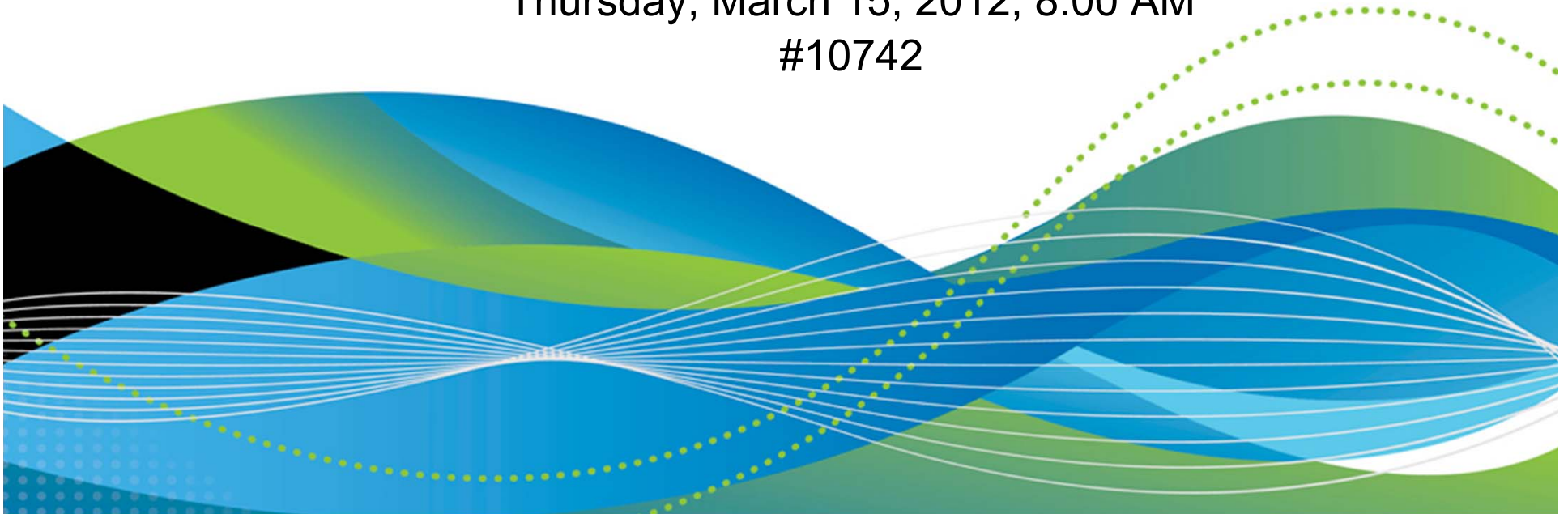# Using Business Rules to Achieve Affordable Agility in System z Applications

Julie Reese

IBM

Thursday, March 15, 2012, 8:00 AM

#10742

IBM BPM and IBM WebSphere Operational Decision Management on z/OS SHARE sessions – join us

10736: Making zEnterprise Relevant to Line of Business

Monday, March 12, 2012: 1:30 PM-2:30 PM, International Ballroom E

10740: CICS and Decision Management: Perfect Together

Tuesday, March 13, 2012: 3:00 PM-4:00 PM, Dogwood A

11094: Decision Management for CICS: Optimizing CICS Infrastructure for Business Rules Execution - Lunch & Learn

Wednesday, March 14, 2012: 12:15 PM-1:15 PM, International Ballroom B

10742:   Using Business Rules to Achieve Affordable Agility in System z Applications

Thursday, March 15, 2012: 8:00 AM-9:00 AM, International Ballroom E

10751: Modernization of Mainframe Applications with WebSphere Operational Decision Management for z/OS

Thursday, March 15, 2012: 9:30 AM-10:30 AM, International Ballroom E

10743: Why Business Rules and Business Process Management are Important to System z Apps (and to you)

Thursday, March 15, 2012: 4:30 PM-5:30 PM, International Ballroom E

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► Synergy with decision management

► Adoption

► Operational Decision Management use cases

► Next steps

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► Synergy with decision management

► Adoption

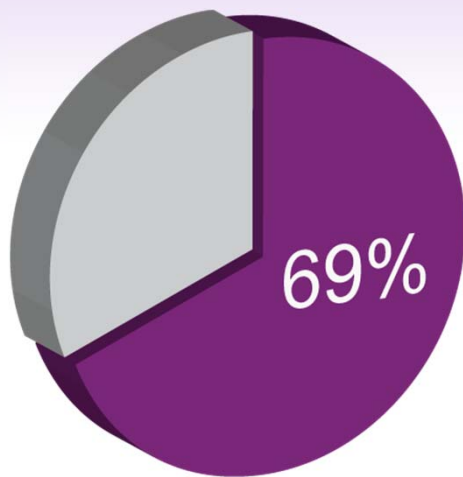► Operational Decision Management use cases

► Next steps

The business environment is increasingly dynamic

CEOs expect change to be more frequent and less predictable

To what extent is the economic environment different?

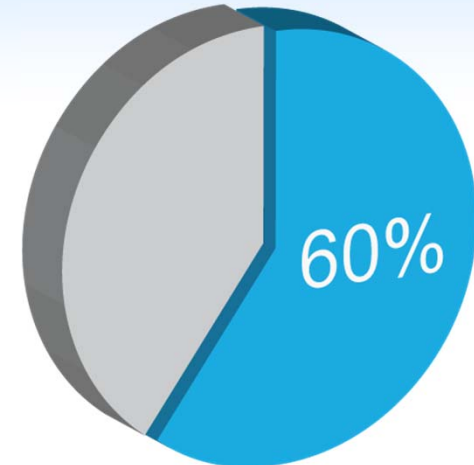| More *Volatile*	More *Uncertain*	More *Complex*
69%	65%	60%
Deeper / Faster Cycles, More Risk	**Less Predictable**	**Multi-faceted, Interconnected**
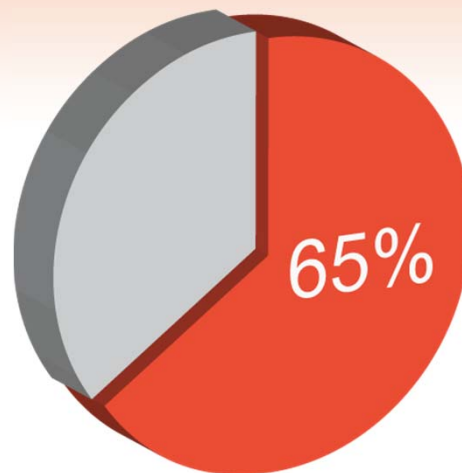
Percent of CEOs who answered "*To a large or very large extent*"

Source: IBM CEO Study 2010

5

Why better decisions are critical to success

Accurate, real-time decisions improve business performance and results

Identify opportunities to *increase profitability*

Enforce consistency to *ensure compliance*

Leverage information to *manage risk*

"Decisions are what make strategy real and drive results and performance against metrics… decisions made about how to interact with partners, suppliers, customers, employees."
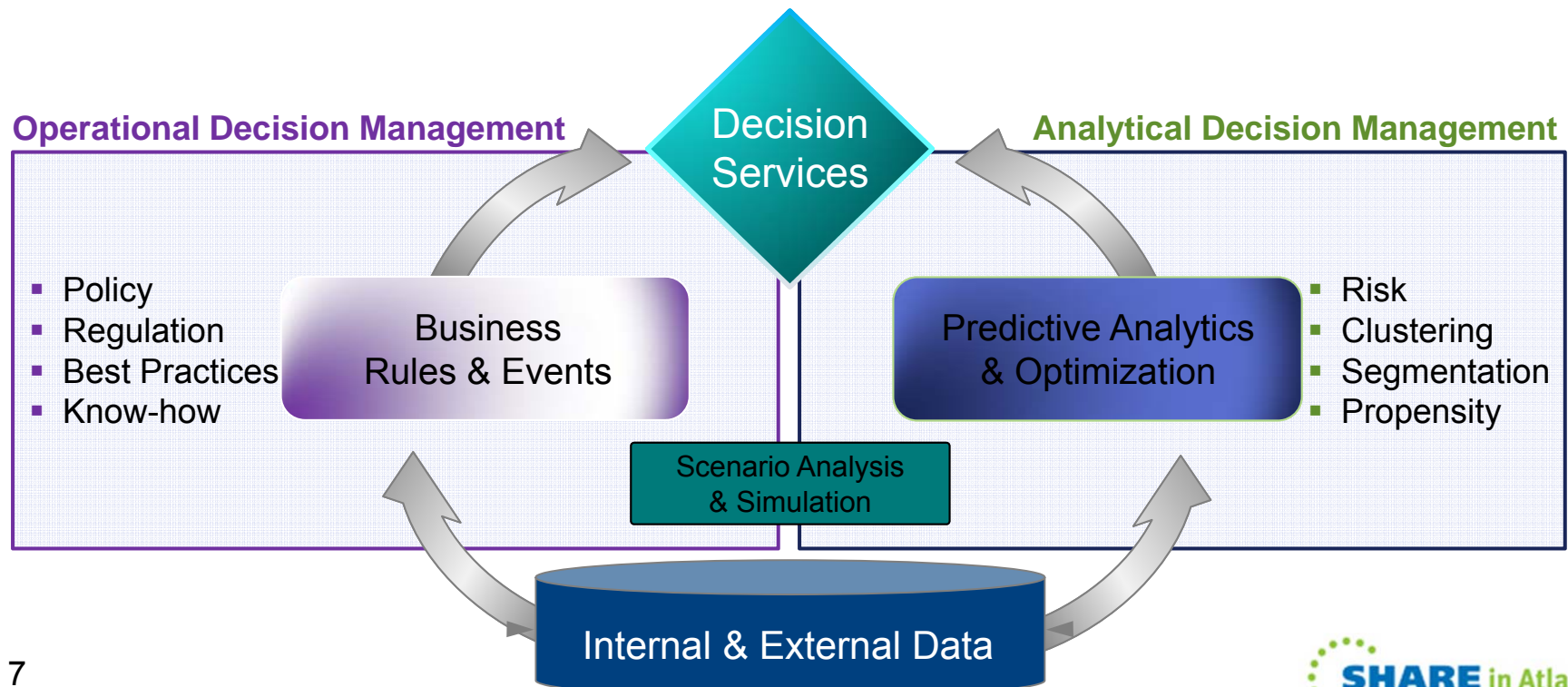
James Taylor, "Becoming a Decision-centric Organization," 2011

What is Decision Management?

Decision Management is a business discipline, supported by operational and analytics software, that enables organizations to automate, optimize and govern repeatable business decisions to improve the value of customer, partner and internal interactions.

Business Processes, Applications & Solutions

Decision Services

Operational Decision Management

Analytical Decision Management

- Policy
- Regulation
- Best Practices
- Know-how

Business Rules & Events

Predictive Analytics & Optimization

- Risk
- Clustering
- Segmentation
- Propensity

Scenario Analysis & Simulation

Internal & External Data

Business Rules and Business Events

Business Rules

Primarily implements a decision model – given a snapshot view of data, determines best course of action at a specific point in a process or application

Main purpose is to automate a decision based on a combination of factors (business policies, regs, best practices)

If the Passenger is a gold frequent traveler and flight distance is more than 4000 miles and the flight destination is in Europe or Asia Then Add 10,000 points to the fidelity card of the Passenger

Business Events

Primarily implements a time-based pattern detection model – correlating events as data is in motion

Main purpose is to determine what of interest is transpiring and coordinate one or more responses by other systems or generate alerts to people

If more than 2 customer withdraws in an ATM are done in the same day and the 2 ATMs are from 2 foreign countries Then Investigate possible fraud Reduce cash redraw max amount to 100$

Gartner characterizes Rules and Complex Event systems as complementary notions. The combination being required to implement intelligent decision management programs.

