Capitalize On The Power Of An IBM Solution

WebSphere's Flexible Business Processes Provide A Smarter Approach For Businesses

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Service Oriented Finance
Automated Its Loan Processing In 2008

We automated our loan processing with WebSphere and it's great! We reduced loan processing time and our loan volumes increased 59%.

Service Oriented Finance CEO, 2008

Changing Business Conditions

But times have changed, we need to be more careful who we loan money to ...

Service Oriented Finance CEO, 2009

Change The Rules, Not The Process

You don't have to replace the process – simply <u>adjust</u> it!

It sounds like we need a new business process!

Service Oriented Finance CIO

IBM

Service Oriented Finance Automated Their Loan Process With WebSphere On A Power System

Customer

Loan Processing

Call Center

WebSphere Application Server	WebSphere Process Server	DB2	VIOS

POWER Hypervisor ™

Power Systems SMP Server
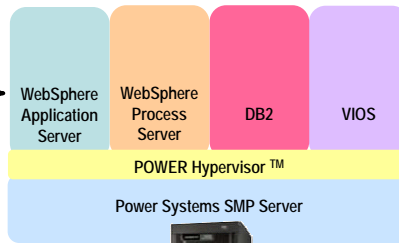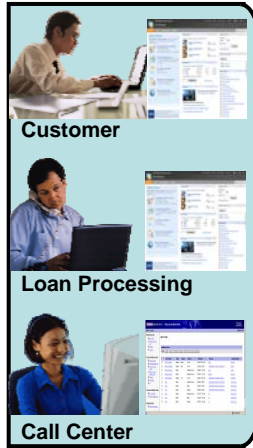
Power Systems:
- High performance
- Highly Scalable
- Consolidated workloads on one system

The Current Loan Process

CarLoanProcessReceive

Get Credit Score

Apply Loan Rules

Auto Reject   Manual   Auto Accept

Evaluate Credit Report

Grant Credit?

No   Yes

Approval Notification

Loan Accepted?

Rejection Notification   Yes   No

Save Customer Record

Rejection Done   Approval Done

End
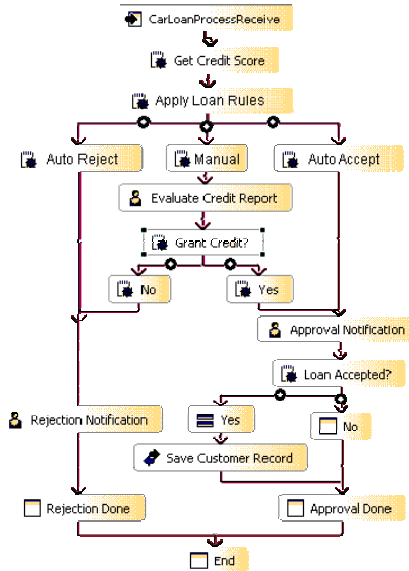
Key Features:

■ Automated process management reduces processing time and eliminates paper

▶ Efficient inclusion of human tasks, such as manual approval

▶ Automatic access to back end systems

▶ Instant status and tracking of each loan application

Demo: The Current Loan Process

Tracy applies for a car loan from Service Oriented Finance

What Changes Do You Need To Make?

We need to impose a maximum loan limit and require better credit ratings from applicants.
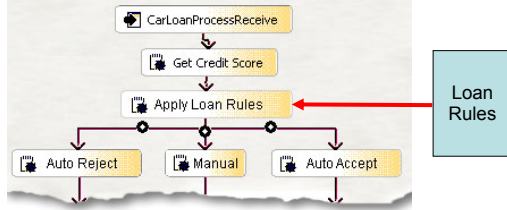
Service Oriented Finance CEO

Service Oriented Finance CIO

Business Rules Let You Adapt Quickly To Business Change

WebSphere Process Server externalizes business rules so they can be adjusted by business managers in production, without requiring development changes to the process

- ▶ Business rules are typically used to adjust thresholds
- ▶ Business rules easily changed with a browser after the process is deployed
- ▶ New rules take effect immediately without having to redeploy

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Example: Change The Business Rules

Current car loan rules

- ▶ **Default analysis result is manual**
- ▶ **If credit score is less than 500 analysis result is set to auto reject**
- ▶ **If credit score is greater than 700 analysis result is set to auto accept**

New car loan rules

- ▶ **Default analysis result is manual**
- ▶ **If loan amount is greater than 30,000 analysis result is set to auto reject**
- ▶ **If credit score is less than 650 analysis result is set to auto reject**
- ▶ **If credit score is greater than 720 analysis result is set to auto accept**

Demo: Change The Rules

1. **Impose a maximum loan limit**
2. **Require better credit ratings**

SOF's Loan Analyst, JC Feng, needs to change the rules

There Were Some Other Changes Made To The Process

We need a volunteer from the audience who has a mobile phone with text messaging. How about YOU?

