ASUG ANNUAL CONFERENCE

INTELLIGENCE FOR THE CHANGING WORLD OF BUSINESS TECHNOLOGY

Building flexible, easy to change and rock-solid applications with BRFplus decision services

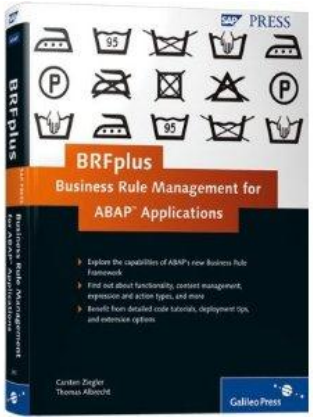
Carsten Ziegler, James Taylor

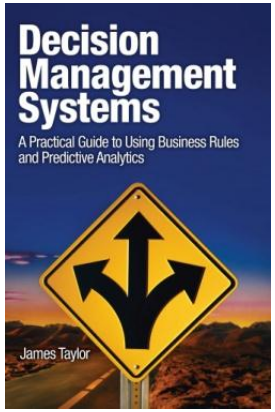
Learning Points

- Learn how the empowerment of business experts is built into SAP applications
- See how to achieve continuous decision and process improvement
- Get step-by-step instructions on how to apply this approach in your systems

Presenters

- Carsten Ziegler – SAP
  - SAP-wide Business Rules Architect
  - Chief Product Owner BRFplus
- James Taylor – Decision Management Solutions
  - CEO, Decision Management Solutions
  - Leading expert in Decision Management and the application of Business Rules





Agenda

- Presenters
- **Challenges in Enterprise Systems**
- The Decision Service Management Approach
- Decision Service Management with BRFplus
- ROI
- Best Practices and Learnings

“Once you pour electronic concrete, it’s hard to get out.”

Shell

“There is no such thing as a temporary solution. Don’t put in things you don’t want to keep.”

Unilever

Enterprise Applications

Wait
rather than act

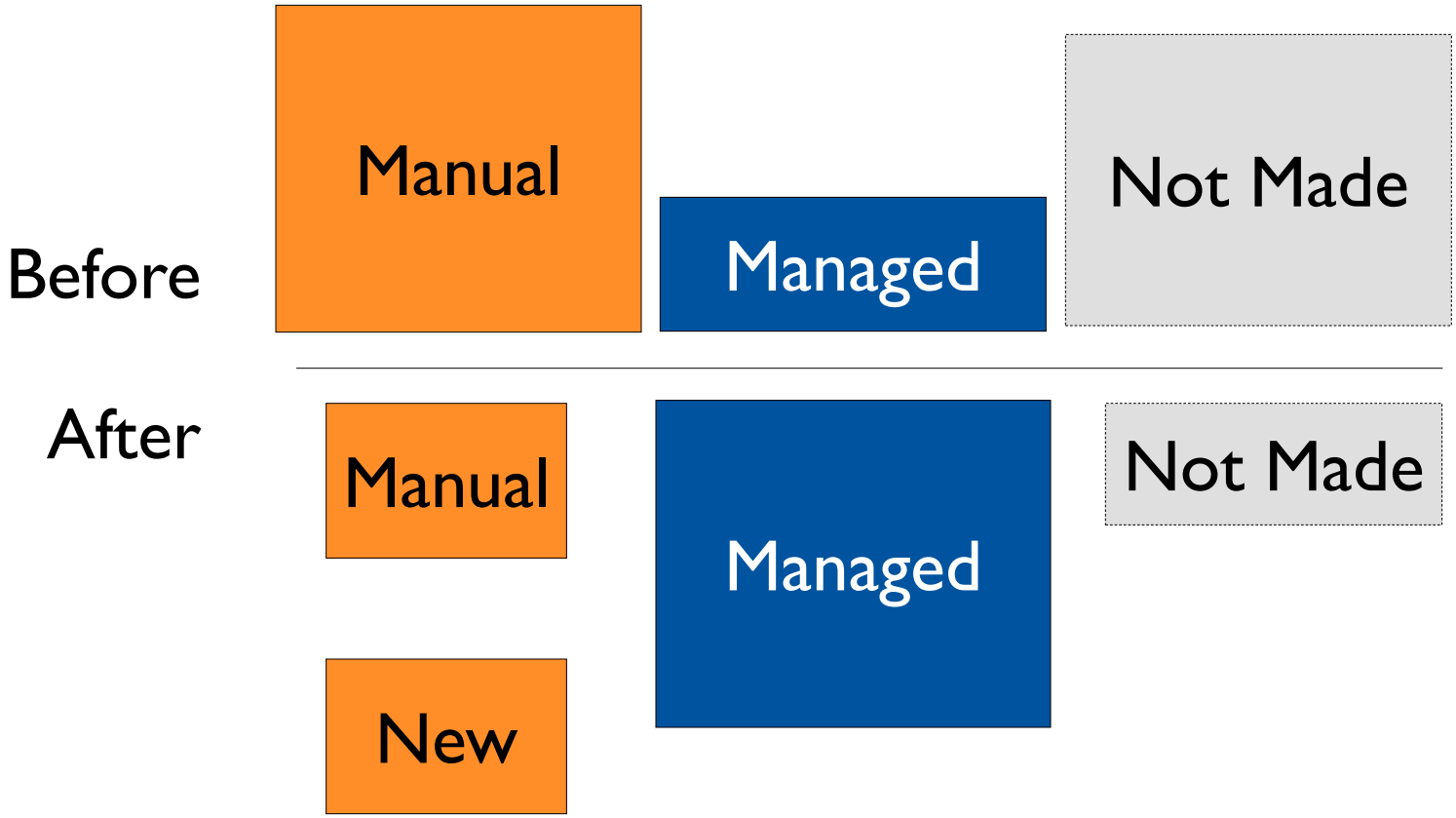
Report
but don't learn

Local exceptions
Global standards

Built to last,
not to change

Escalate rather
than empower

To improve they must make more decisions



Reproduced from Smart (Enough) Systems, Prentice Hall 2007

Larger boxes represent more decisions, by volume

Decisions

Making choices or selections and taking action

Candidate decisions

- **Determine** if a customer is eligible for a benefit
- **Validate** the completeness of an invoice
- **Calculate** the discount for an order
- **Assess** the risk of a transaction
- **Select** the terms for a loan
- **Choose** which claims to Fast Track

- These are **decision** words
  - The system must **answer a question** each time

Problem 1: Waterfall does not work for decisions

- Standard methodology for implementation and change projects
- Assumes a phased/waterfall approach:
  - Blueprint > Realization > Testing > Productive use

Problems

- Assumes you know everything when you start, though you don't
- No structure for ongoing optimization after go-live
- What you learn in realization cannot be fed back into your blueprint (particularly bad for decision-making!)

Decisions are high change components

Regulations change	Change to keep eligibility decisions compliant
Policies change	Change validation to track new data requirements
Competitors change	Change the discount to remain competitive
Markets change	Change the assessment to manage risk
Consumer behavior changes	Change to keep selecting the right deal terms
Fraudsters adapt	Change the routing to focus on new fraud

Automation vs. Agility or Business vs. IT

Automation: Full — Semi — No

```
METHOD get_liable_parties.
  IF iv_claim_reason_code EQ 'Shipped wrong Product'.

    IF iv_claim_hardware_symptom EQ 'Wrong parts in kit'
      rv_string = 'Forwarder'.
    ELSEIF iv_claim_hardware_symptom EQ 'Parts missing'.
      rv_string = 'Forwarder'.
    ENDIF.

  ELSEIF iv_claim_reason_code EQ 'Damaged in transit'.

    IF iv_claim_hardware_symptom EQ 'Parts are damaged'.
      rv_string = 'Forwarder'.
    ELSEIF iv_claim_hardware_symptom EQ 'Hardware error'
      rv_string = 'Forwarder, Manufacturer'.
    ENDIF.

  ENDIF.
ENDMETHOD.
```

Hard-coded decisions

Decisions in documents

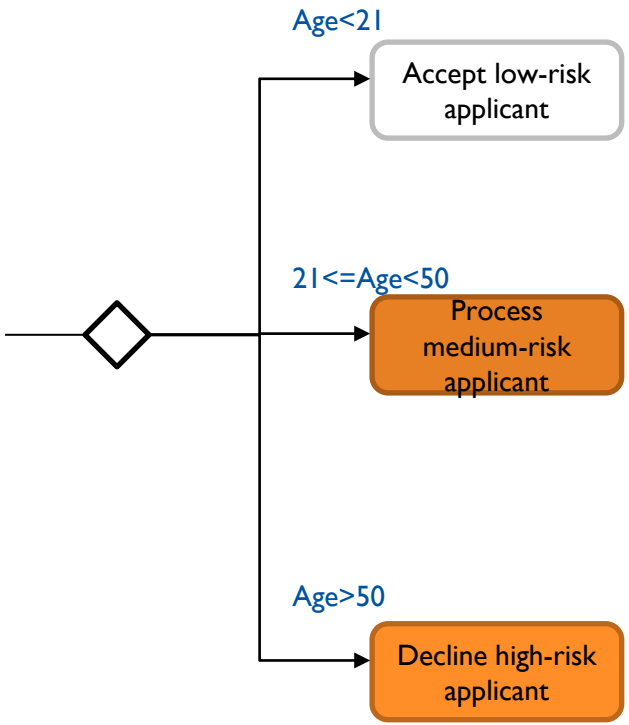
Decisions as tacit knowledge

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 do operations scale?
- How to ensure process quality?
- How to achieve legal compliance?

