IBM SOA Summit

*Informations valorisées et SOA, le couple gagnant.
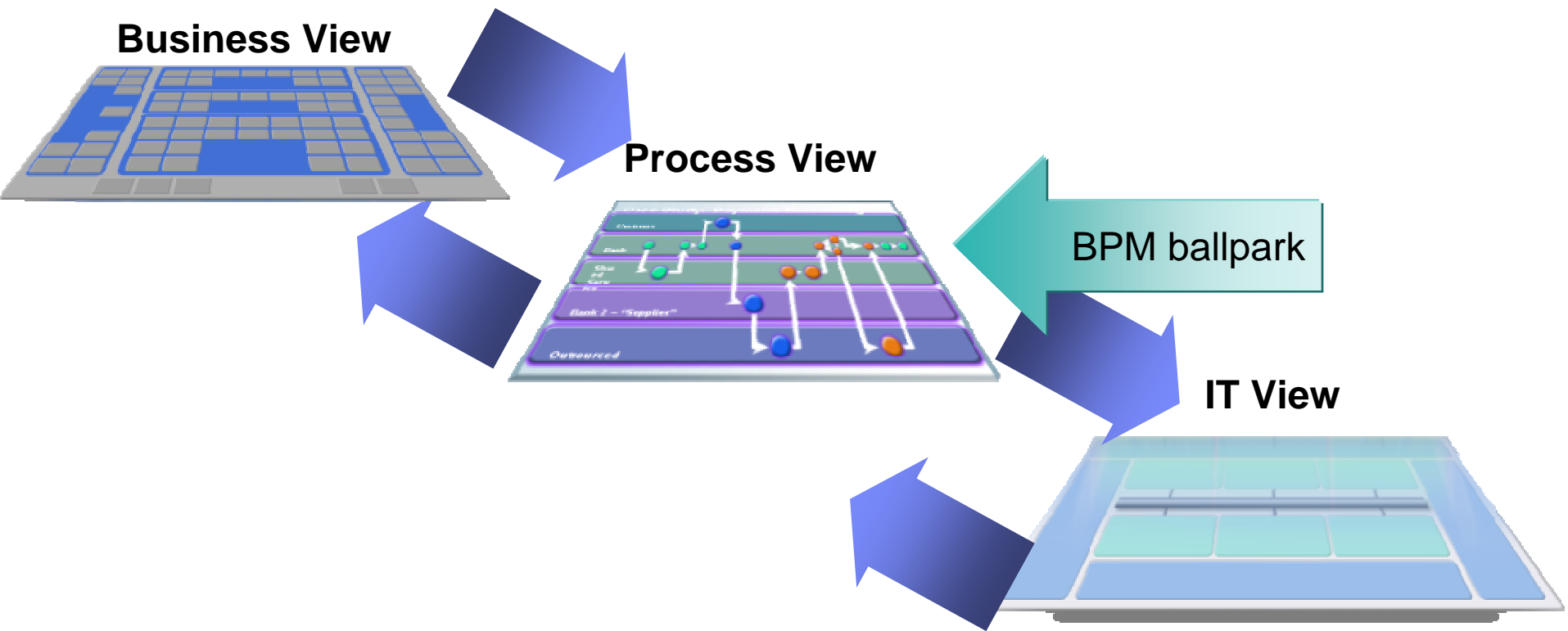
BPM & SOA / TE40
Known practices & lessons from the field

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Lead Architect, SOA Advanced Technologies