Demo: The Same Application With The New Rules

Tracy applies for a car loan from Service Oriented Finance, after the change of rules

With New Rules!

Car Loan Application

Loan Type: ⊙ New Car ○ Used Car

Loan Term (months): ○ 24 ⊙ 36 ○ 48 ○ 60 ○ 72

Loan Amount Requested: 45000
Between $5,000 and $50,000.

Application Type: ⊙ Individual Application
You are the only person applying and you will be the only person listed on the title.

○ Joint Application
A second person is applying with you and both will be listed on the title. Married applicants may apply for separate credit.

First Name: Tracy

Last Name: Conway

Street: 19 Hoover Ave

City: Allentown

State: PA

ZIP: 18109

Phone: 212-456-9092
Example: 12124569092 . For international numbers enter + before country code.

email: tracy.conway@fast.net

If Service Oriented Finance is unable to approve your loan, we recommend authorizing us to forward your

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Making More Revisions To The Business Process

CarLoanProcessReceive
Get Credit Score
Apply Loan Rules
Auto Reject | Manual | Auto Accept
Evaluate Credit Report
Grant Credit?
No | Yes
Approval Notification
Send SMS Rejection | Loan Accepted?
Rejection Notification | Yes | No
Save Customer Record
Rejection Done | Approval Done
End
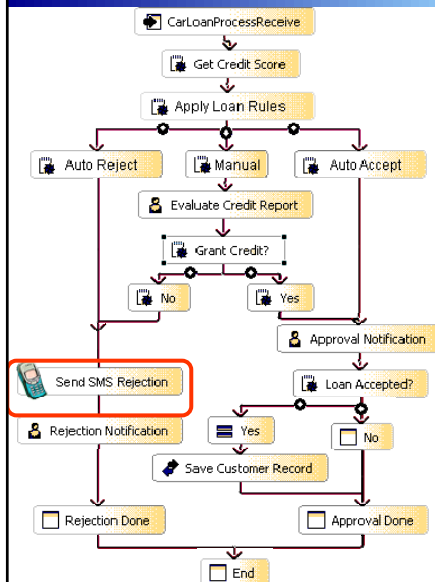
- In the demo we added a notification sent to a mobile phone via SMS using the phone number provided

- It's fast and easy to revise and redeploy an existing business process
  - ▶ Change the order of activity steps
  - ▶ Add one or more new activities
  - ▶ Use a different service provider

- Service Component Architecture (SCA) makes it easy
  - ▶ Tool can easily insert "send SMS alert" activity into flow

Service Component Architecture (SCA) Is The Foundation For Process Flexibility

SCA Reference SCA Interface

Process Flow

Invoker Node

Invoker Node

Service Component 1 (code)

Service Component 2 (code)
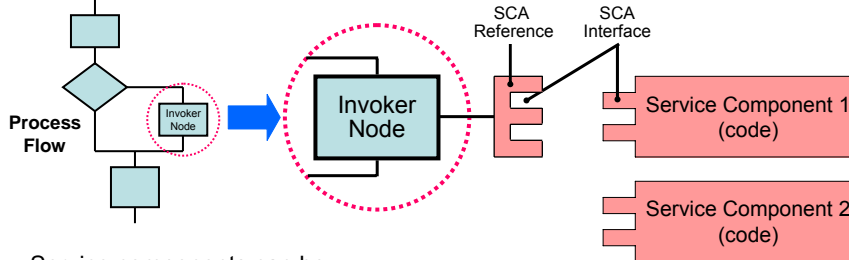
Service components can be
- ▶ Wired-in to the reference at assembly time
- ▶ Changed at assembly time
- ▶ And, as we'll see, selected or substituted at runtime

Types of service components
- ▶ EJB code
- ▶ Proxies to call Web services (e.g. a CICS transaction wrapped as a Web service)
- ▶ Proxies to send a task to a human
- ▶ Proxies that make decisions about what to do at run time

ORACLE Microsoft
hp (intel)
Oracle business processes and Microsoft software do not have SCA!