Problem 2: Decisions, and rules, are not processes



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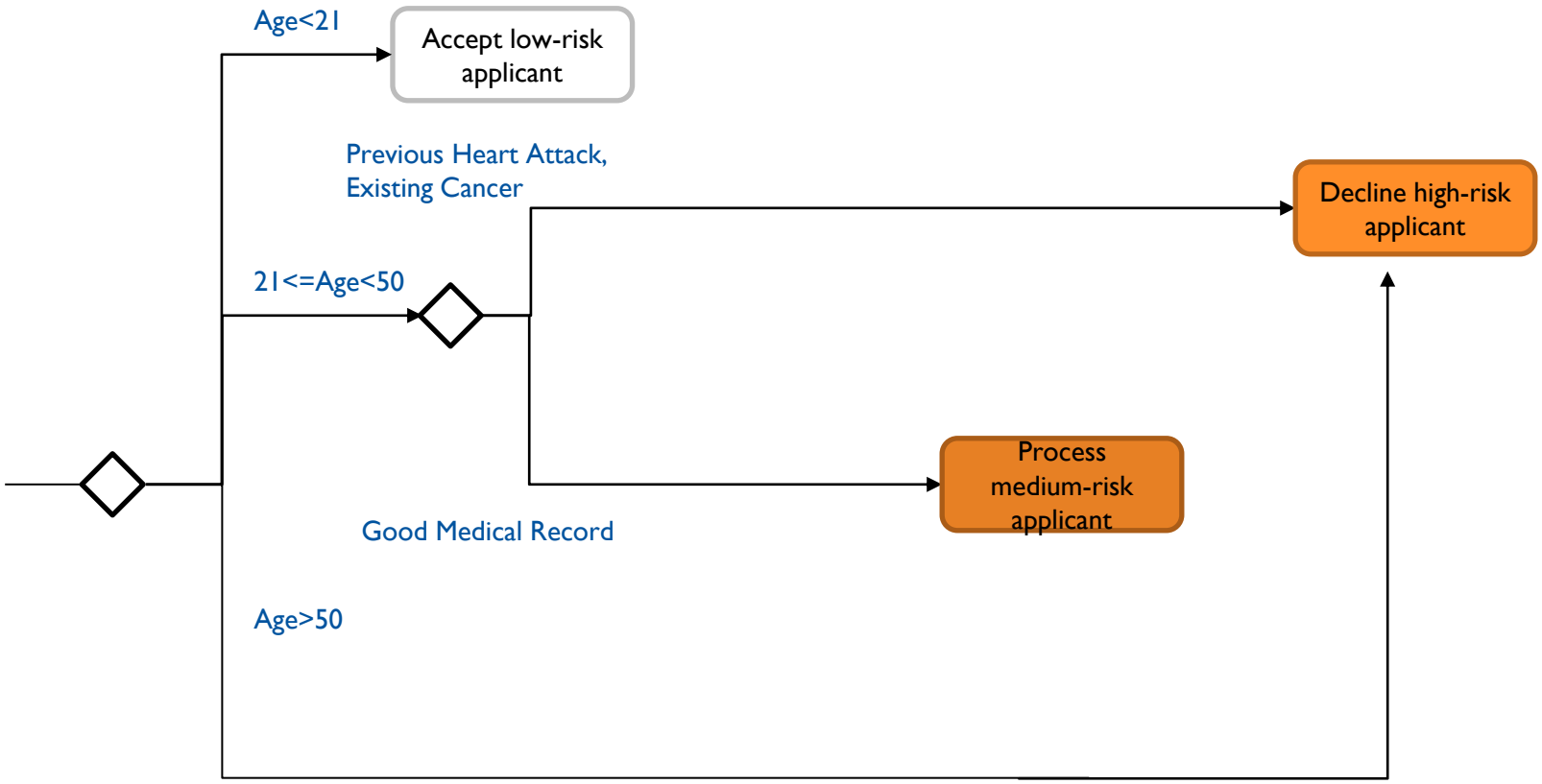

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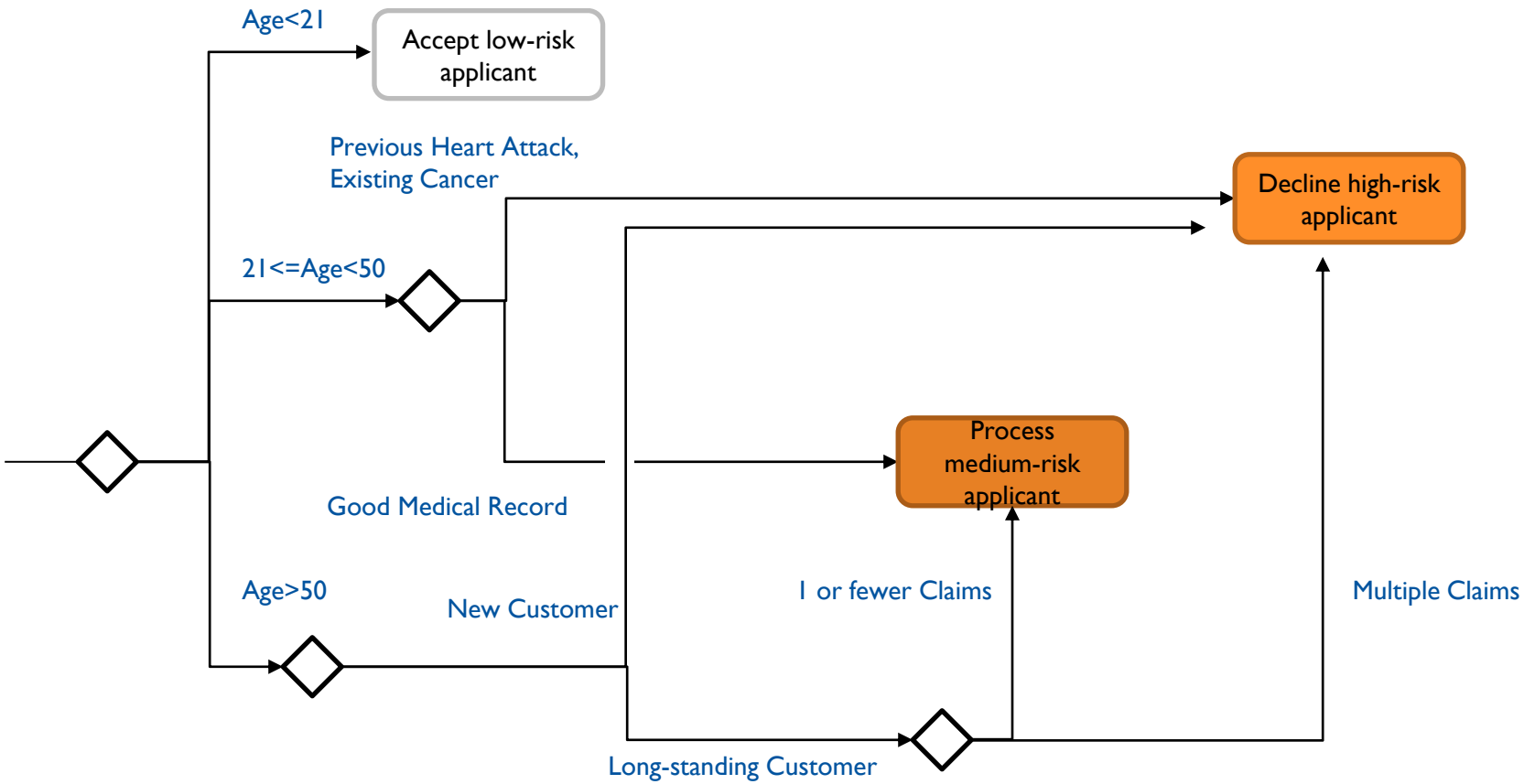