SOA Drives Greater Alignment Between Business and IT

Business View

Process View

BPM ballpark

IT View

Agenda

- **BPM and SOA combined**
- **Some lessons learned**

SOA Entry Points Help You Get Started
Both Business Centric and IT Focused
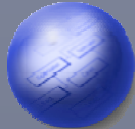
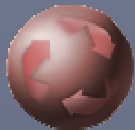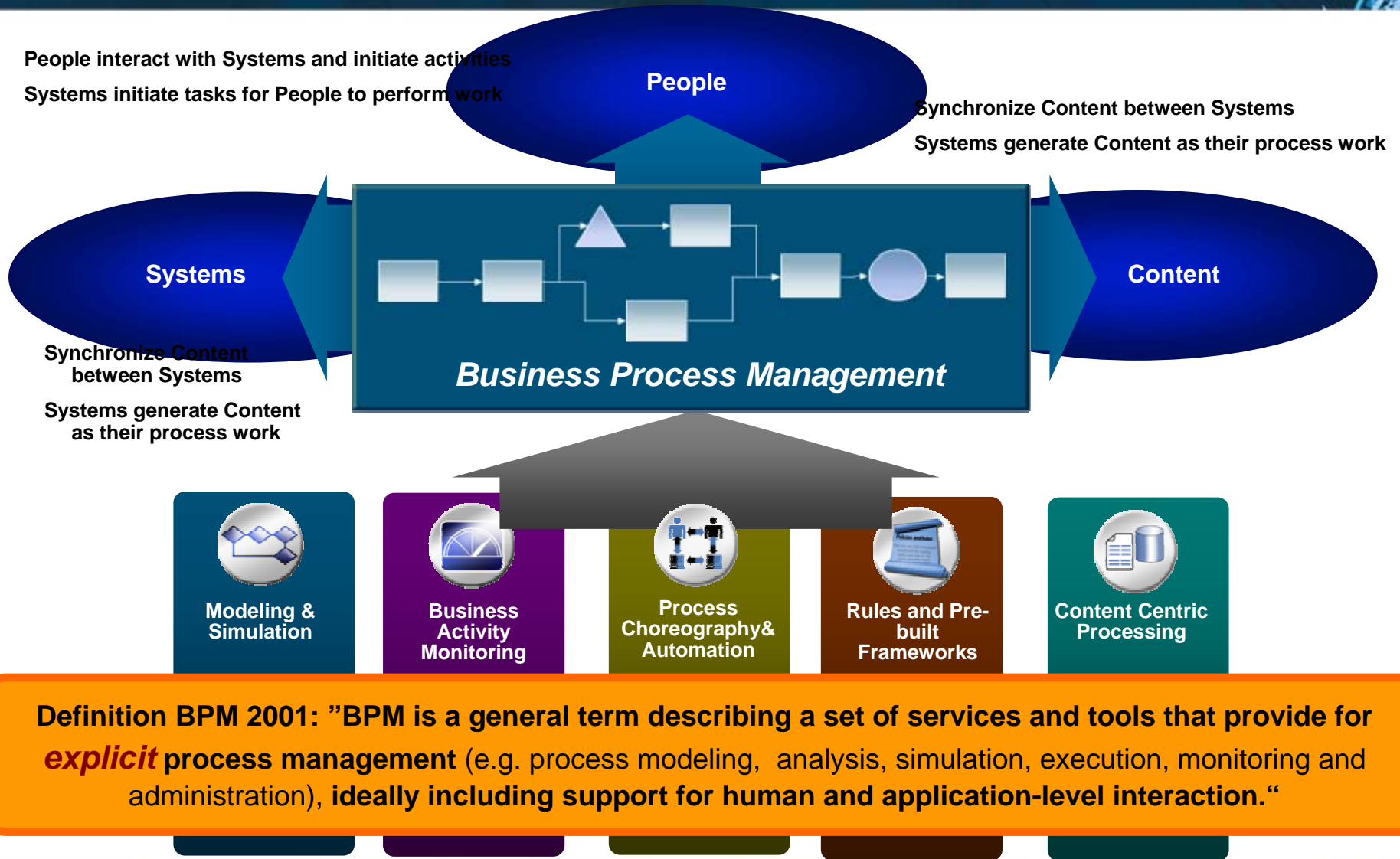|	What is it?	Value
People	Deliver role-based interaction and collaboration through services	Improved productivity and flexibility by enabling targeted user interactions for improved business operations and collaboration
Process	Achieve business process innovation through treating tasks as modular services	Greater innovation and flexibility through faster deployment and modification of business processes
Information	Provide trusted information in business context by treating it as a service	Better business operations, more informed decisions and reduced risk with information delivered in-line and in-context
Reuse	Service-enable existing assets and fill portfolio gaps with new reusable services	Lower risk and faster time to market by leveraging proven, time-tested functionality
Connectivity	Connect systems, users, and business channels based on open standards	Reduced maintenance costs and greater reliability and consistency through flexible, any-to-any linkages

There are many aspects to BPM

People interact with Systems and initiate activities

Systems initiate tasks for People to perform work

People

Synchronize Content between Systems

Systems generate Content as their process work

Systems

Business Process Management

Content

Synchronize Content between Systems

Systems generate Content as their process work

Modeling & Simulation

Business Activity Monitoring

Process Choreography& Automation

Rules and Pre-built Frameworks

Content Centric Processing

Definition BPM 2001: "BPM is a general term describing a set of services and tools that provide for *explicit* process management (e.g. process modeling, analysis, simulation, execution, monitoring and administration), **ideally including support for human and application-level interaction."**