Service Oriented Finance Needs Even More Flexibility

IBM delivers process flexibility quickly and easily at today's rapid pace.

There are other scenarios where we need process flexibility.

Service Oriented Finance CEO

IBM

Process Flex Points Are Built On Service Component Architecture

Process Flow Invoker Nodes

SCA Reference

SCA Interface

Service Components (code), or
Service Proxy Components (no programming required)

EJB Local Stateless Session Bean		
EJB Proxy	RMI/IIOP	EJB
Human Task Connector	Local	WPS Task Manager
Web Service Connector	Remote	Web Service
WPS Rule Connector	Local	WPS Rules Engine
ILOG SCA Adapter	Remote	ILOG Rules Engine
Fabric Dynamic Assembly Adapter	Local	Fabric Dynamic Assembler

ORACLE Microsoft
HP intel

SCA Component

Web Service

And Business Space Is Built On Web 2.0 Technology

Tom can claim task

Send task to Loan Decision

Business Process

Anne can claim task

Send task to Call Center

Ming can claim task

Send task to Credit Specialist
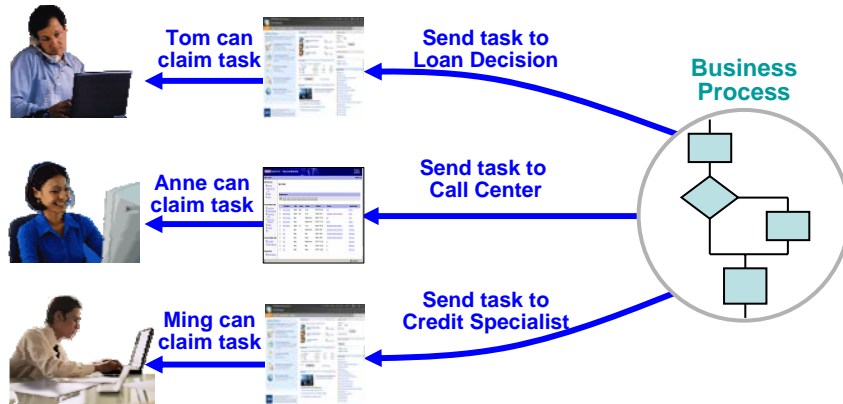
Role-based user interfaces into the business process and easily and quickly created and modified

Role-based assignment of human tasks

- ► Tasks are queued by role; anyone with that role can claim a task
- ► Add more employees in a given role or change roles easily

NO PROGRAMMING REQUIRED!
It's built in.

Service Oriented Finance Requires Even More Process Flexibility

There are many experts that determine our business policies. We need the process to follow these policies.

We want to use the process worldwide, but laws require different handling in some countries.

Business User

Loan Analyst

IBM can satisfy them!