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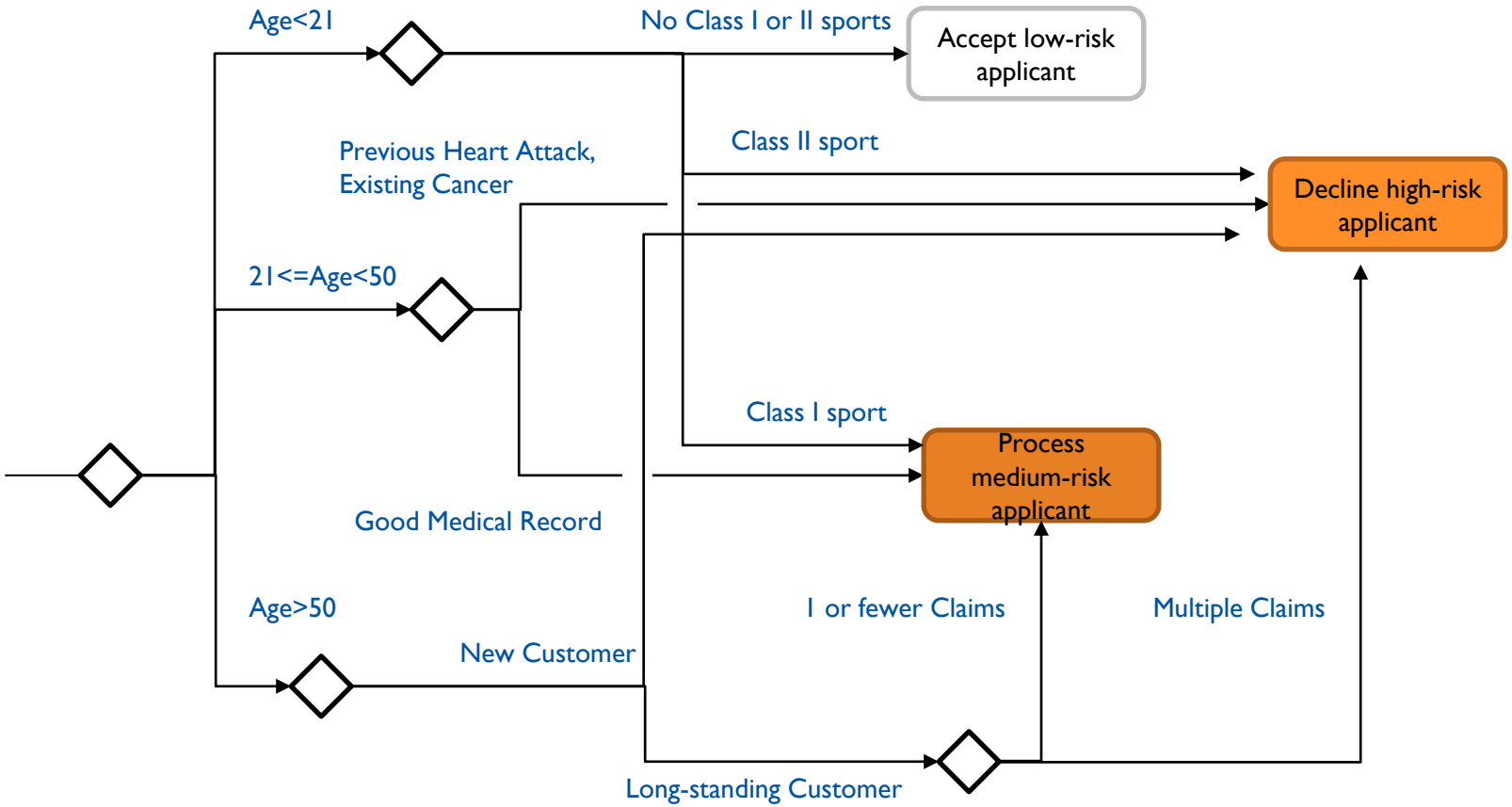
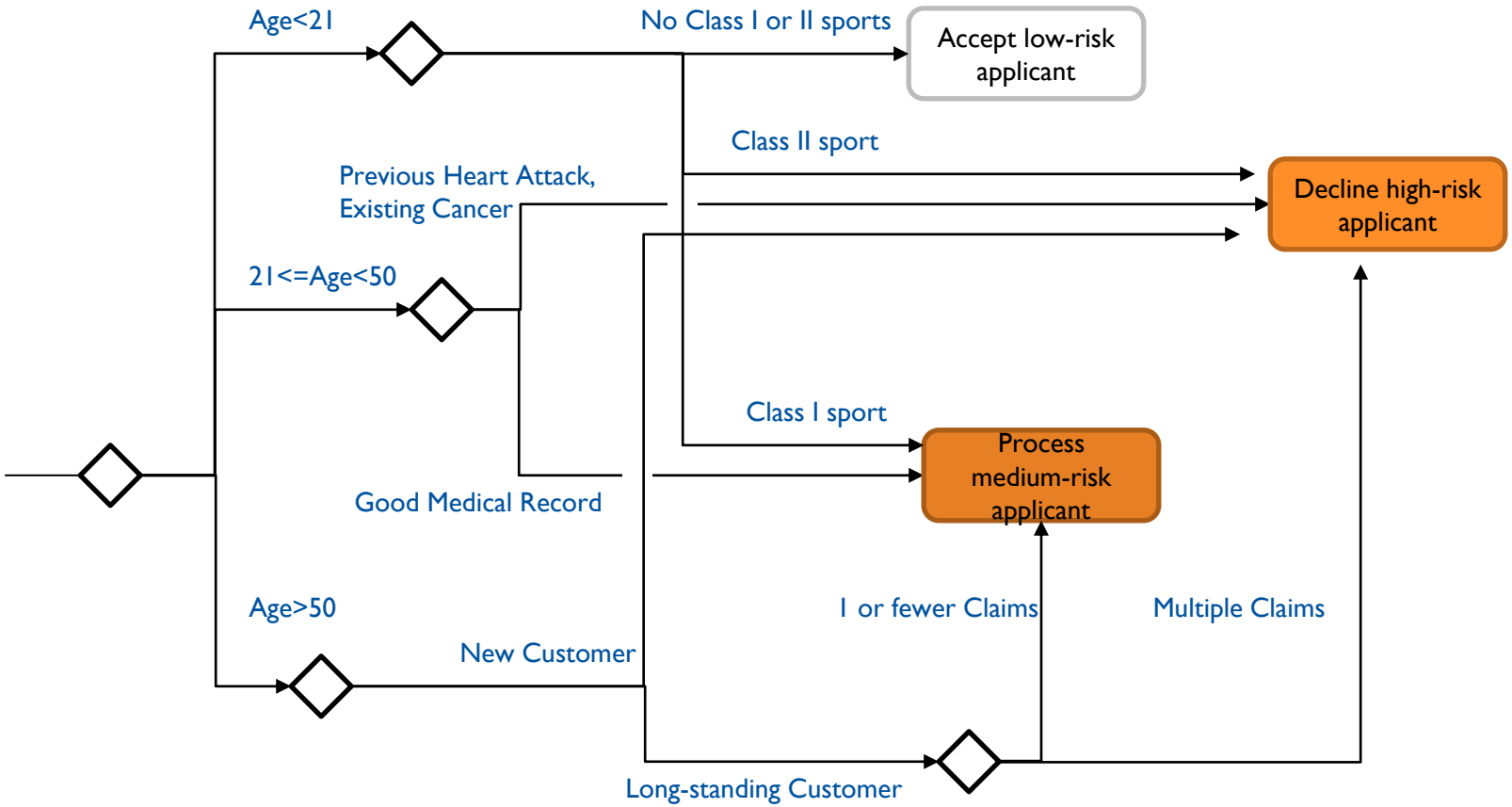
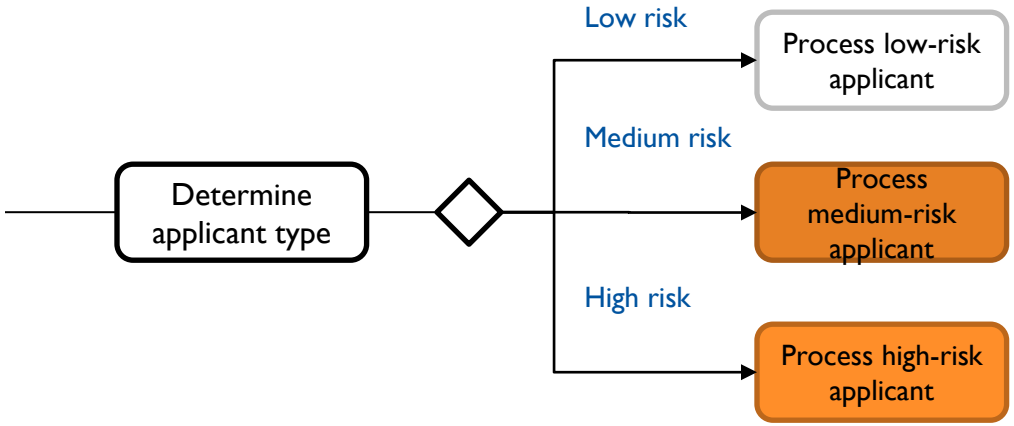