Operational decisions in organizations

Can get quite large

Are scattered everywhere

Mainframe

Monolithic Applications

Manual Processes

Spreadsheets

Databases

Are subject to change
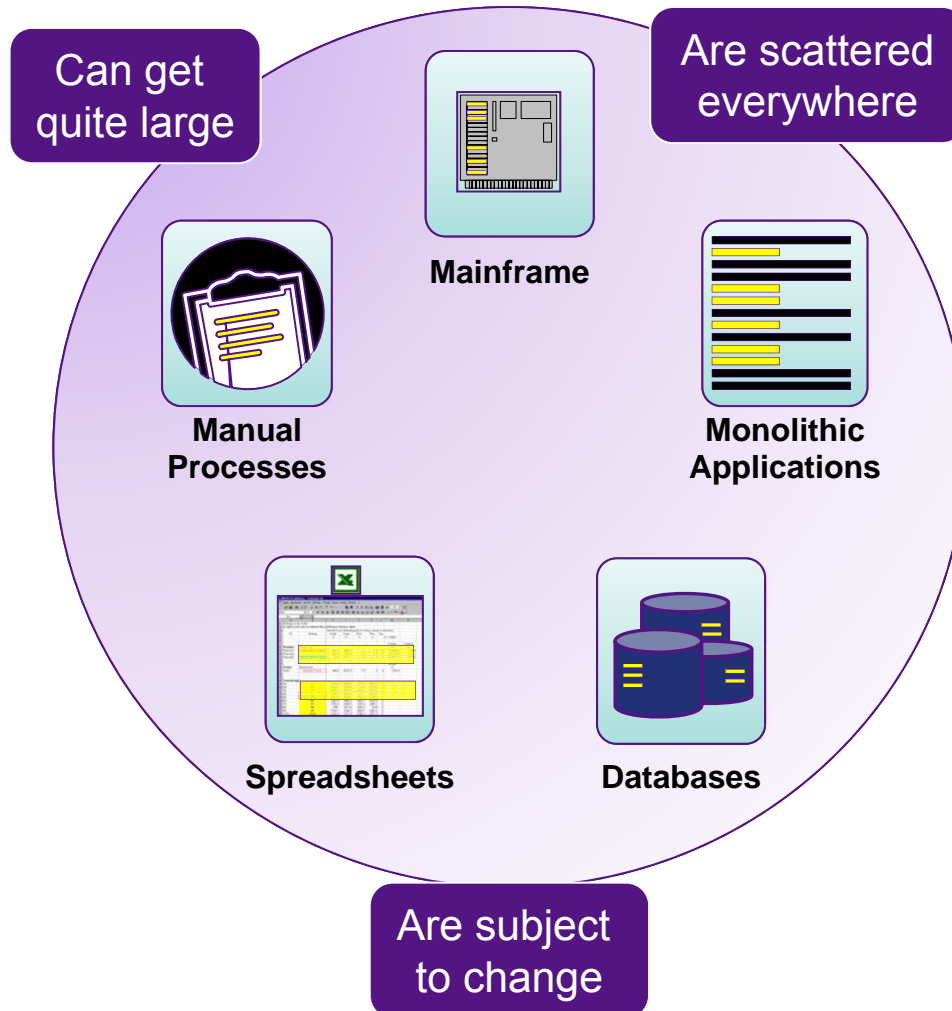
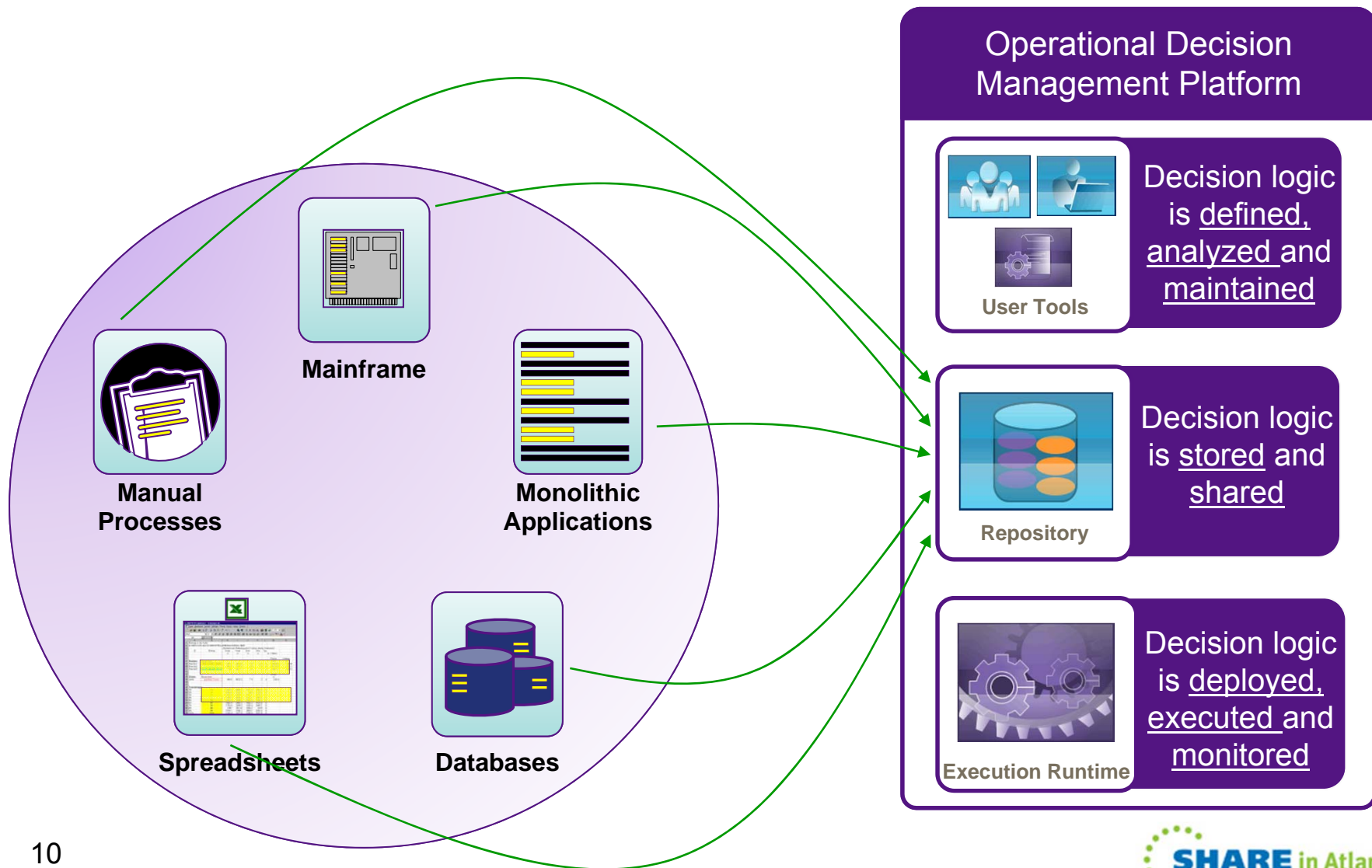## Challenges for a Change Request

- Changes are costly, resource & time-intensive
  - Hidden in code
  - Most changes have to be programmed – costly

- Lack of consistency
  - No central management
  - No reuse of decision logic

- Gap between business analysts & IT administrators
  - Knowledge fades over time

- Lack of audit ability

- No easy way to test/simulate changes

SHARE in Atlanta 2012

Operational Decision Management approach

Operational Decision Management Platform

User Tools
Decision logic is <u>defined</u>, <u>analyzed</u> and <u>maintained</u>

Repository
Decision logic is <u>stored</u> and <u>shared</u>

Execution Runtime
Decision logic is <u>deployed</u>, <u>executed</u> and <u>monitored</u>