Capturing Expertise As Business Rules For Business Processes

There are many experts that determine our business policies. We need to capture this expertise and use it to make process decisions.
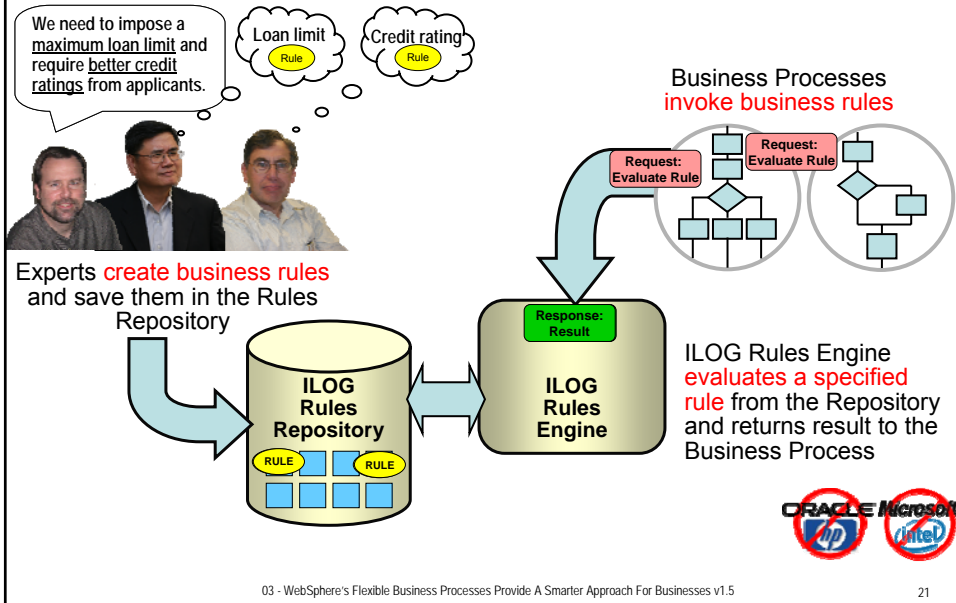
ILOG is a great way to capture expertise in complex rule sets.

Business User

IBM

ILOG Captures Expertise As Business Rules For Business Processes

We need to impose a <u>maximum loan limit</u> and require <u>better credit ratings</u> from applicants.

Loan limit
Rule

Credit rating
Rule

Business Processes
invoke business rules

Request: Evaluate Rule

Request: Evaluate Rule

Experts create business rules and save them in the Rules Repository

Response: Result

ILOG Rules Repository

RULE   RULE

ILOG Rules Engine

ILOG Rules Engine evaluates a specified rule from the Repository and returns result to the Business Process

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Dynamically Select Business Processes For Local Variations

We want to deploy a common process but we need to handle variations in local environments.

WebSphere Business Services Fabric is unique in its ability to do this!
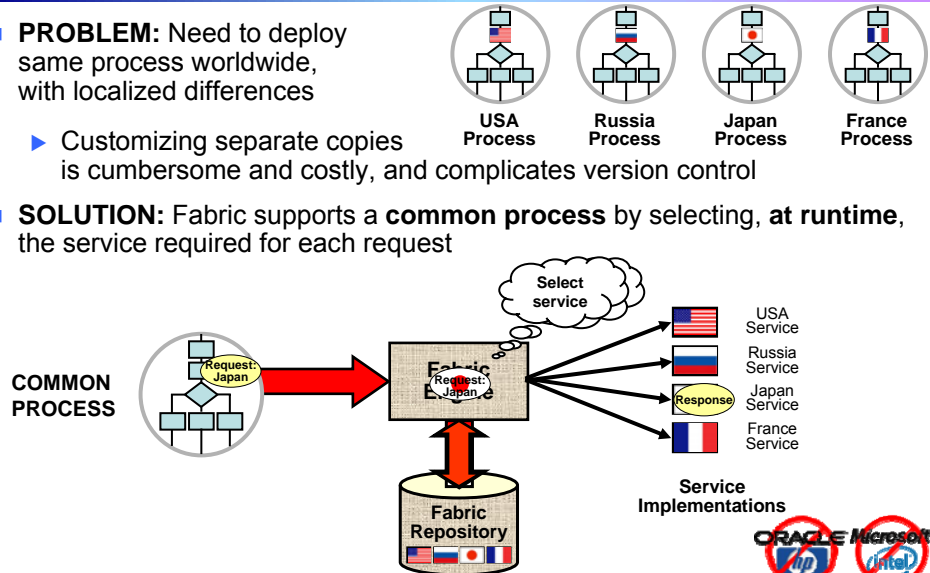
Loan Analyst