Embedding decisions cause process complexity



Separate decision, simpler process

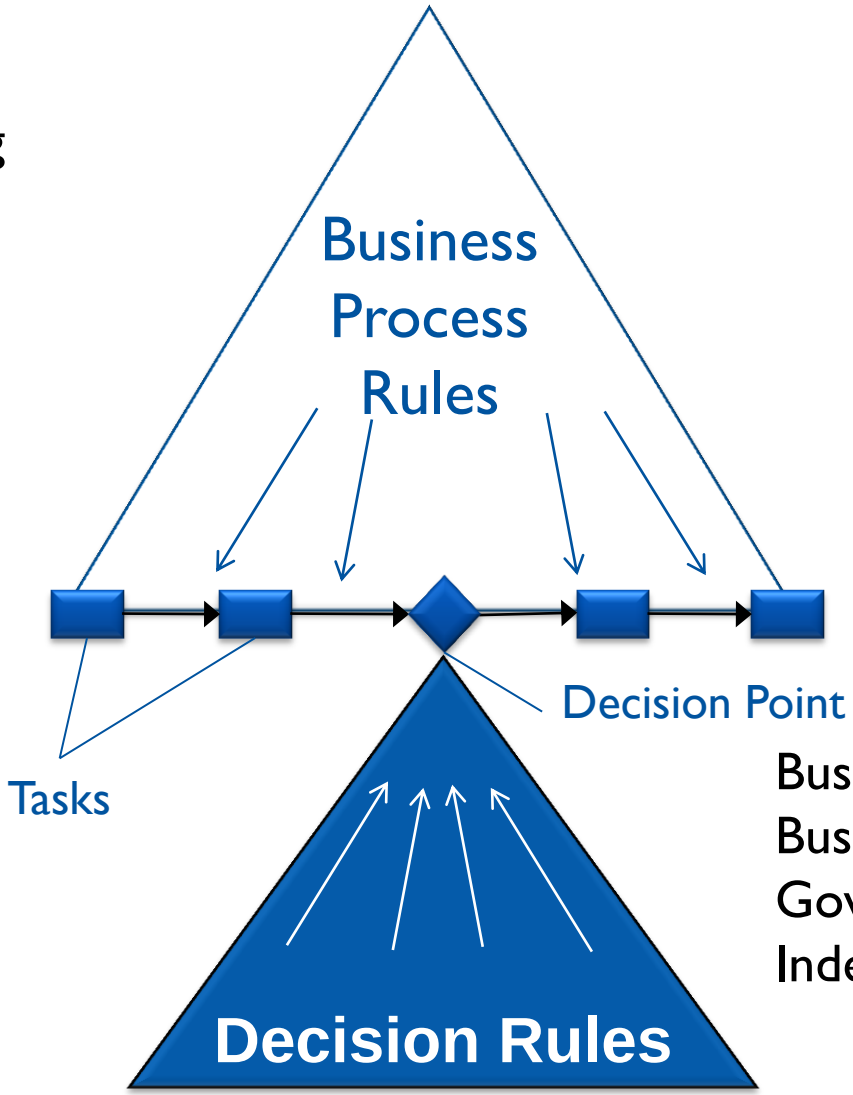


Age	Class I sports	Class II sports	Heart Attack?	Cancer?	New Customer?	# Claims	Action
<21	N	N					**Low Risk**
<21		Y					**High Risk**
<21	Y	N					**Medium Risk**
21 - 50			Y				**High Risk**
21 - 50				Y			**High Risk**
21 - 50			N	N			**Medium Risk**
>50					Y		**High Risk**
>50					N	<2	**Medium Risk**
>50					N	>1	**High Risk**

Process rules are not decision rules

Flow control, routing
IT ownership
Governed as part of the process
Lifecycle dependent on process lifecycle

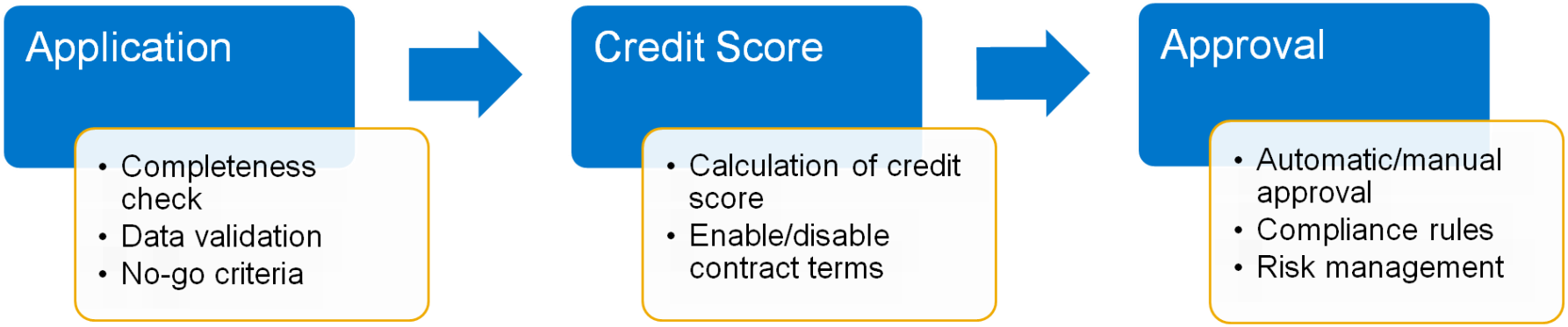
Business Process



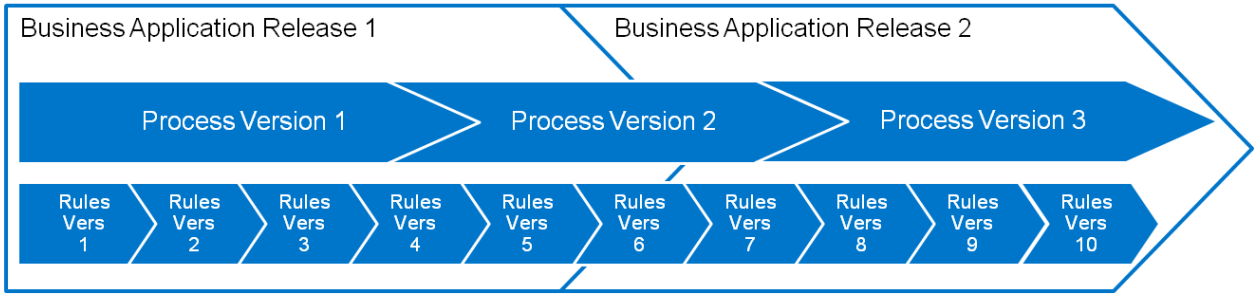
Business decision making
Business-side ownership
Governed by the business
Independent lifecycle

After Gladys Lam, BRSolutions

Separating processes and decisions adds agility



Business Application	►	Banking
Business Process	►	Loan approval
Business Rule	►	Calculation of credit score



Problem 3: Change and Transport Management (CTS)