Manual Processes

Mainframe

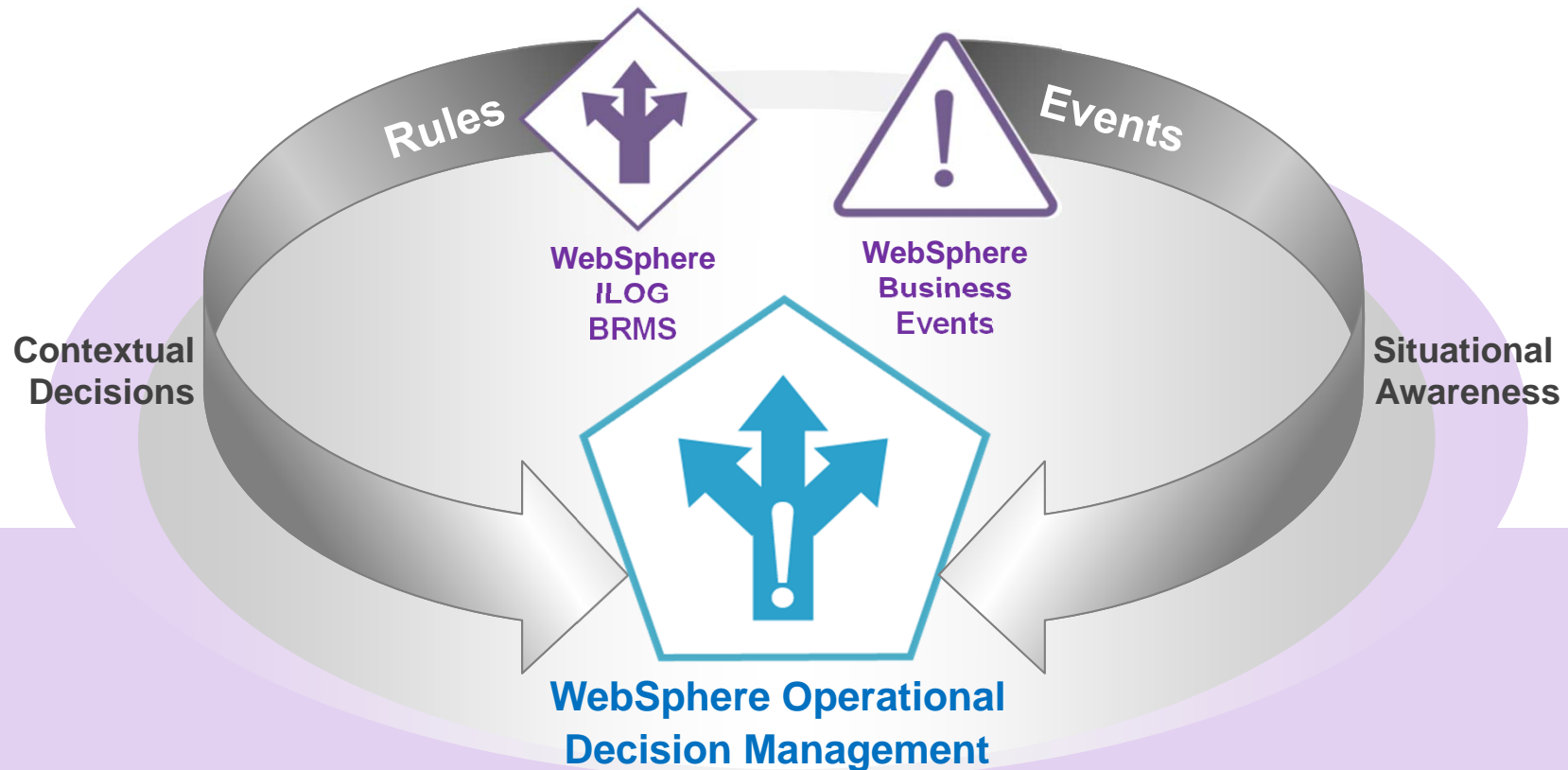**Monolithic Applications**

Spreadsheets

Databases

Agenda

► Operational Decisions: the why and the what

► **WebSphere Operational Decision Management: the how**

► Synergy with decision management

► Adoption

► Operational Decision Management use cases

► Next steps

Introducing WebSphere Operational Decision Management

Rules

Events

WebSphere ILOG BRMS

WebSphere Business Events

Contextual Decisions

Situational Awareness
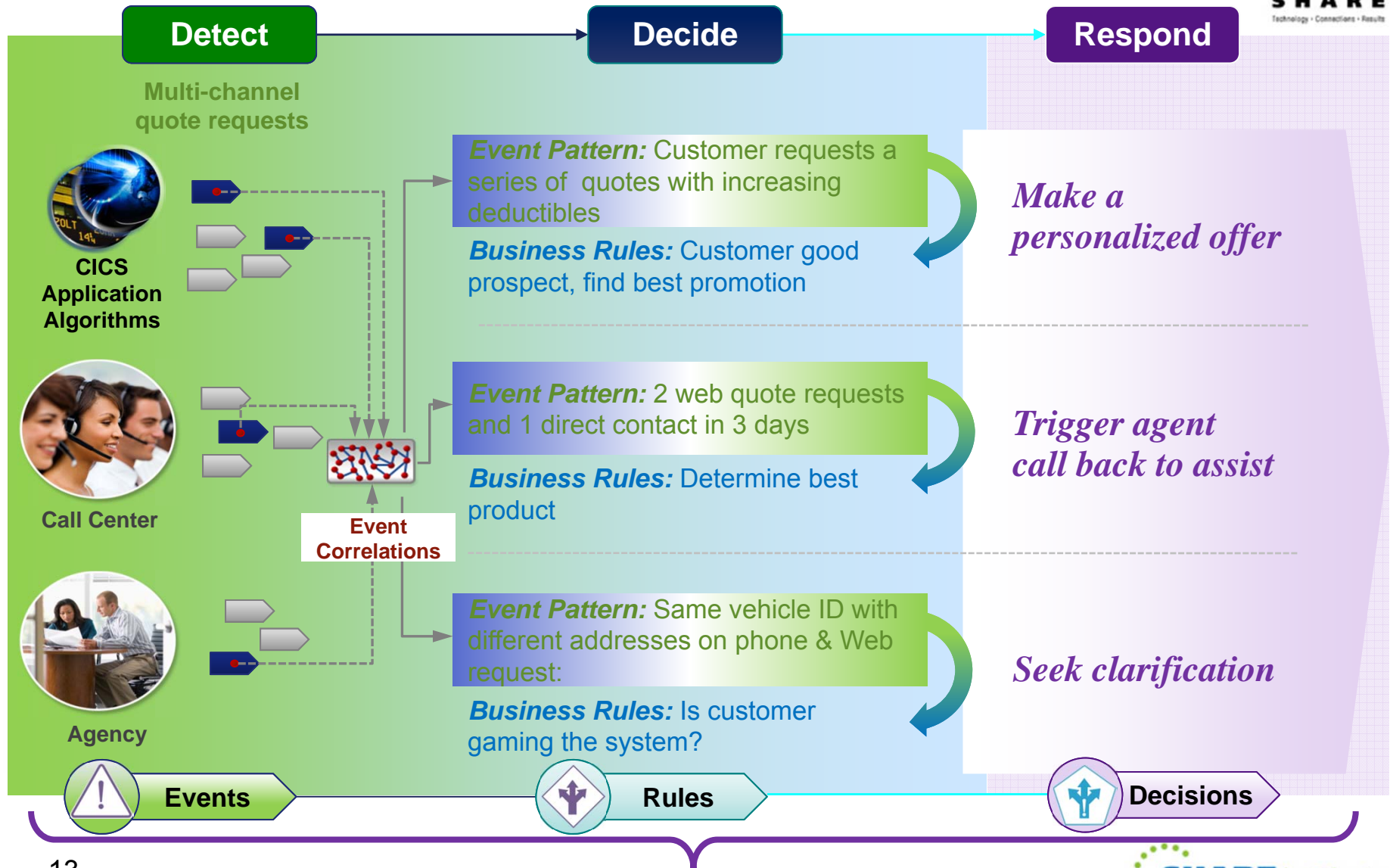
WebSphere Operational Decision Management

Your business decisions.

Made by your business *experts*.   Delivered in *real-time* by technology.

12
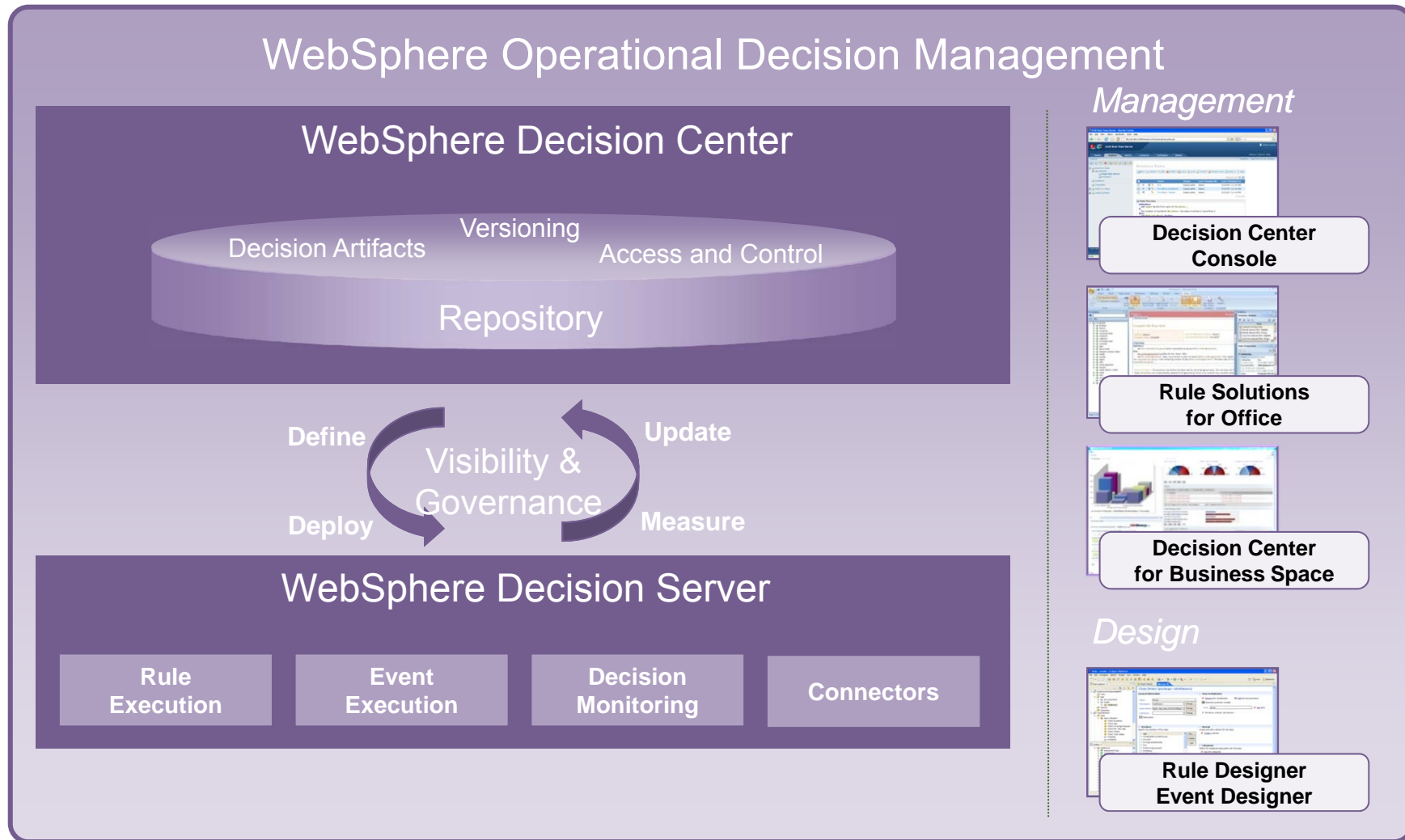
Putting it together – events and rules
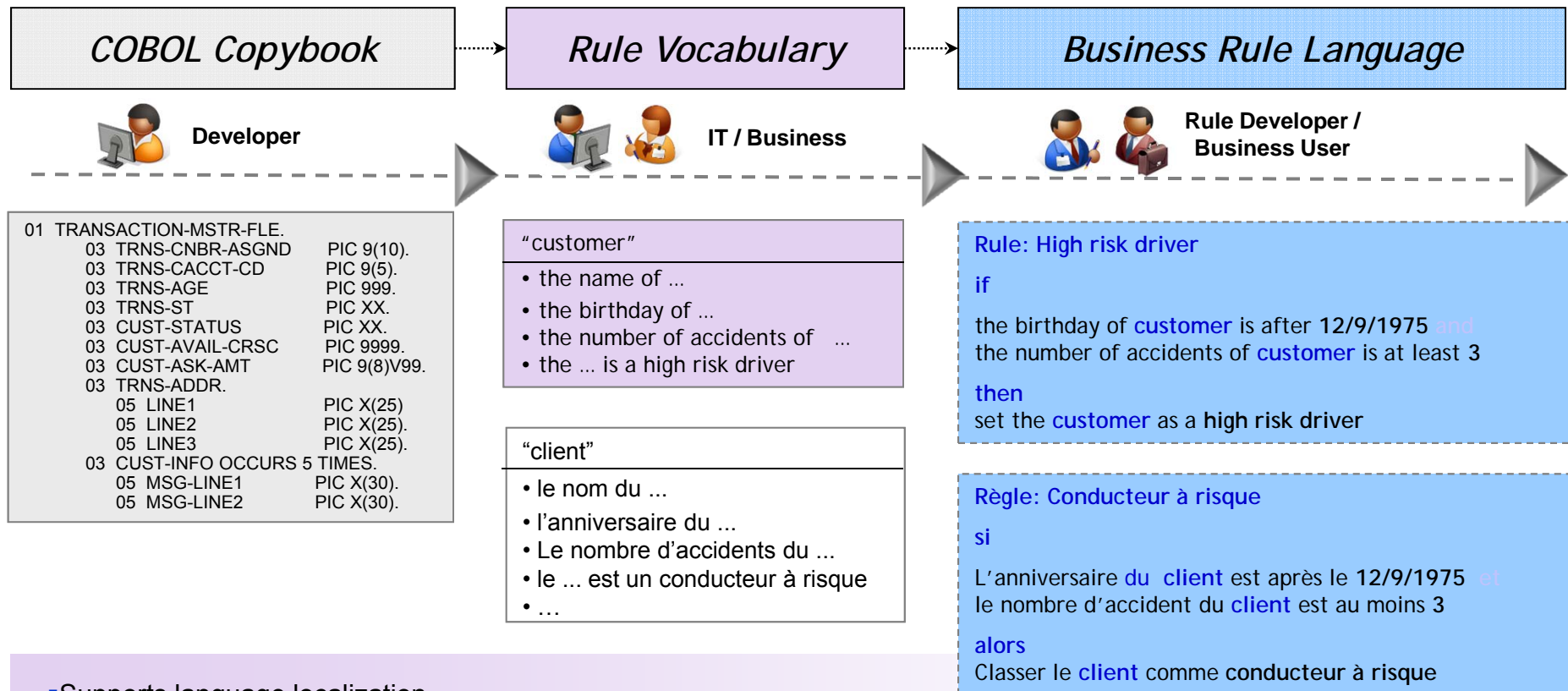
Insurance use case: customer acquisition

Detect	Decide	Respond

Multi-channel quote requests

CICS Application Algorithms

Call Center

Agency

Event Correlations

Event Pattern: Customer requests a series of quotes with increasing deductibles

Business Rules: Customer good prospect, find best promotion

Make a personalized offer

Event Pattern: 2 web quote requests and 1 direct contact in 3 days

Business Rules: Determine best product

Trigger agent call back to assist

Event Pattern: Same vehicle ID with different addresses on phone & Web request:

Business Rules: Is customer gaming the system?