IBM
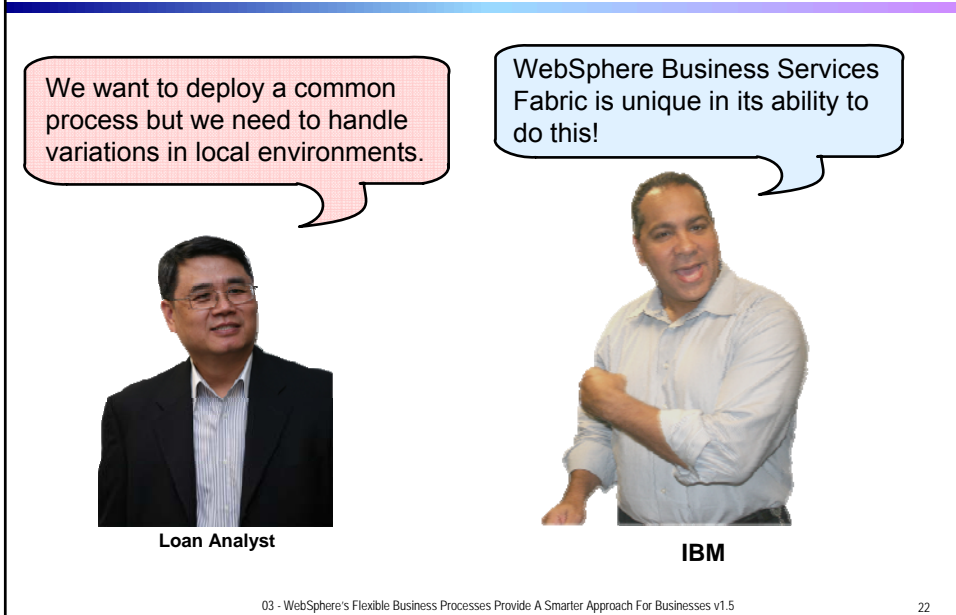
WebSphere Business Fabric Permits A Common Process To Be Adapted To Localities

- **PROBLEM:** Need to deploy same process worldwide, with localized differences

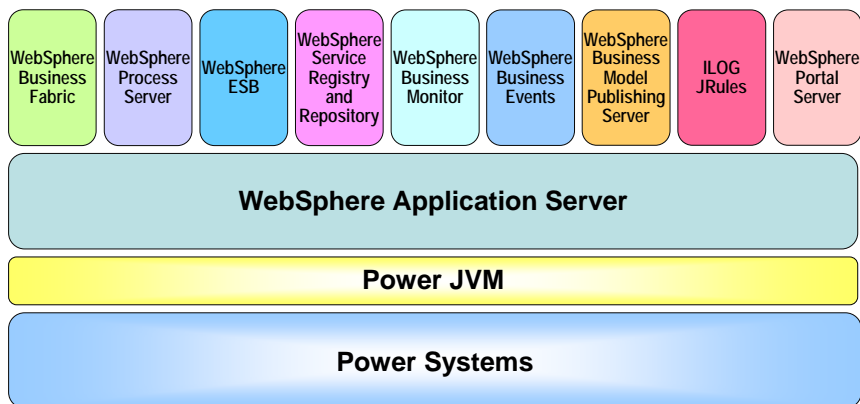 - ▶ Customizing separate copies is cumbersome and costly, and complicates version control

USA Process   **Russia Process**   **Japan Process**   **France Process**

- **SOLUTION:** Fabric supports a **common process** by selecting, **at runtime**, the service required for each request

COMMON PROCESS

Request: Japan

Fabric

Select service

Request: Japan

Response

USA Service
Russia Service
Japan Service
France Service

Fabric Repository

Service Implementations

WebSphere Family Of Capabilities Benefit From A Powerful Java Virtual Machine

| WebSphere Business Fabric | WebSphere Process Server | WebSphere ESB | WebSphere Service Registry and Repository | WebSphere Business Monitor | WebSphere Business Events | WebSphere Business Model Publishing Server | ILOG JRules | WebSphere Portal Server |

WebSphere Application Server

Power JVM

Power Systems

YOUR Business Processes, services, and applications benefit too!