- CTS is a set of tools and a methodology

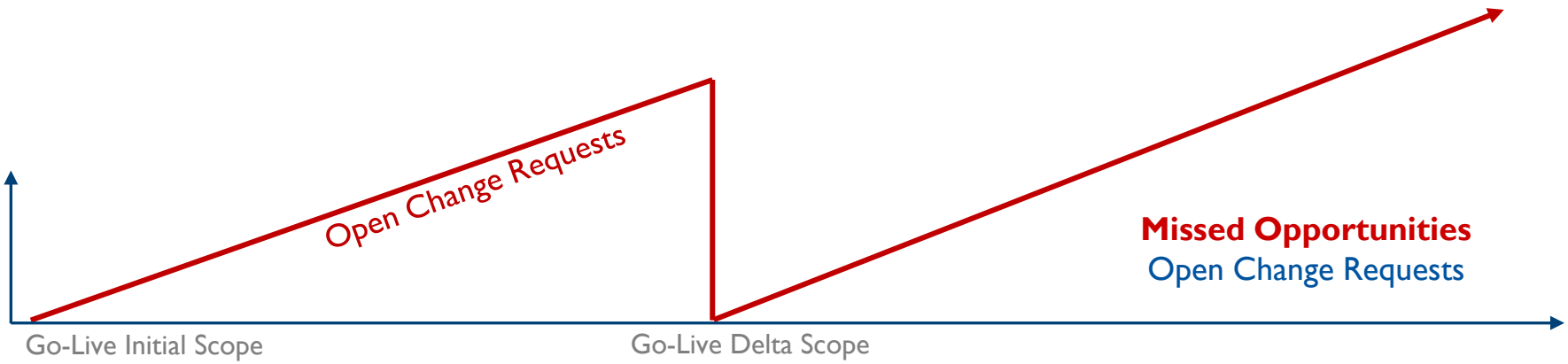
  implement changes in DEV, transport changes to QAS, and upon success transport to PROD
- CTS supports transport of customizing and repository objects

  code, database/dictionary definitions
- CTS locks customizing and repository from changes in PROD

Problem - one size does not fit all

- Downtime required
- CTS and working in the development system requires technical support
- Master data needs to be replicated into DEV
- Mandatory artificial classification of all artifacts into Customizing , repository and application data (master data and transactional data) with strict change management; no changes of customizing in PROD

Missed Opportunities



Traditional Approach

- Waterfall process with release cycles: spec, design, code
- Same change management for all objects (DB, UI, decision logic)
- High costs also for small changes

Questions

- How long will it take to get a requirement implemented when the cut-off date passed by?
- Will there be another project for my requirements in the future?
- What will be the costs of the project and who will have to pay for it?
- What will happen if the implemented decisions are outdated?

Agenda

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- **The Decision Service Management Approach**
- Decision Service Management with BRFplus
- ROI
- Best Practices and Learnings

Suitable Decisions

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

These decisions involve many kinds of rules…

Decision

…none of which are manageable

Borrowers who have not owned a property within the last three years or one who has not owned their first home for at least 12 months are eligible as follows:

- Stated Income/Stated Assets and No Doc:
  - Credit score must be ≥660 when CLTV/HCLTV is >80%;
  - File must contain 12 months of canceled checks (front and back) to evidence no late rental payments in the past 12 months. Checks must be written on the borrower's account. Writt verification via the credit report is not acceptable. Direct written verification of rent m lieu of cancelled checks when the landlord is a large professional management compa
  - Maximum housing payment is limited to 100% over the existing housing payment (may
- First Time homebuyers are ineligible for financing N/O/O or SH properties under this progra

```
public class Application {
private Customer customers[];
private Customer goldCustomers[];
...
public void checkOrder() {
 for (int i = 0; i < numCustomers; i++) {
  Customer aCustomer = customers[i];
  if (aCustomer.checkIfGold()) {
   numGoldCustomers++;
   goldCustomers[numGoldCustomers] = aCustomer;
   if (aCustomer.getCurrentOrder().getAmount() > 100000)
    aCustomer.setSpecialDiscount (0.05);
  }
 }
}
```

WASHINGTON STATE RULE

Rule G1 (Previous Rule A3)

Effective: 1/1/00
Online: 8/24/00
Update: 10/6/06

Effective 1/1/00 to 6/30/00, if claim state = WA and vendor state = WA, OR or ID and Effective 7/1/00, if claim state = WA, then surgical procedure codes 10000-69999 identified with or without modifier 51 are paid as follows. Exceptions to this rule include the codes in the attached table and state specific codes that are formatted as 4 numbers followed by a letter (i.e. 1037M).

Primary Procedure	=	100% of fee schedule amount
Second, third, fourth and fifth procedures	=	50% of fee schedule amount
All other procedures	=	By report

For any procedure code where the paid amount is not 100% of fee schedule amount:

DISP	=	System Assigned
EOR	=	WAG1
REPRICED	=	Appropriate % of fee amount

Any procedure over five will be considered by report and:

DISP	=	BYREPRT
EOR	=	WAG1
REPRICED	=	$0.00

EOR Description:

In WA multiple surgical procedures are reimbursed at 100% of fee amount for the primary procedure, 50% for second, third, fourth, and fifth procedures, and by report over five procedures per WA Fee Schedule.

Ref: WA Medical Fee Schedule eff 7/1/99, pg. 112

Alternatives to business rules

Explicitly coded within application or database

Pros

- Familiar to IT
- Simplifies development and testing processes

Cons

- IT department must be involved in any change
- Little re-use of logic across multiple decisions

Parameterized in tables or configuration files

Pros

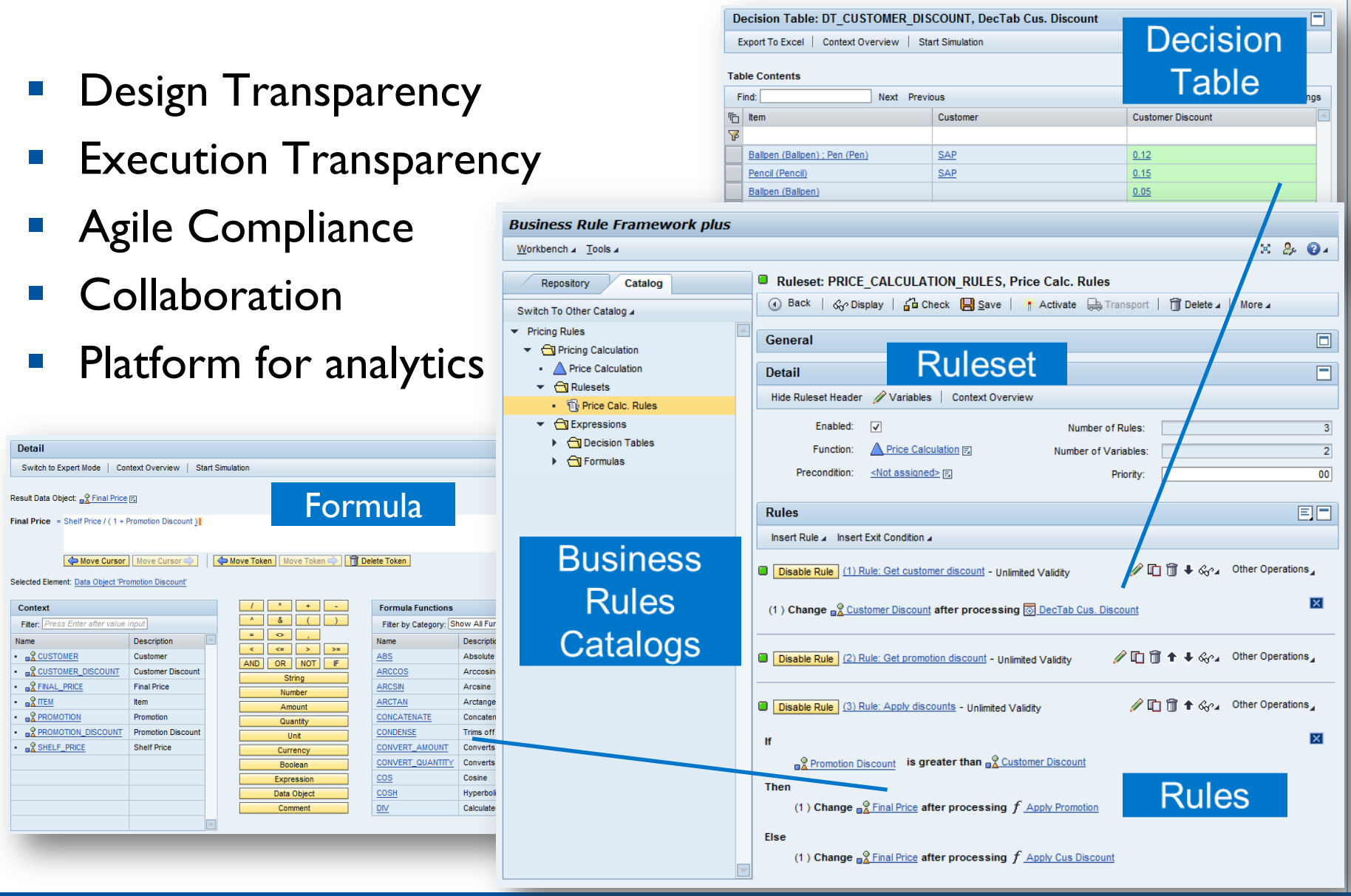
- Decreases cost of change
- No business/IT collaboration