Seek clarification

⚠ Events	Rules	Decisions

13

IBM WebSphere Operational Decision Management for z/OS

WebSphere Operational Decision Management
Components

Management

WebSphere Decision Center

Versioning

Decision Artifacts

Access and Control

Repository

Define | Update
Visibility & Governance
Deploy | Measure

Decision Center Console

Rule Solutions for Office

Decision Center for Business Space

Design

WebSphere Decision Server

| Rule Execution | Event Execution | Decision Monitoring | Connectors |

Rule Designer Event Designer

Business Decisions stated in business language

COBOL Copybook	Rule Vocabulary	Business Rule Language
Developer	IT / Business	Rule Developer / Business User

```
01  TRANSACTION-MSTR-FLE.
       03  TRNS-CNBR-ASGND     PIC 9(10).
       03  TRNS-CACCT-CD       PIC 9(5).
       03  TRNS-AGE            PIC 999.
       03  TRNS-ST             PIC XX.
       03  CUST-STATUS         PIC XX.
       03  CUST-AVAIL-CRSC     PIC 9999.
       03  CUST-ASK-AMT        PIC 9(8)V99.
       03  TRNS-ADDR.
          05  LINE1            PIC X(25)
          05  LINE2            PIC X(25).
          05  LINE3            PIC X(25).
       03  CUST-INFO OCCURS 5 TIMES.
          05  MSG-LINE1        PIC X(30).
          05  MSG-LINE2        PIC X(30).
```

"customer"

• the name of …
• the birthday of …
• the number of accidents of   …
• the … is a high risk driver

"client"

• le nom du …
• l'anniversaire du …
• Le nombre d'accidents du …
• le … est un conducteur à risque
• …

Rule: High risk driver

if

the birthday of **customer** is after **12/9/1975** and
the number of accidents of **customer** is at least **3**

then
set the **customer** as a **high risk driver**

Règle: Conducteur à risque

si

L'anniversaire du **client** est après le **12/9/1975** et
le nombre d'accident du **client** est au moins **3**

alors
Classer le **client** comme **conducteur à risque**

- Supports language localization
- Integrates with external data sources (e.g. list of countries)
- Drop down lists for customized domain data
- Templates facilitate new rule and event creation
- Customizable vocabulary specific to your organization, industry, application (etc.)
- Empower business experts to manage and validate decision logic, eliminating delays in business

15

Decision Tables

	Grade	Amount of loan		Insurance required	Insurance rate
		Min	Max		
0		< 100,000		false	⊘
1	A	100,000	300,000	true	0.001
2		300,000	600,000	true	0.003
3		≥ 600,000		true	0.005
4		< 100,000		false	⊘
5	B	100,000	300,001	true	0.0025
6		300,000	600,000	true	0.005
7		≥ 600,000		true	0.0075
8		< 100,000		true	0.0035
9	C	100,000	300,000	true	0.006
10		300,000	600,000	true	0.0085
11		≥ 600,000		true	0.0145
12	Otherwise			true	0.022

Actions

Built-in Gap/Overlap checking

if
  all of the following conditions are true :
    - the loan grade in **'the loan report'** is **"C"**
    - the amount of **'the loan'** is at least 600000 ,
then
  set insurance required in **'the loan report'** to *true* ;
  set the insurance rate in **'the loan report'** to 0.0145 ;

Automatic Rule generation

Multiple release management

Greater flexibility for deploying business decisions

- **Enable business users** to make changes to a deployed rule application without interfering with work they are doing on an upcoming release

- **Merge and diff** between releases
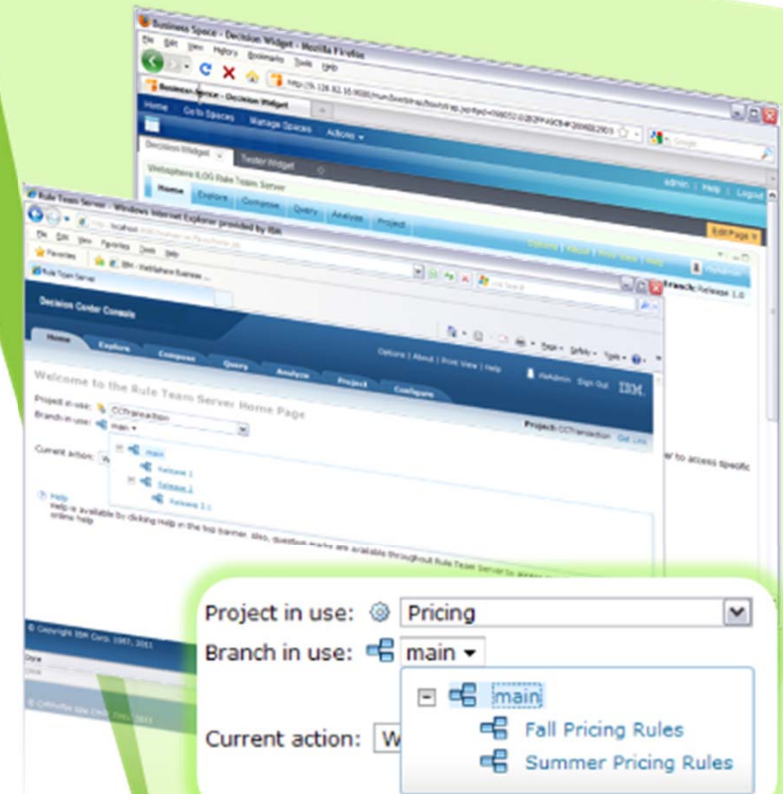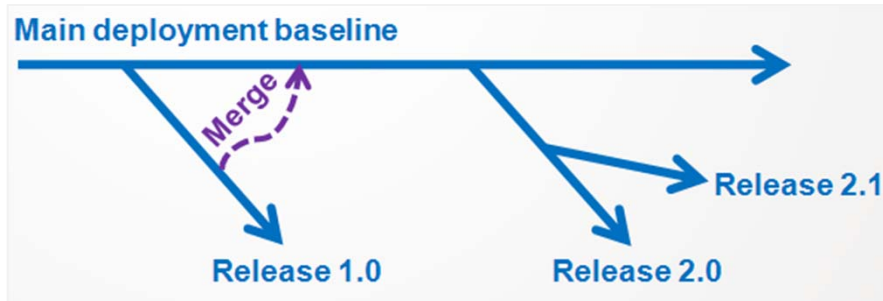
Easily implement changes in distinct versions and better control how to merge them across different releases

Multiple release management visual support

Improving ease and confidence of managing changes

- Detailed side-by-side graphical difference highlights between releases

- Multi-directional merge from one release to another

Visually see and understand differences across releases and decide accordingly on how to perform merge between them

IBM WebSphere Operational Decision Management

Runtime support

Leverage a wide range of platforms to meet the varying needs of enterprise architectures

IBM WebSphere Decision Center
(Windows, AIX, Linux, z/OS)

Repository

| Windows | AIX | Linux | z/OS |

Multiple z/OS deployment options

IBM WebSphere Decision Server
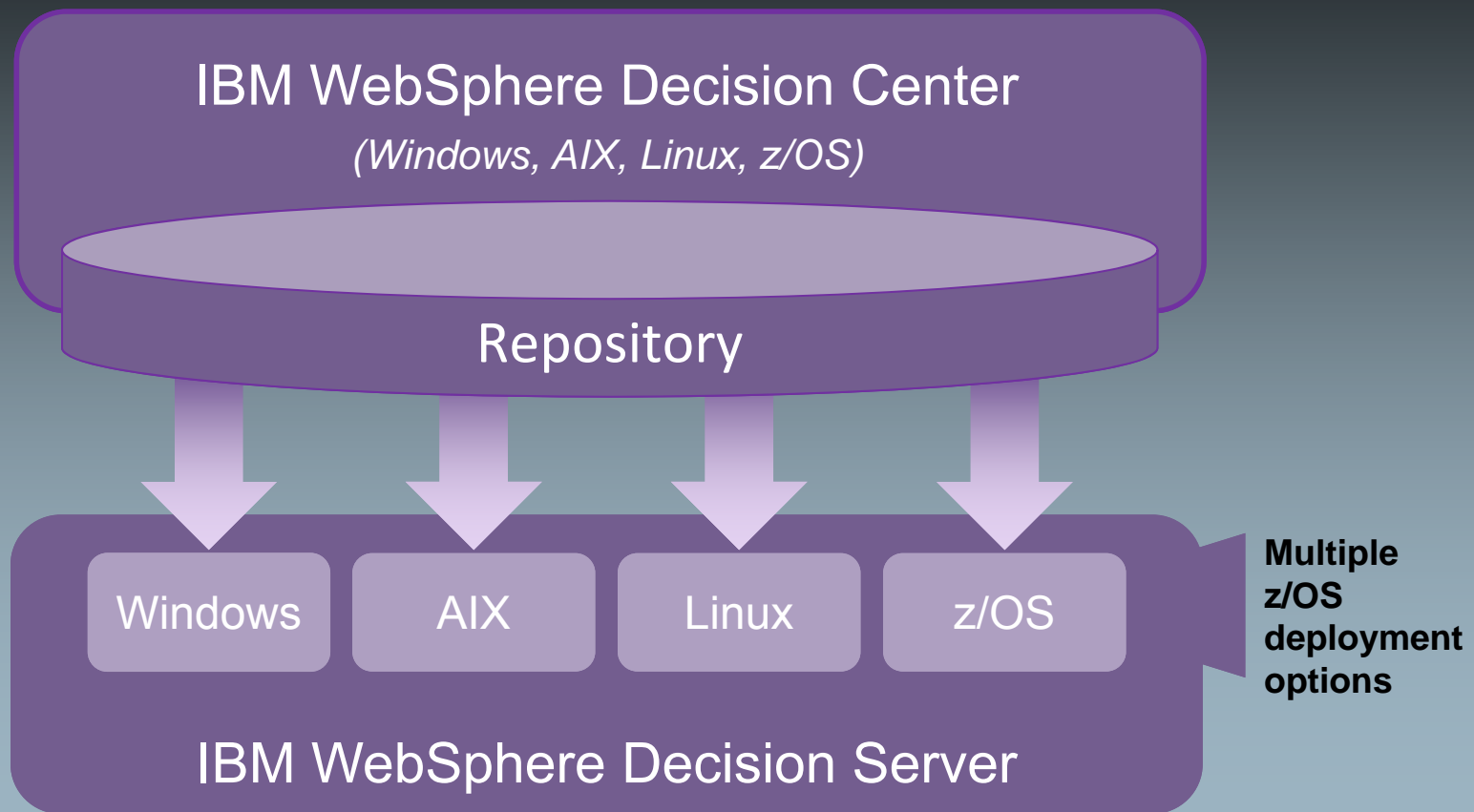
Decision Server for z/OS
Business rules execution options

Rule Development and Management

Rule Deployment

Development

Application Developer, Architect

Event & Rule Designer

COBOL Management

Rule Management

Business Analyst, Business Manager

Decision Center

Decision Center Repository

COBOL code Generation

zRule Execution Server for zOS

Rule Execution Server on WAS for zOS

SHARE in Atlanta
2012
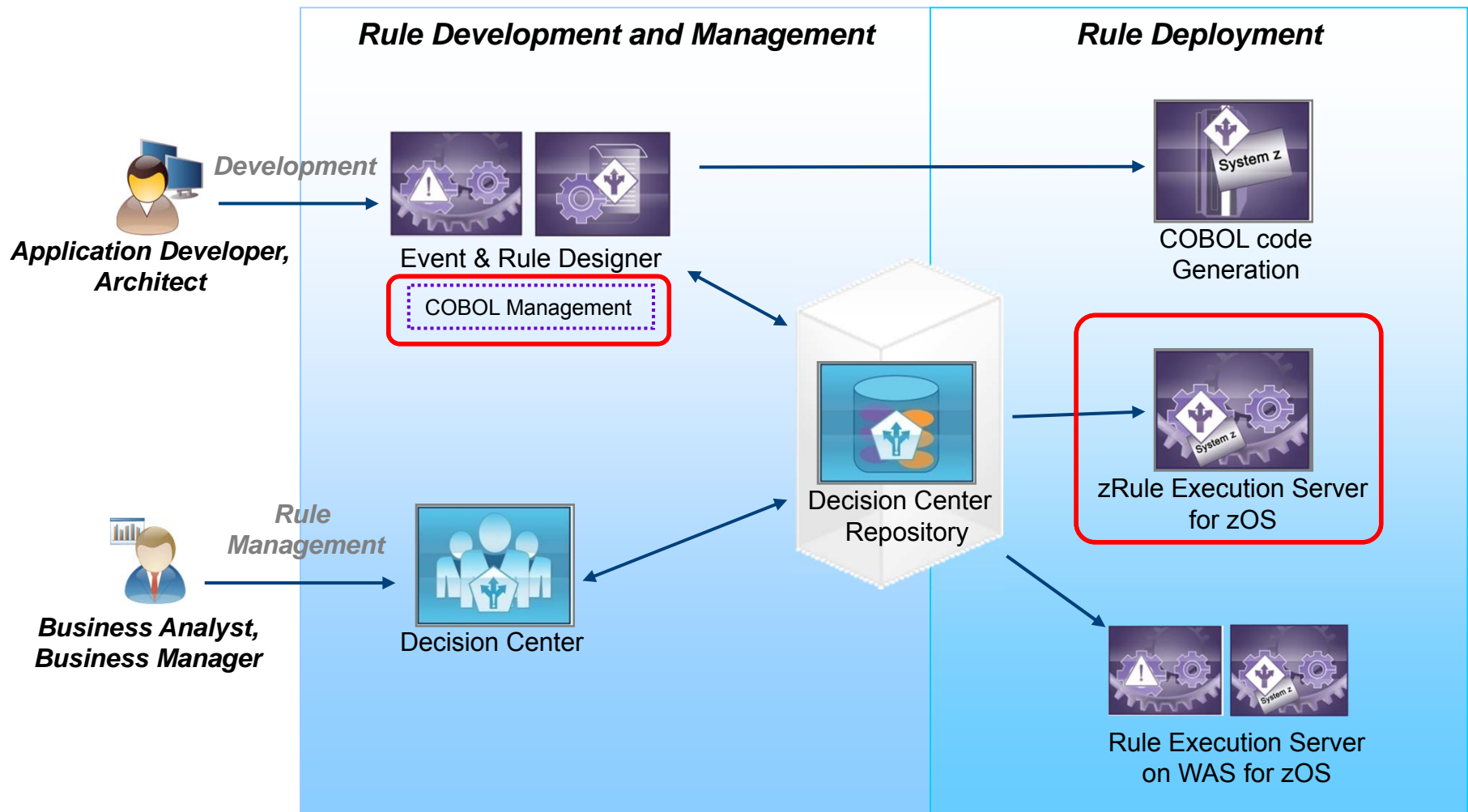
Operational Decision Management on System z