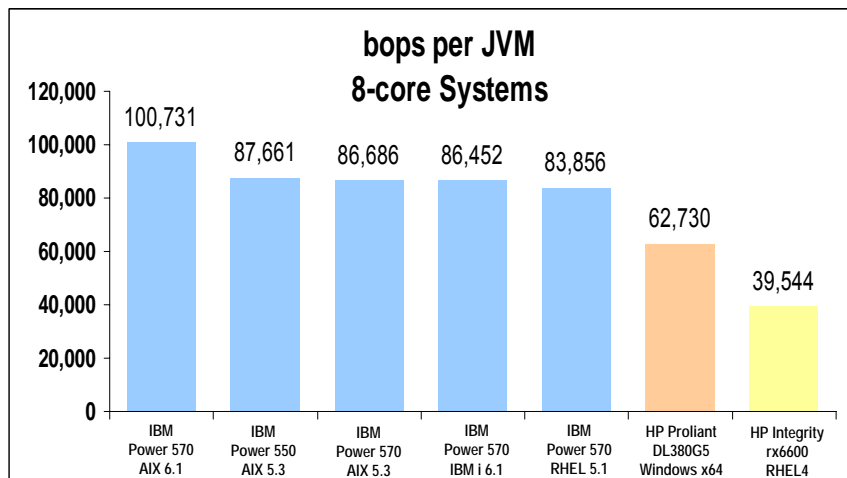# IBM Java Runtime Provides Superior JVM Performance On Power Systems

- **Class instances can be shared across multiple JVMs**
  - ▶ Reduces memory requirements
  - ▶ Speeds startup

- **Garbage Collection (GC) process is more efficient**
  - ▶ Unused application memory is freed and collected for reuse
  - ▶ Improved object tracking reduces fragmentation and memory footprint
  - ▶ Parallel compaction threads increases speed of GC cycles

- **Just in Time (JIT) compiler increases execution speed**
  - ▶ Compiles Java byte-code to native machine instructions at runtime to improve performance
  - ▶ Supports dedicated, asynchronous threads for JIT compilation
  - ▶ Intelligently applies optimizations for greater performance improvement
    - − Applies highest level of optimizations to most-executed methods
    - − Helps offset cost of compilation
  - ▶ Dynamically re-compiles methods to adjust to runtime profile changes

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Industry Leading Java Performance With The IBM JVM On IBM Power Systems

SPECjbb2005 Java Business Benchmark

bops per JVM
8-core Systems

System	bops per JVM
IBM Power 570 AIX 6.1	100,731
IBM Power 550 AIX 5.3	87,661
IBM Power 570 AIX 5.3	86,686
IBM Power 570 IBM i 6.1	86,452
IBM Power 570 RHEL 5.1	83,856
HP Proliant DL380G5 Windows x64	62,730
HP Integrity rx6600 RHEL4	39,544

Source: www.spec.org: Results as of 04/08/2009.

WebSphere Exploits Power Systems 64-Bit Hardware

- Leverages large memory
  - ▶ Caching large amounts of data in memory
  - ▶ Avoiding slower access resources like databases or disks
  - ▶ BLOB's (binary large objects) is a good case, in 32-bit, sometimes not able to cache the entire object in the Java heap

- Java heaps can be configured much larger than the ~2-3GB limitations of the 32-bit platforms to enhance performance

- Double precision 64-bit mathematical computations are better for
  - ▶ Statistical applications, simulation and modeling applications
  - ▶ Applications that use security and encryption
  - ▶ Computationally-intense applications

IBM Business Process Management On Power Is Less Expensive Than Oracle On HP

Three Year TCO Comparison (3,000 Users)

	IBM Power (Unix) with IBM BPM	HP Integrity (Unix) with Oracle BPM
Server Hardware	**$61,010** IBM Power 550 Express POWER6 4.2GHz (2ch/4co)	**$222,555** HP Integrity rx7640 Itanium 9150N 1.6GHz (4ch/8co)
Server Base Software	**$8,084** Unix license, maintenance, support	**$34,840** Unix license, maintenance, support
Server Middleware	**$653,184** WebSphere Process Server with ESB and WAS	**$680,600** Oracle SOA Suite with WebLogic Suite
Total	**$722,278***	**$937,995***

* 3-year acquisition and maintenance cost for hardware and software. Costs do not include racks, energy, labor, floor space, system management software, or anything else not listed

23% higher than IBM!

WebSphere Flexible Business Processes On Power Systems Let You Work Smarter

Capability	IBM Software POWER Systems	ORACLE hp	Microsoft (intel)
Component Replacement SCA	Flexibility to make changes in the process	Not in current middleware products	No
Flexible Role-specific User Interfaces with Web 2.0	Portal and Web 2.0 technologies	Write Code	Write Code
Business Rules Management System	Capture business expertise	No	No
Dynamically Adapt to Local Variations	Drag and Drop Widgets	No	No
Business Events	Business-oriented	IT-oriented only	No