Cons

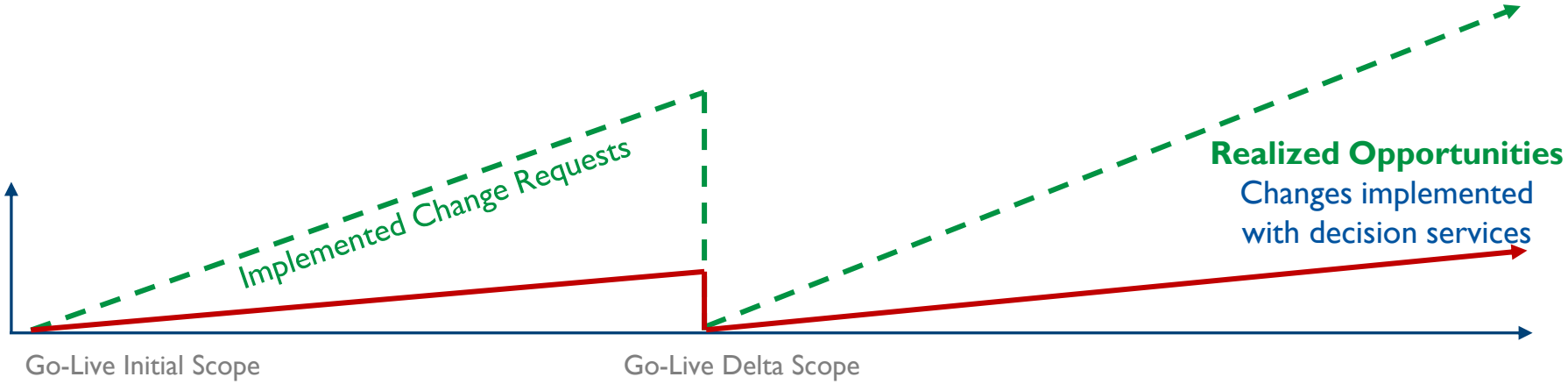
- Use of parameters can decrease readability
- Assumes kinds of changes can be exhaustively specified

A BRMS like BRFplus is compelling because

- Design Transparency
- Execution Transparency
- Agile Compliance
- Collaboration
- Platform for analytics



From Missed to Realized Opportunities



Decision Service Management Approach

- Clear separation of decisions from processes (agile but robust systems)
- Domain experts own and change implemented decisions
- Permanent and incremental decision optimizations

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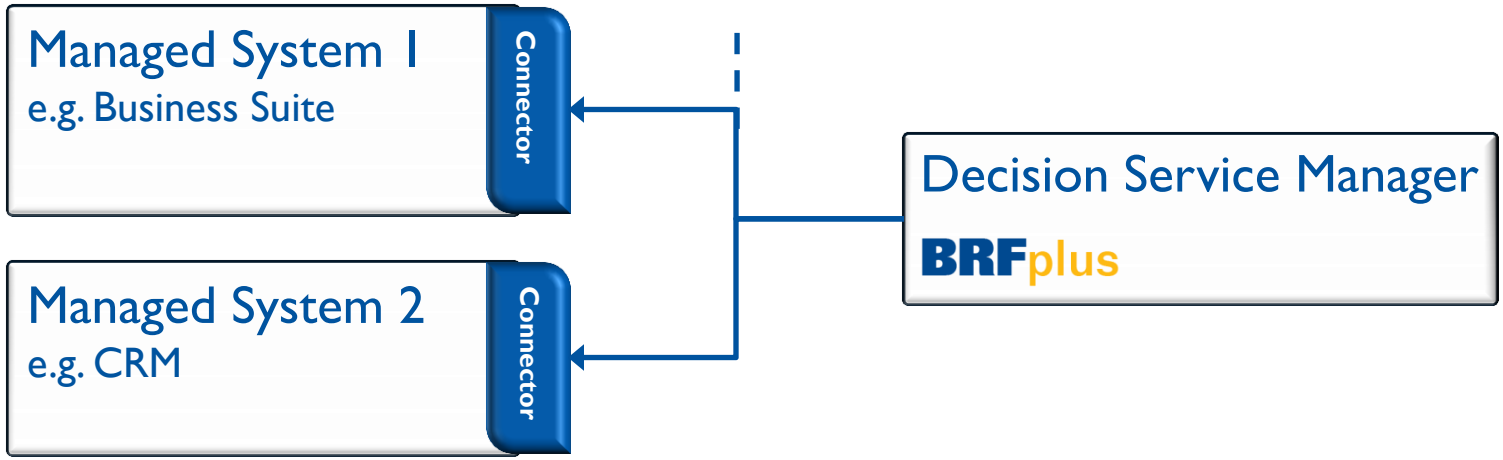
Decision Service Approach: Customer Landscape



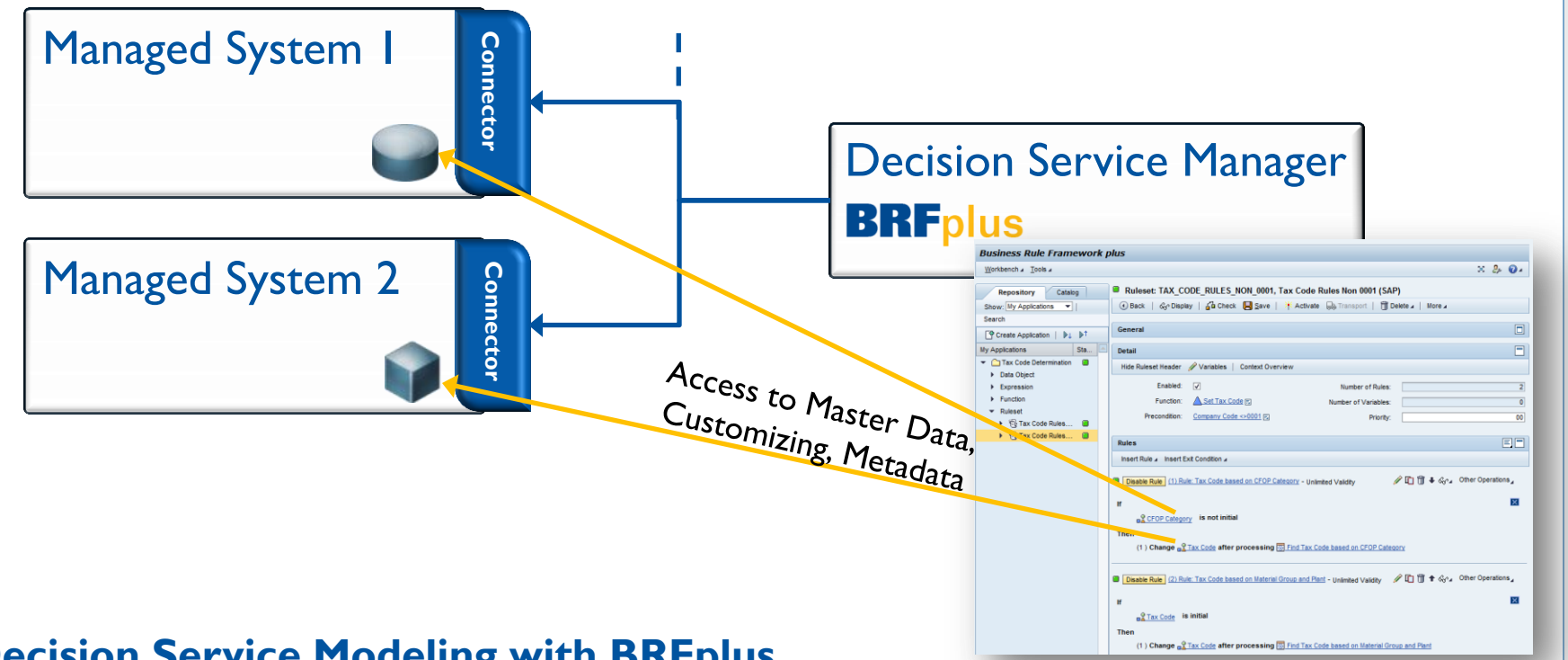
Decision Service Manager

- Extremely low hardware requirements
- Requires NetWeaver 7.0 Enhancement Package 3 or NetWeaver 7.3 Enhancement Package 1

Managed Systems

- Existing servers with customer business applications
- No Upgrade required, works with NetWeaver 6.40 or higher (>6 years old)
- Any number of managed systems can be connected with the Decision Service Manager (RFC)