Runtime options

Decisions can be invoked from existing CICS and batch applications

Runtime support for COBOL data types

Flexible runtime deployment to fit any System z environment:

- Deployed on WebSphere Application Server for z/OS
- Deployed on CICS TS 4.x (JVM server environment)
- Deployed standalone to z/OS

Business Rules, Business Events

WebSphere Decision Server for z/OS

Rule Execution Server

zEvents Execution

WebSphere Application Server for z/OS*

Business Rules

zRule Execution Server (on CICS)

CICS TS v4.x**

Business Rules

zRule Execution Server (Standalone)
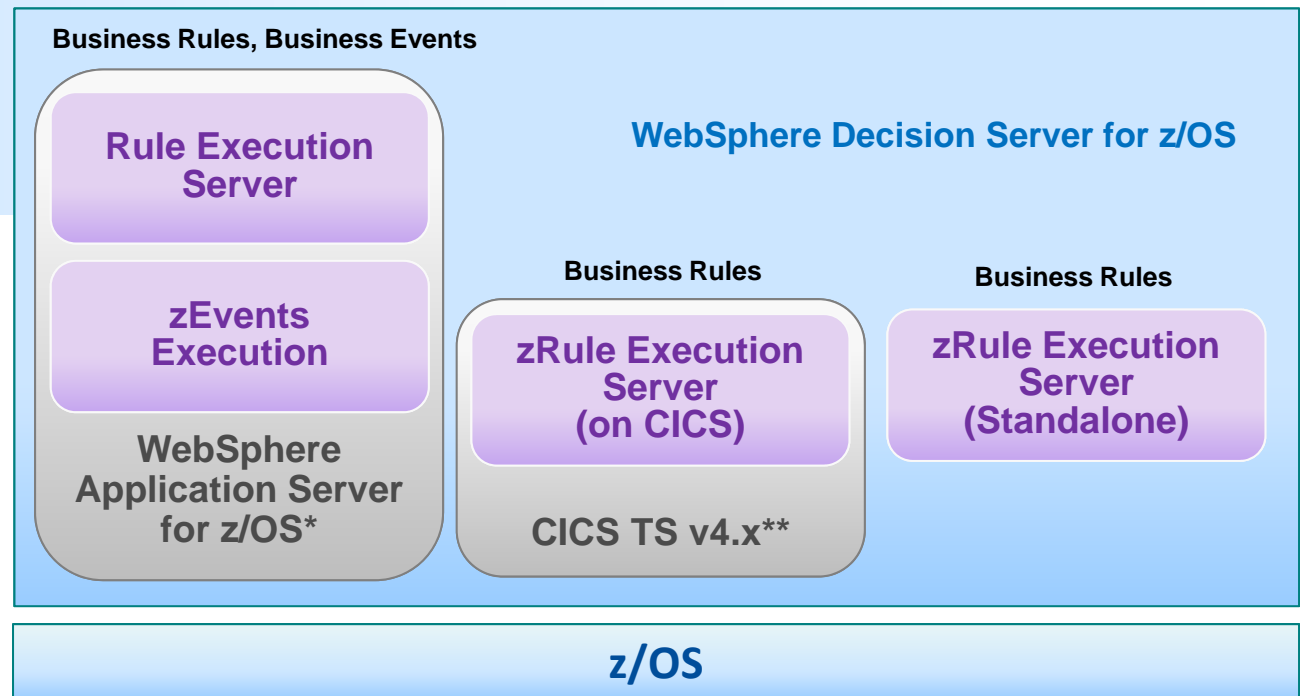
* WAS for z/OS OEM entitlement included with Decision Server

** CICS Transaction Server licenses purchased separately

z/OS

Deployment options for WODM on System z

z Blade eXtension (zBX)

System z 196 (or 114)

Security	Safe	Safer	Safest
Application/Data Access	Fast	Faster	Fastest

22
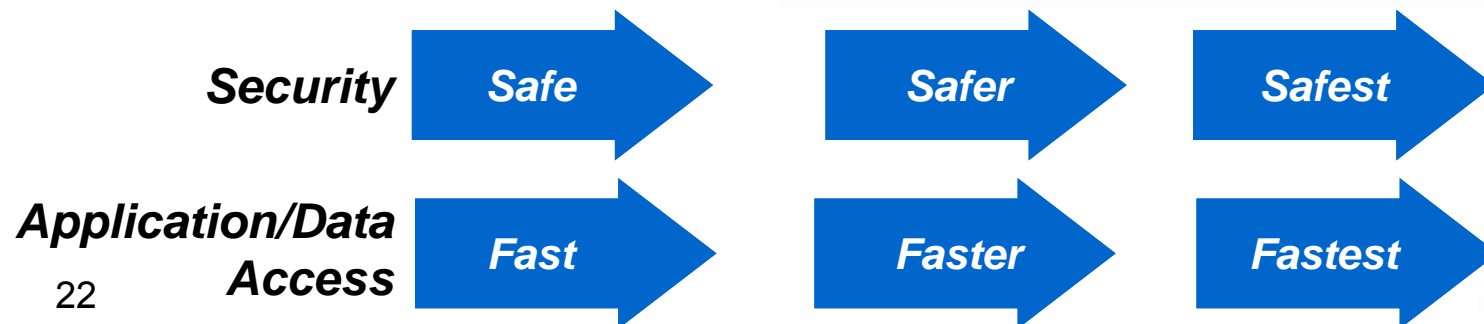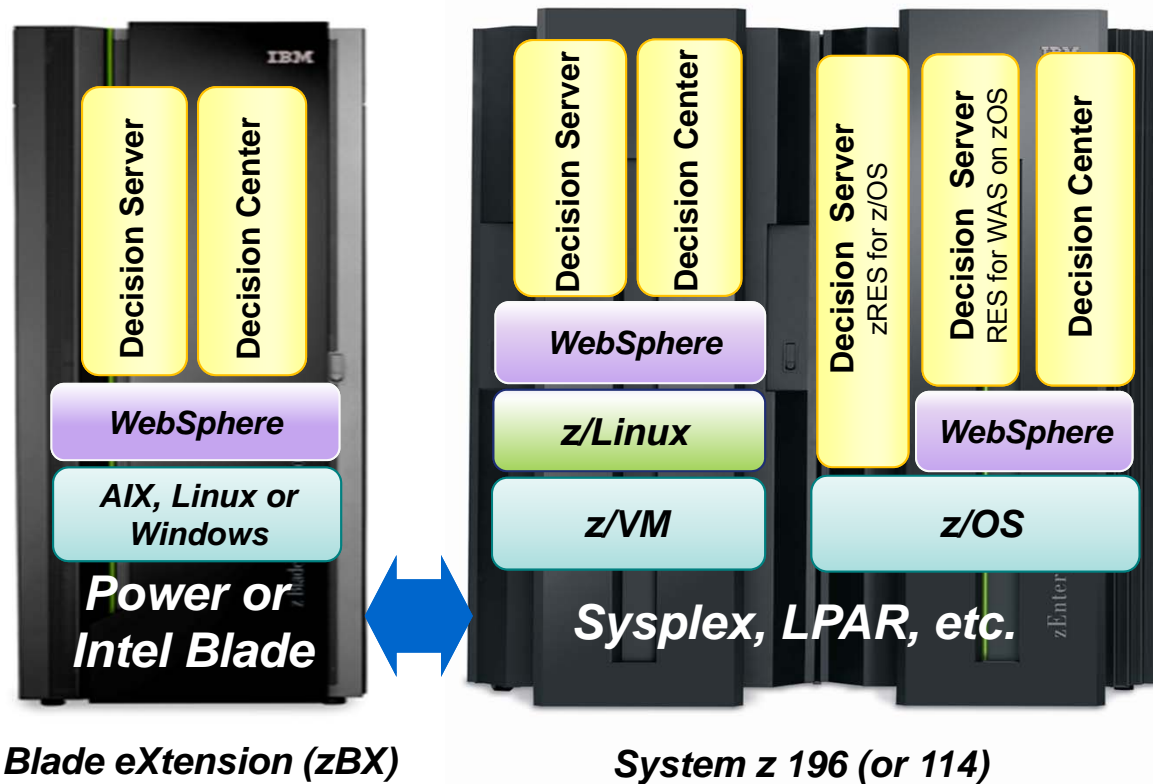
The value of this solution for your z/OS applications

- *WebSphere Operational Decision Management enables organizations in every industry to make their business rules and business decisions clear, consistent and **expressed in business language** to be able to change when the business needs.*

- *Transformation or **modernization** of z/OS applications*

- *Ability to **react to change** (timely reaction to market and competitive changes)*

- *Overcome IT and Business mis-alignment – keep up and service **business requests***

- *Eliminate resource drain on application maintenance – **reuse of business decisions** across applications and platforms*
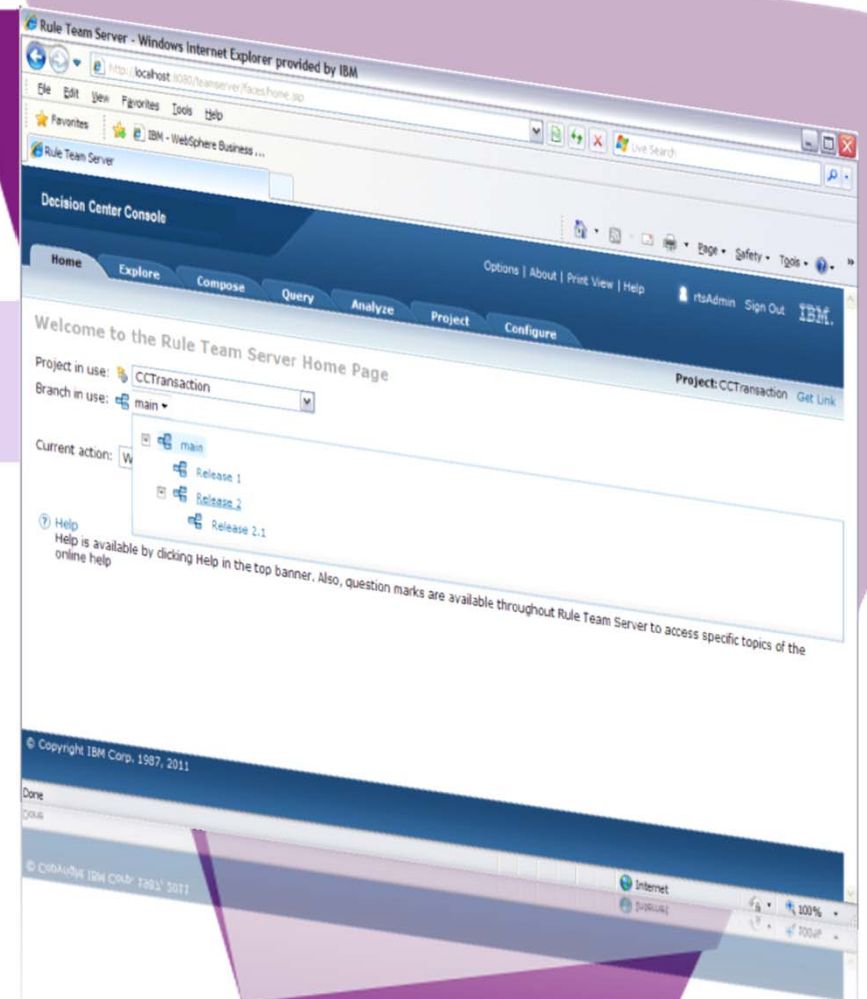
Why modernize with Decision Management on z/OS & why now?
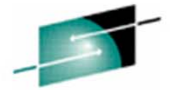
Modernization issues to resolve

