRFplus: Agile and Transparent Business Processes
PMC265 Accelerating Business Rules with SAP NetWeaver BRM
PMC-P06 Business Rules Management with SAP
Watch out for expert sessions!
Feedback

Please complete your session evaluation.
Be courteous — deposit your trash,
and do not take the handouts for the following session.

THANK YOU!
Thank You!

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