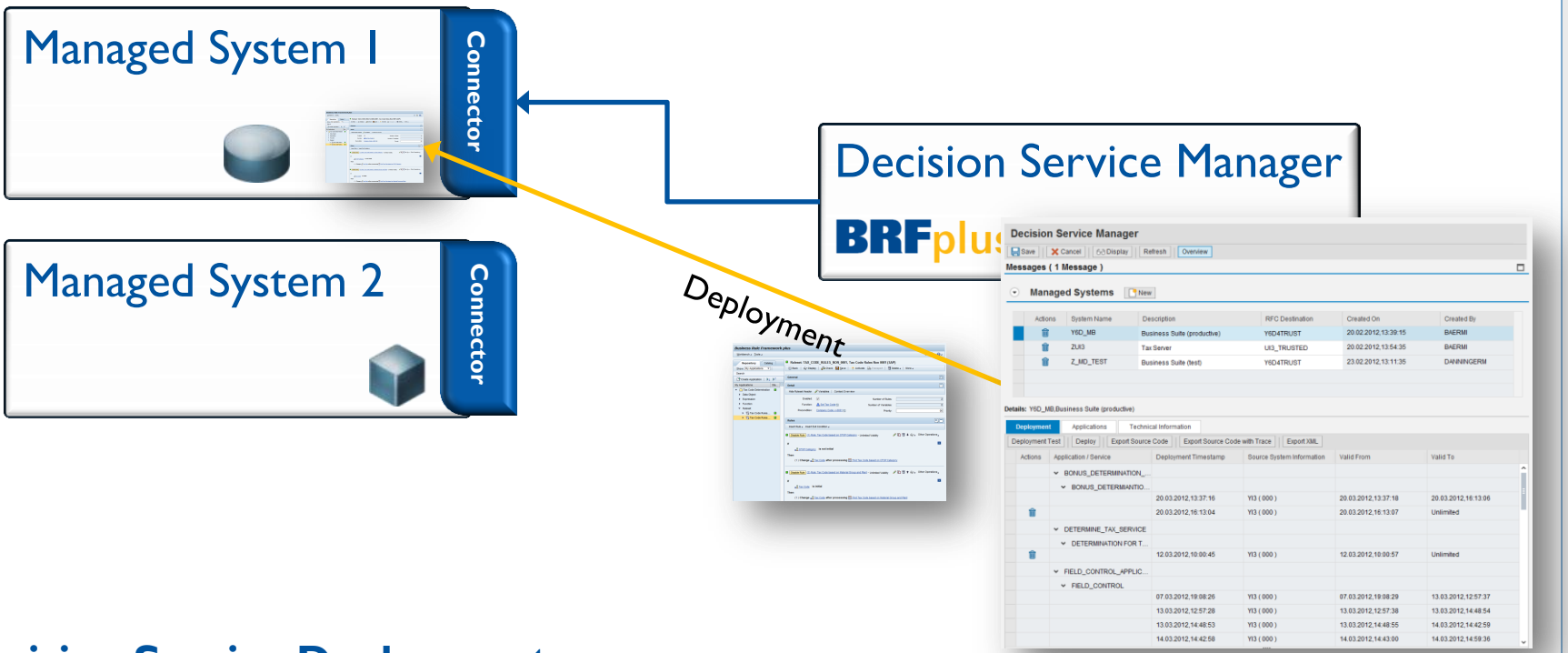
Decision Service Approach: Modeling



Decision Service Modeling with BRFplus

- Central creation, test and management of all rules and decisioning logic
- Service implemented in rulesets using decision tables, trees, text rules, formulas
- Transparency - no code but graphical modeling
- Access to all relevant data in the managed systems (e.g. master data used in value help of decision table rules)

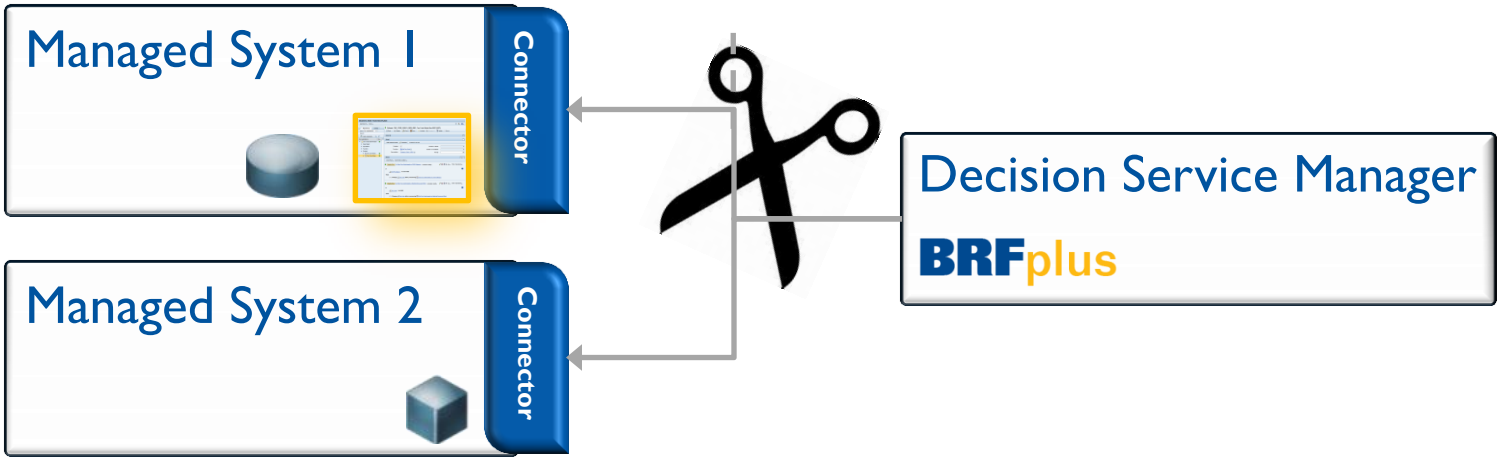
Decision Service Approach: Deployment



Decision Service Deployment

- Deployment describes the transfer of the decision service into one or many managed systems
- Hot deployment - immediate use with no downtime for deployment
- Activity periods - deploy today with as-of usage timepoint
- Overview about all decision services in all systems, deployment statistics

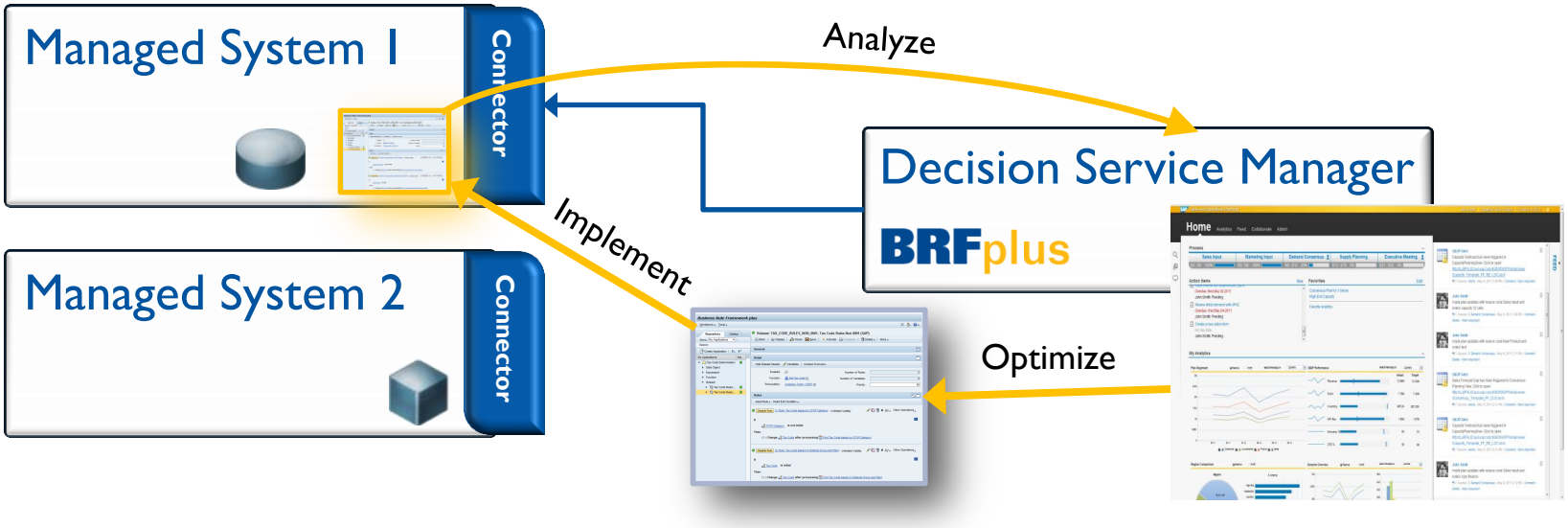
Decision Service Approach: Use



Decision Service Use

- Local execution of generated code, mass-enabled
  - Best performance
  - No dependency on Decision Service Manager
- Execution traces (inputs, result, decision path for decisioning analytics or legal compliance)