1. Consolidation of COBOL application portfolio

2. Be able to react to changes requested by business in days, not months.

3. Sharing rules across platforms

4. Running parallel

Benefits of a BRMS

✓ **Cost savings**
  – More effective application development & maintenance with less business risk
  – Consolidation/restructure of existing applications, saving hardware & resources
  – Rule testing and simulation to ensure accuracy of changes prior to deployment which will minimize re-work

✓ **Changing ratio of source inventory to development skills**
  – Forcing need for formal processes with an on line electronic repository

✓ **Improved agility**
  – Decouple development and business rule lifecycles
  – New rules to enforce new business policies to multiple applications

✓ **Incremental rule modernization: applying technology and process to gain increased "decision making" agility**
  – Gradually pull out rules from existing applications - does not require a "big bang" change
  – Rewrite business rules in natural language

Rational Asset Analyzer with Rule Mining

Simplify identification of candidate business rules

- **For customers who …**
  - Want to be more responsive in supporting an organizations or business units requirements for change
  - Need to get a detailed, complete view of existing business processing and how it fits into today's architectures
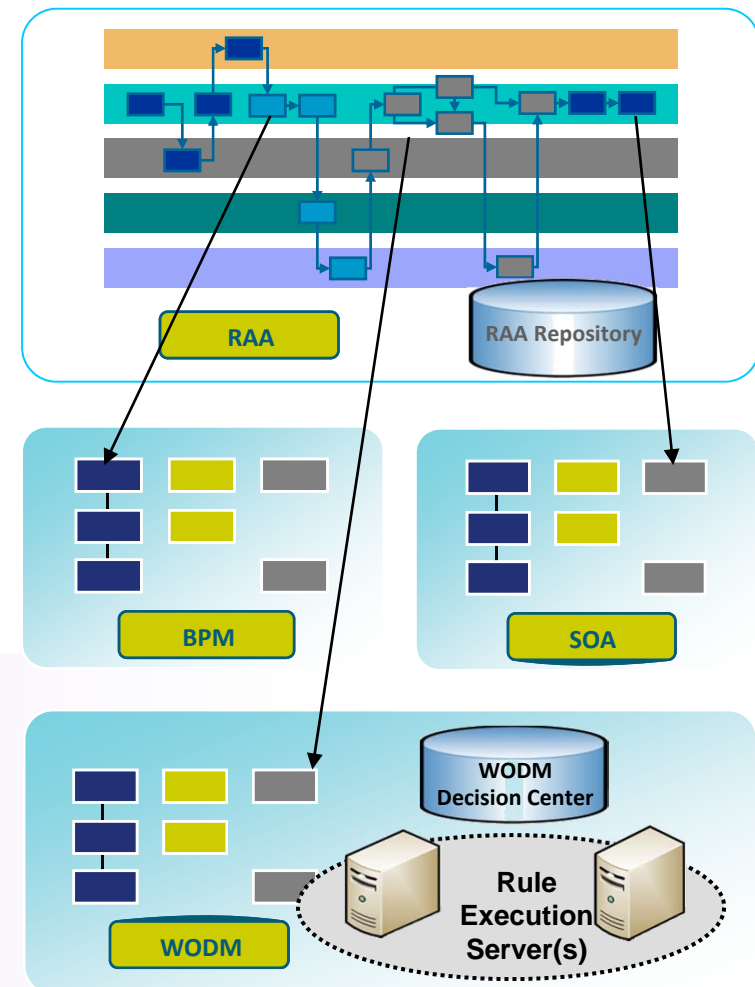
- **Business Value**
  - Improve developer productivity
  - Lower development, training, and mining costs
  - Increase speed and completeness of modernization

- **Key RAA Capabilities**
  - Visualization of application architectures, programs, data, and their interactions
  - Powerful search and tracing via impact analysis

- **Highlights of RAA with rule mining functionality**
  - Identification of terms and synonyms
  - Search across portfolios for direct and indirect usage of terms and rules
  - Identify and persist coding constructs that are candidate rules
  - Ability to author structure rules with the WebSphere Operational Decision Management rule editors for import to Websphere Operational Decision Management (WODM)

RAA

RAA Repository

BPM

SOA

WODM

WODM Decision Center

Rule Execution Server(s)

SHARE in Atlanta
2012

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► **Synergy with decision management**

► Adoption
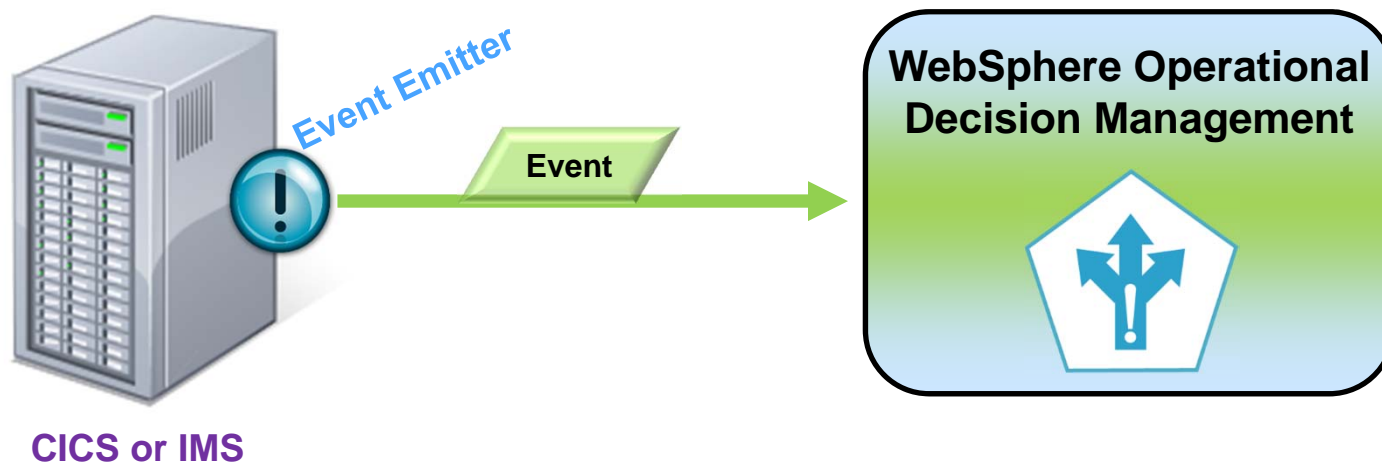
► Operational Decision Management use cases
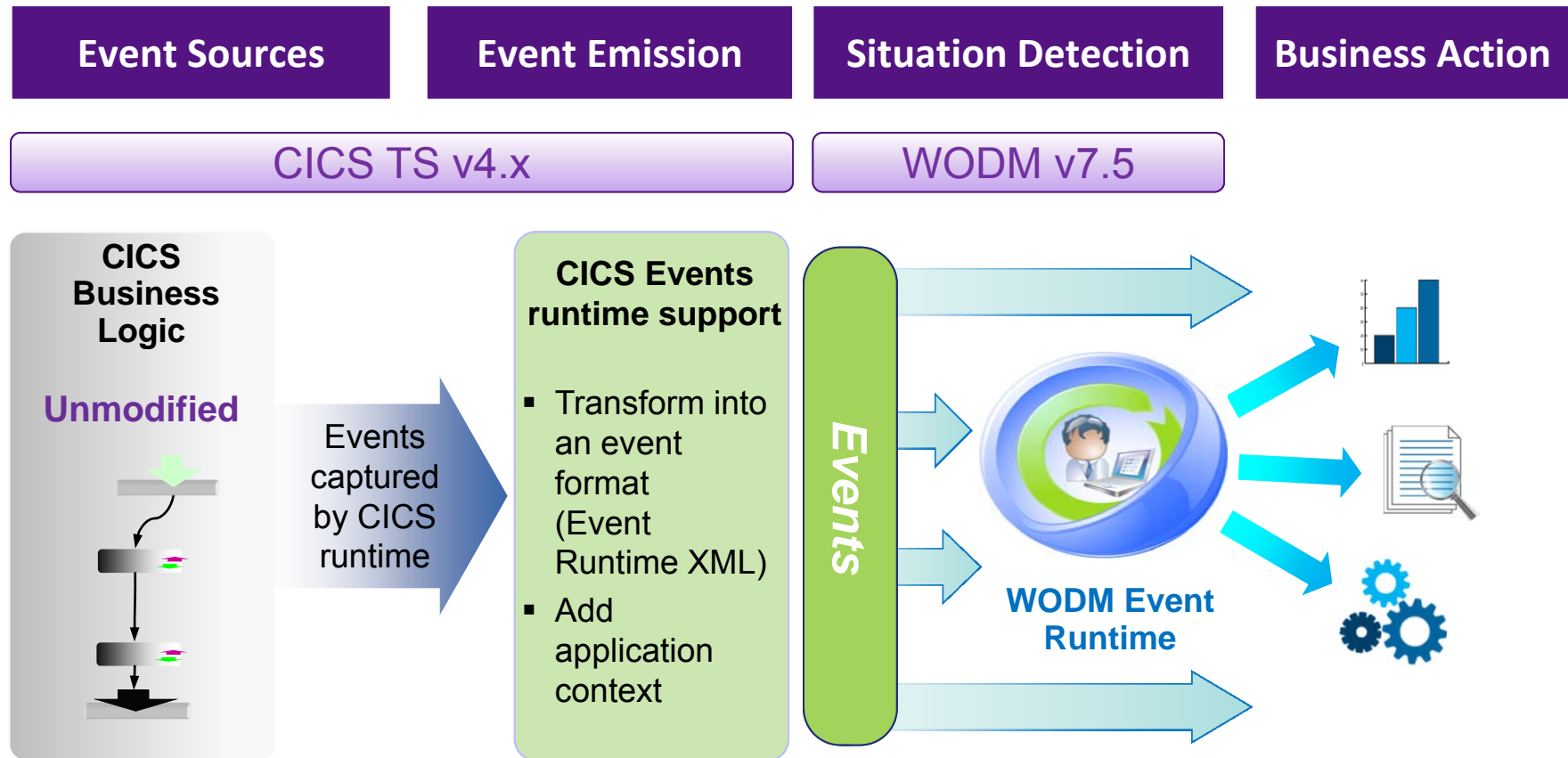
► Next steps
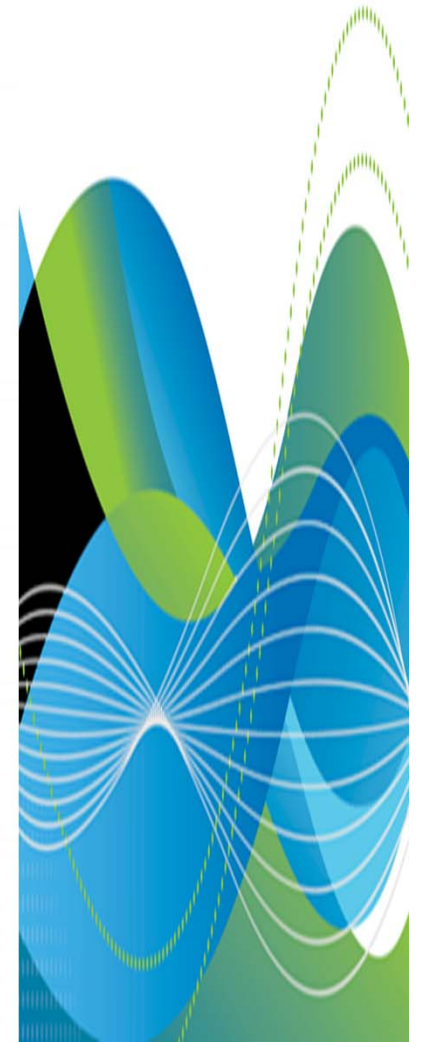
Connectivity and integration

- ✓ **CICS**
- ✓ **IMS**
- ✓ **IBM Business Process Manager**
- ✓ **IBM Business Monitor**
- ✓ **Cognos BI**
- ✓ **Smarter Commerce**
- ✓ **Enterprise Service Bus**
- ✓ **Message Broker**
- ✓ **Analytical decision management (SPSS)**
- ✓ **InfoSphere Streams**
- ✓ **Unica**
- ✓ **Tivoli**
- ✓ **Event and Action Connectors**

CICS and IMS

With a minor amount of configuration (not coding), events can be automatically generated to WebSphere Operational Decision Management

Event Emitter

Event

WebSphere Operational Decision Management

CICS or IMS

Business event emission from CICS Transaction Server to ODM

Event Sources	Event Emission	Situation Detection	Business Action

CICS TS v4.x   **WODM v7.5**

CICS Business Logic

Unmodified

Events captured by CICS runtime

CICS Events runtime support

- Transform into an event format (Event Runtime XML)
- Add application context

Events

WODM Event Runtime

CICS Events with WODM 7.5 help you to
- Observe business applications
- Recognize interesting or suspicious situations
- Drive new processing

29

Decisions are often locked within processes

Without Decision Management
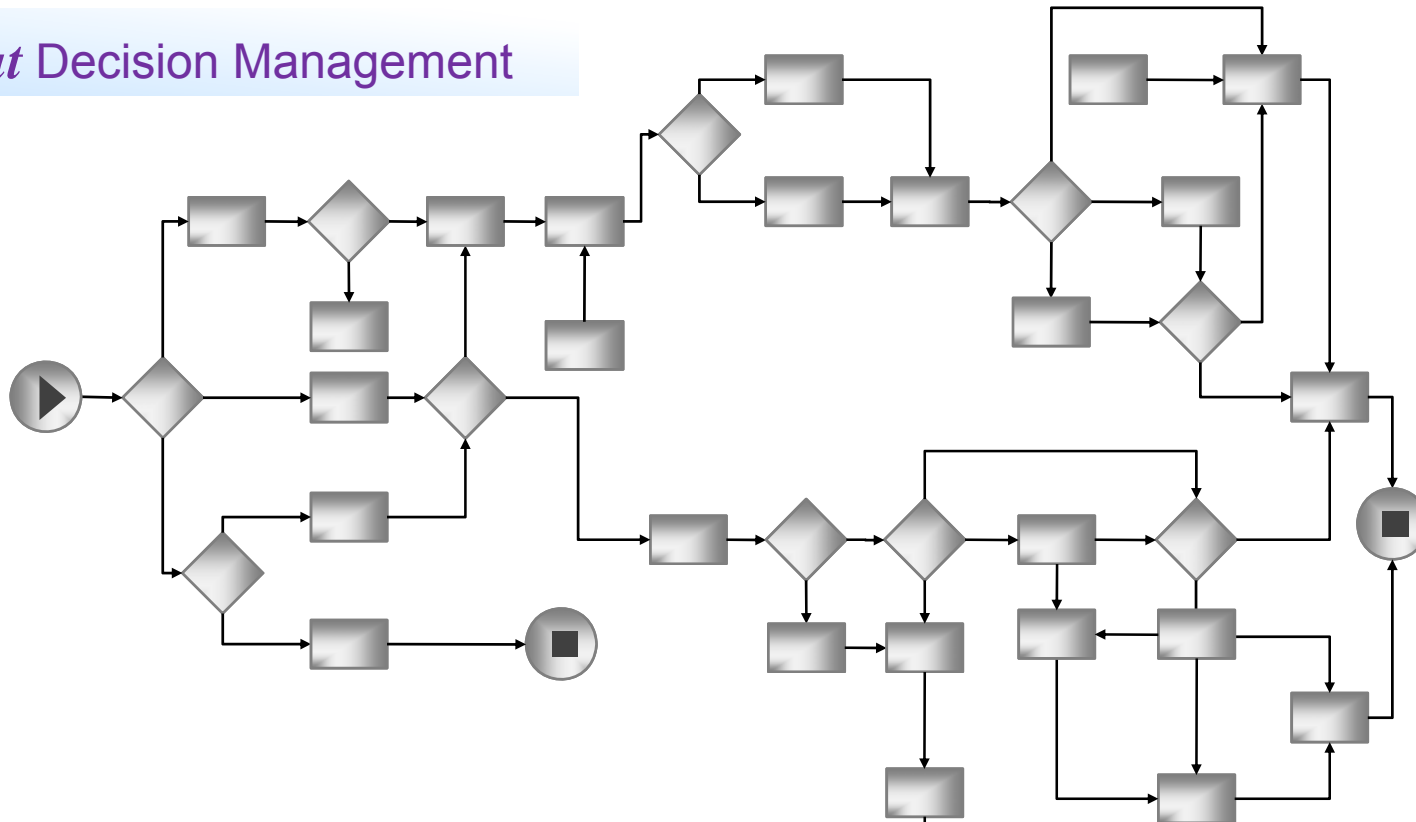
- Decisions are locked in processes and applications
- Programming skills are needed to create & modify decision logic
- Speed of business change is limited by IT bandwidth
- Manual intervention increases costs & reduces customer satisfaction

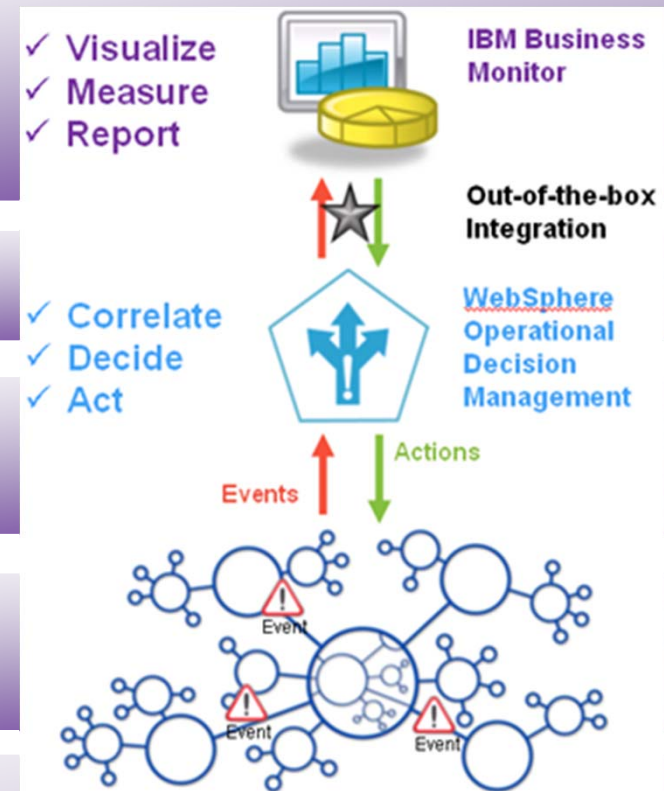SHARE in Atlanta
2012

Decision Management enables reuse across processes
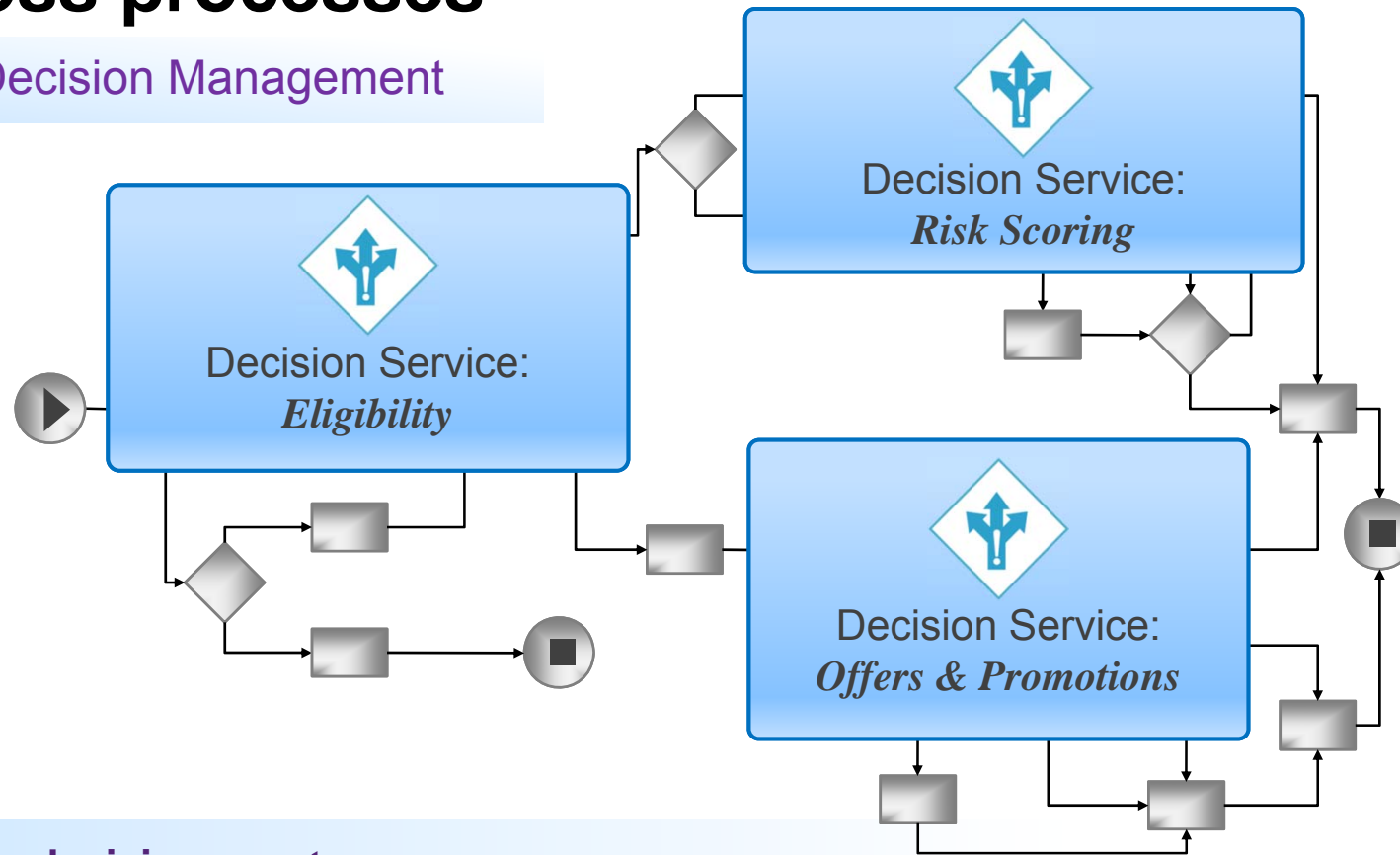
- **Reuse decision assets** across processes
- **Empower business people** to own, author and update decision services
- **Respond quickly** to changing market conditions
- **Maximize automation** and straight-through processing

IBM Business Monitor provides additional visibility and insight

- Provides richer, more graphical reporting capabilities than what is available in WODM
  - Rule execution data can be used to provide *business-level context*

- Native integration for sending and receiving of events and messages

- Execution data can be analyzed for trends – is following up with a customer producing real revenue or is it a waste of time?