Decision Service Approach: Continuous Improvement

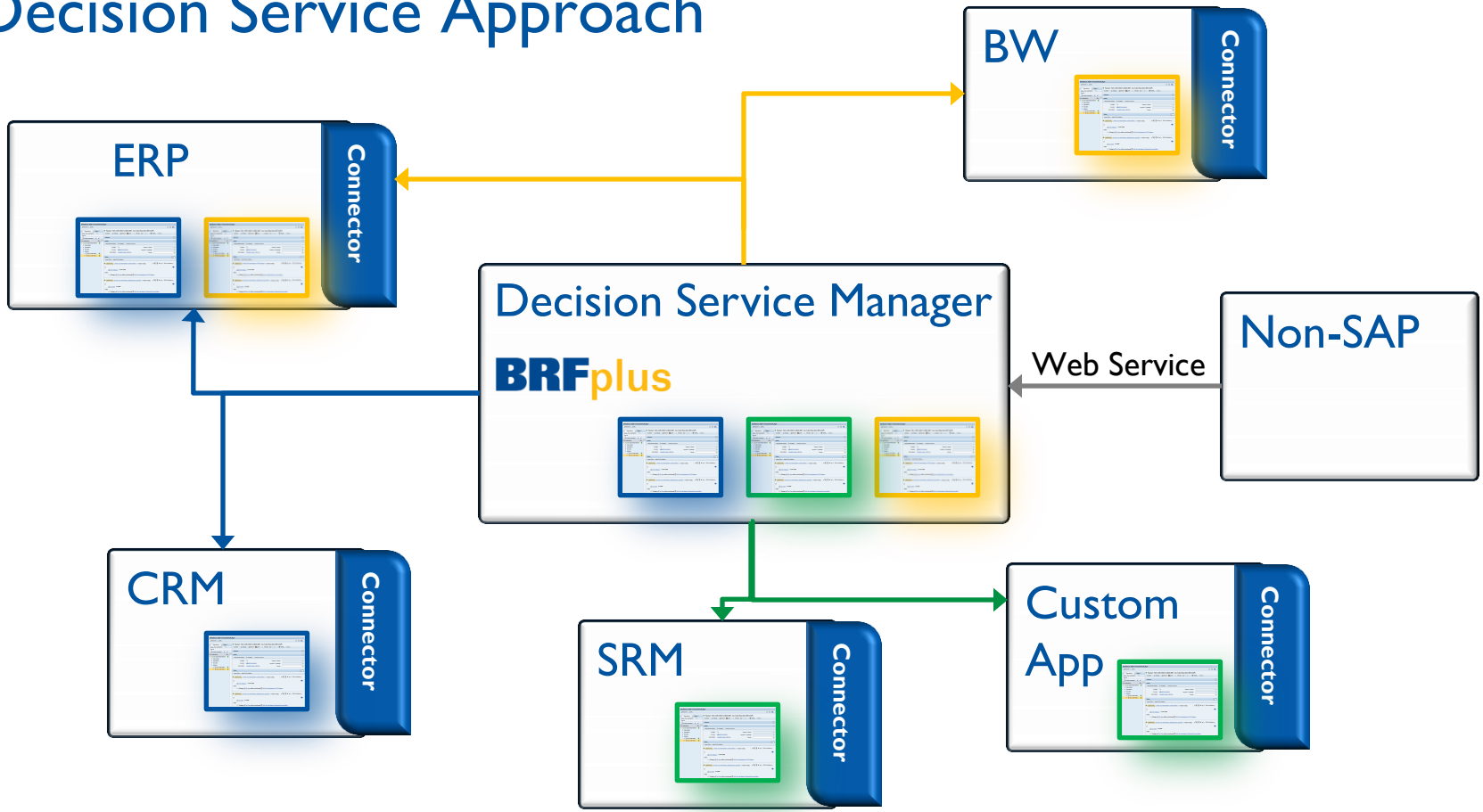


Decision Service Optimization

- Super-fast change cycles in the hand of the domain experts:

  Analyze, Optimize, Implement
- Automated business decisions with full transparency for better decision quality
- Immediate ROI

Decision Service Approach



Decision Service enabled customer system landscape

- Deployment of one service into multiple systems
- Reuse of decision services and single rules, decision tables, etc.
- Non-SAP systems connected by web service

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- **ROI**
- Best Practices and Learnings

The ROI of Decisions and Business Rules

1. Increased Business Value
2. Increased Development Efficiency
3. Increased Maintenance Efficiency

And in that order!

DECISION MANAGEMENT SOLUTIONS

James Taylor
CEO

CONTENTS

Suitable Decisions
Calculating ROI

SAP

The ROI of Business Rules in SAP

The Benefits and Costs of adopting SAP BRFplus

The business case for SAP's business rules management system BRFplus is clear—increased business value, decreased development and maintenance costs, and rapid time to value.

BRFplus is a business rules management system specifically developed for the ABAP environment and integrated with the SAP Business Suite. A business rules management system allows the decision-making logic of an information system to be externalized from the rest of the code so that it can be managed and updated independently of the remainder of the system. Rule maintenance environments and a business-friendly syntax allow non-technical business analysts and professionals to maintain the rules that drive decision-making in their business. Visual and declarative metaphors make it easy to manage large amounts of business logic and a repository allows for these rules to be versioned, access to be control and deployment to be managed. BRFplus is a fully realized business rules management system, available to SAP customers.

When business owners want to automate, control or streamline a business process, often what they need to do is manage the decisions within it.

When they are concerned about compliance or enforcing best practices, policies or contracts they almost certainly need those rules enforced during decision-making.

If they want to personalize, segment or target customers then they need to improve decision-making.

If they want to reduce complexity or increase flexibility then a focus on decisions may well get them further than a focus on processes or user interfaces.

These are the problems a business rules management system like BRFplus can solve.

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Business Value

- Reduced losses from more accurate fraud decisions
- Reduced fines from demonstrable compliance with regulations
- Quicker time to market with new products or services
- More competitive pricing scheme
- Productivity of business staff increases
- Redeployment of assets when staff no longer need to do repetitive decision-making
- Reduced time to value for new systems functionality with benefits of a system being realized sooner
- Reduced costs or losses while waiting for a change to a system such as rework caused by out of date system behavior.

Development Efficiency

- Increased specification productivity as business analysts are involved directly
- Improved developer productivity—adding 1 business analyst can eliminate the need for multiple programmers
- Reduced re-work as there is an improved quality of business rules
- Reuse of previously developed logic because it is easier to see opportunities for reuse and to take advantage of them when logic is in rules in a repository

Maintenance Efficiency

- Reduced effort to find where to make a required change
- Reduced effort to understand the existing code so the right change can be made
- Reduced effort to make the change
- Reduced effort to test the change to confirm it works
- Reduced effort to deploy the change

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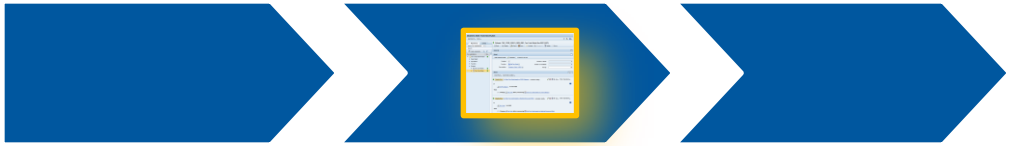
Best Practice: Begin with the Decision in mind

Find the **decisions** that matter to your business and focus on them as well as your processes.

Best Practice: Business Ownership



Decisions have owners.
So have decision services.

Decision services are the responsibility of business-side experts.

Best Practice: 3 Steps to Decision Management

Key Learnings

- Focusing on Decisions improves Enterprise Applications
- Decisions are different and not the same as Processes or Rules
- Managing Decision Services creates agility and business value
- BRFplus delivers Decision Services optimized for SAP/ABAP applications
- Use BRFplus Decision Services whenever one of the following is true:
  - Decisions are value drivers
  - Decisions are likely to change over time
  - Configuration with customizing tables will become too complex

Thank you for participating.

Please remember to complete and return your evaluation form following this session.

For ongoing education on this area of focus, visit the Year-Round Community page at www.asug.com/yrc

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