- Allows rule execution data to be combined with other business system data for a consolidated view of metrics

- Additional capabilities for alerts or actions when a business situation occurs or is about to occur

✓ Visualize
✓ Measure
✓ Report

IBM Business Monitor

Out-of-the-box Integration

✓ Correlate
✓ Decide
✓ Act

WebSphere Operational Decision Management

Actions

Events

Event

Event

Event

Alert Manager							▼	_ □
Alerts to Display	MonitorMiniloanDecisions 2010-02-25 17:49:09 ▼	Total Approved Loan Amount ▼					New Alert	Save
Alert Name	Description	Owner	✔ Dashboard Alert	☐ Cell Phone	☐ E-mail	☐ Pager	Actions	
Total loan amount too high	Total loan amount more than 5 million	admin	✔	☐	☐	☐	✏ 🗐 ✖	

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► Synergy with decision management

► Adoption

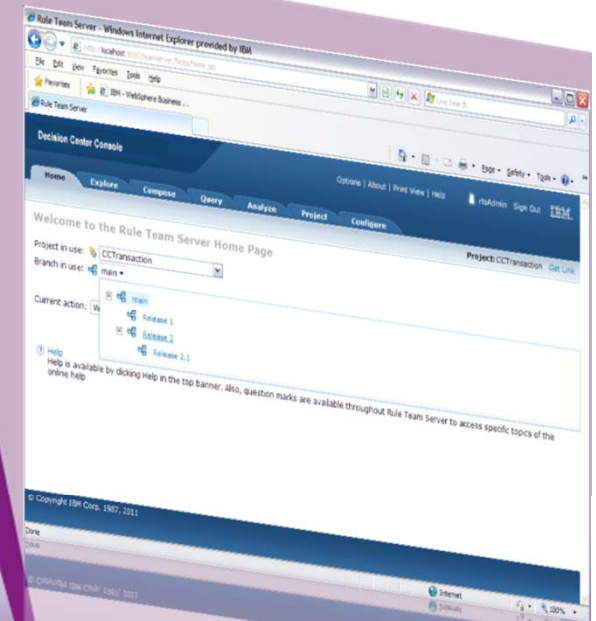► Operational Decision Management use cases

► Next steps

How can WODM add value to your solution?

Are you a good candidate?

Existing CICS, IMS, Batch and WAS z/OS Customers as well as existing JRules Distributed Customers
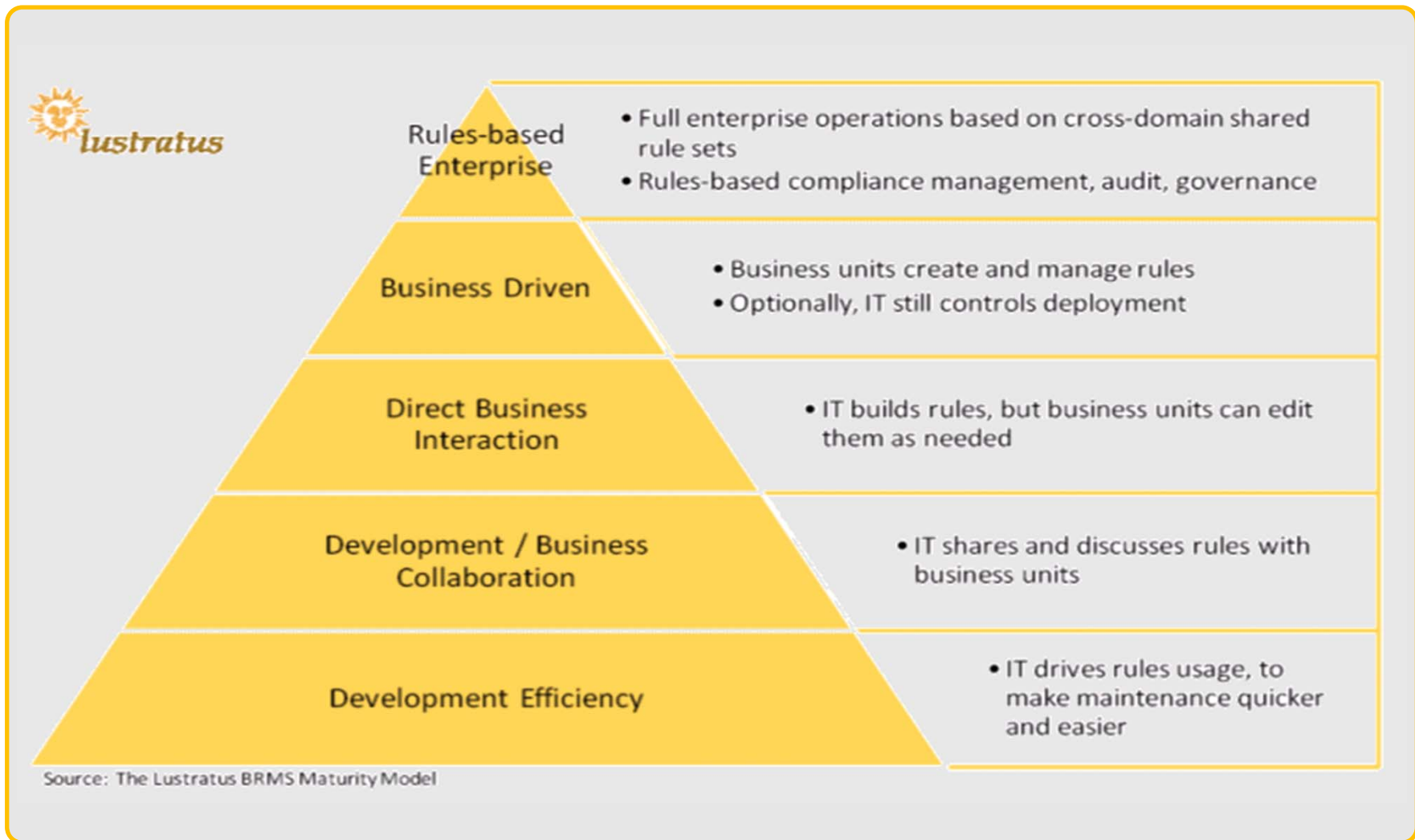
Questions to ask yourself…

- Are you able to quickly make the changes, that are required by the market, competition, and regulatory conditions, to your z/OS applications?

- Could your company benefit from having a central place to manage the decision logic (rules) for both business analysts and IT developers to facilitate rapid change and adaptation?

- How confident are you that the business policies you have in your system actually reflect your business needs? And that you are compliant with current regulations?

- Do you have the ability to reuse your existing rules assets to assemble and reconfigure applications rapidly so you can meet current and future requirements?

Review of a Business Rule Maturity Model

Rules-based Enterprise
- Full enterprise operations based on cross-domain shared rule sets
- Rules-based compliance management, audit, governance

Business Driven
- Business units create and manage rules
- Optionally, IT still controls deployment

Direct Business Interaction
- IT builds rules, but business units can edit them as needed

Development / Business Collaboration
- IT shares and discusses rules with business units

Development Efficiency
- IT drives rules usage, to make maintenance quicker and easier

Source: The Lustratus BRMS Maturity Model

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► Synergy with decision management

► Adoption

► **Operational Decision Management use cases**

► Next steps

Operational Decision Management helps solve many common business problems

Identify opportunities to increase profitability

Personalized Product Recommendations

Promotions & Loyalty Programs

Automated Sales Commissioning

Enforce consistency to ensure compliance

Claims Validation

Payment Authorization

Eligibility Determination

Leverage information to manage risk

Underwriting and Credit

Border Control

Physical Infrastructure Monitoring

Visa Europe unifies payments across 36 countries

Scalable, automated payment authorization and settlement system

Challenge:

- Complex European market with multiple currencies

- Payment authorization & settlement across 36 countries

- Regulatory requirement to unify payments across countries

Benefits:

- 3x faster time-to-market

- 25% cost reduction to maintain business logic

- Increased flexibility and responsiveness with business users managing the rules

Decision Management Solution

- *Financial payments authorization & settlement system*

- *System handles 30,000 rules and 500 transaction types for 4,000 institutions*

"Within 13 months we've made 60 rule changes… What [the system] gives us is tools that can put key capabilities into the hands of users. They become an integral part of the process, rather than mere consumers of it. That's a tremendously powerful concept…"

~ Justin Snoxall, VP, Head of Development Services, Visa Europe

HealthNow speeds up member enrollment

Speed to market gains of over 50% to roll out new programs

Challenge:

- Respond quickly to regulatory mandates

- Increase efficiency by streamlining internal processes

- Address growing complexity in healthcare

Benefits:

- Reduce enrollment time and administrative costs

- Increased speed to market by 50%

- Greater consistency from externalized decision logic and process visibility

BPM and Decision Management Solution

- *Member enrollment process to automate eligibility and coverage for new member applications*

- *Comprehensive audit trail of rules and decisions*

"Providing innovative products and services while improving the availability, quality, and cost of healthcare is central to our corporate vision. WebSphere Process Server and ILOG JRules have enabled us to automate, optimize and monitor critical business decisions within our core processes."

~ John Walsh, Chief Enterprise Architect, HealthNow New York Inc.

Business Events & Tivoli Success Story: Large U.S. Utility

Streamlining operations and improving service

Challenge:

- Maximizing investment in infrastructure modernization to connect silo operations and improve customer service

Benefits:

- Streamlined operations

- Enabled new products and services to retail electric providers

- Improved transparency for effective communication and service to customers

- Offline meter detection resulting in recovered revenue

Decision Management Solution

- *Intelligent Utility Network from IBM*

- *Phased implementation of advanced meter management*

- *Integrated network management using event correlation across grid and IT*

- *Coordinated real-time information flows for timely cross-organizational response*

Agenda

► Operational Decisions: the why and the what

► WebSphere Operational Decision Management: the how

► Synergy with decision management

► Adoption

► Operational Decision Management use cases

► Next steps

Key takeaways

Adapt to change with increased speed & agility

Intuitive natural language for specifying rules and events

Align business units and IT with enhanced visibility & governance

Integrated repository for reliable versioning and change control

Act in real-time with high performance & reliability

Robust runtime for mission-critical deployment

WebSphere Operational Decision Management

*Your **business decisions**.*

*Made by your business **experts**.*

*Delivered in **real-time** by technology.*

Why IBM for Operational Decision Management?

Unparalleled Expertise and Investment

- Expert consulting and implementation services for fast realization of business value

- Industry expertise to customize solutions for your specific industry

Largest Customer Base

- **#1** in Business Rule Management Systems (BRMS) market share according to all leading analysts

- **#1** in Business Process Management (BPM) market share according to all leading analysts

Strongest Ecosystem and Partner Network

- 800+ Business Partners authorized and certified to support customers
- Strongest global ecosystem including major global and regional system integrators skilled to provide comprehensive solutions

Next steps

See Operational Decision Management - *In Action*

- Go to ibm.com/operational-decision-management/scenarios to see and hear customer videos and podcasts

- Schedule an online custom demo

Learn what's possible - *Discovery Workshop*

On-site workshop with business and IT stakeholders to evaluate the applicability of decision management for your project

Implement a real project in 10 weeks - *Quick Win Pilot*

- Demonstrate immediate value to your LOB end-users with your first 'Quick Win' in 10 weeks

- Accelerate the deployment of decision management using a proven, incremental approach and a production-ready pilot

- Collaborate with IBM experts on your first win

Where can I find out more?

WebSphere Operational Decision Management

- **ibm.com/operational-decision-management**

- **WebSphere Operational Decision Management for z/OS**

- **White papers & tech docs**
  - **Business rule options for System z applications**
  - **Business rule mining: an introduction**
  - **WebSphere z/OS – The Value of Co-Location**
  - **Brief introduction to WebSphere Optimized Local Adapters**
  - **WebSphere for System z Prescriptive Use Cases (Oct. 28, 2011 Addendum)**

- **Redbooks**
  - **Batch Modernization on z/OS**
  - **Patterns: Integrating WebSphere ILOG JRules with IBM Software**

- **WebSphere Operational Decision Management YouTube demo**

- **9 day-to-day decisions you can make better with Operational Decision Management**

- **Good Decision! Decision Management blog**

- **System z pricing**

Thank You