BPM helps defining the Alignment Between Business and IT

- **Simulate and Analyze**
  - Simulate execution with statistical analysis tools
  - Run "what if" scenarios to predict outcomes
  - Identify bottlenecks and workload imbalances
- **Collaborate and Communicate**
  - Create teaming with both business and IT
  - Use BPM as a common language to eliminate misunderstandings
- **SOA delivers value faster**
  - Efficient design, fast assembly
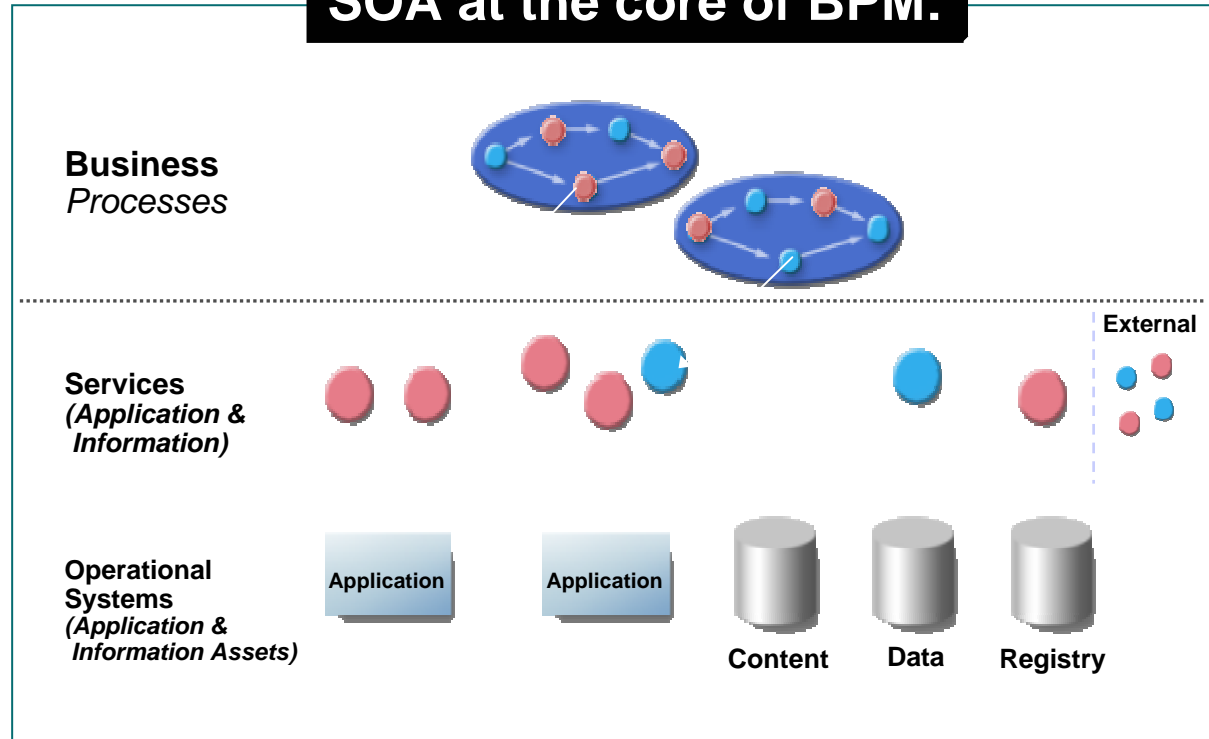 - Greater reuse of existing IT assets

Business View

Process View

IT View
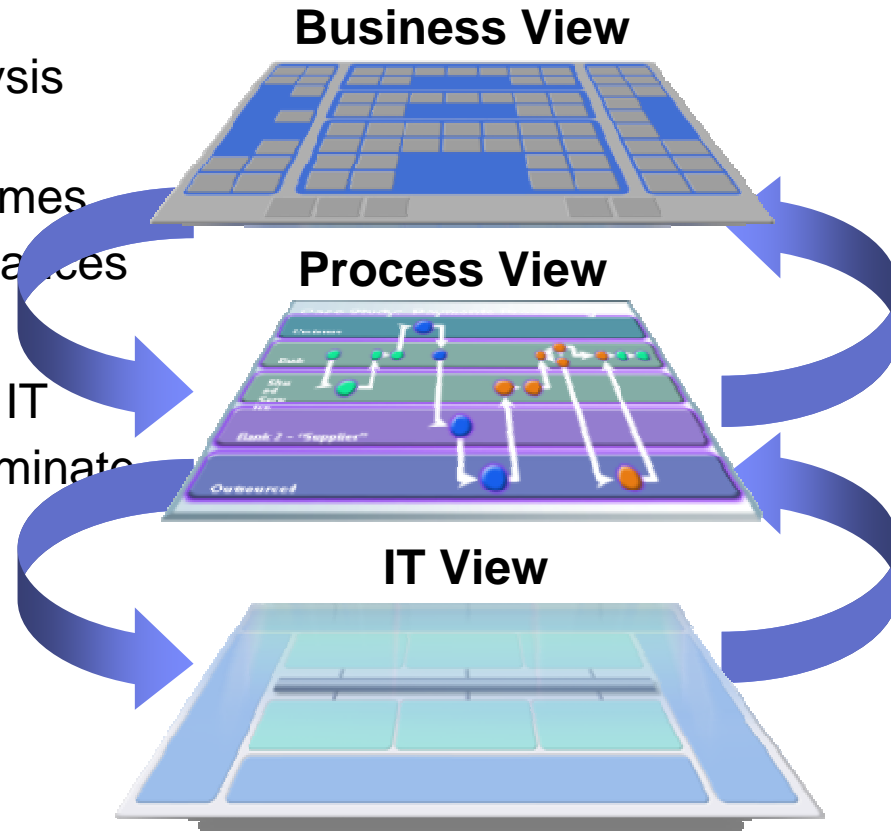
SOA improves how you design, manage, and optimize your business processes by enabling:

- Solution Building Efficiency
- Reuse of existing assets
- Flexibility in change

SOA at the core of BPM:

Business *Processes*

Services *(Application & Information)*

External

Operational Systems *(Application & Information Assets)*

Application

Application

Content

Data

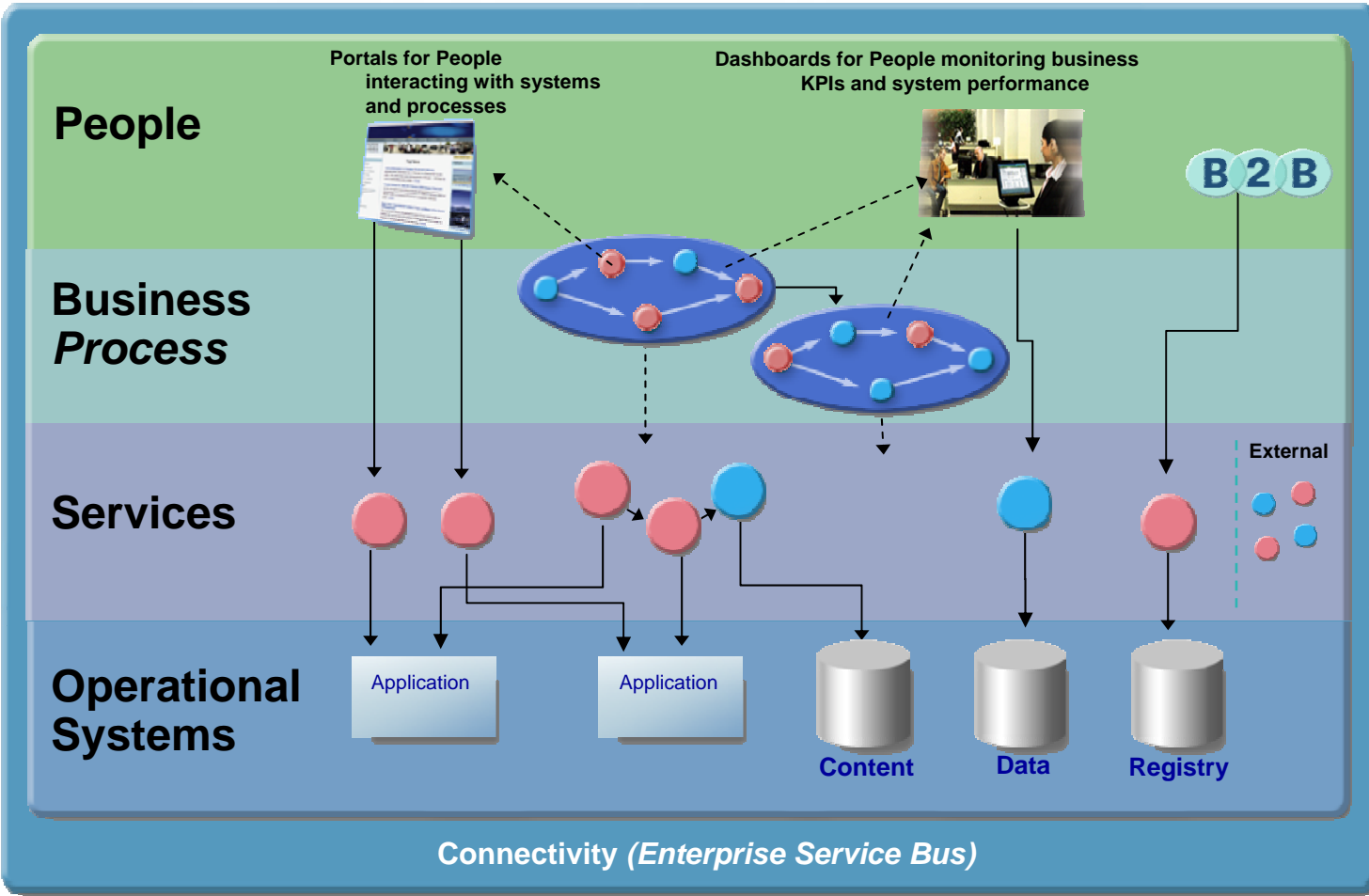Registry

Using SOA to Create Agile Processes

Keys to Agile Process Automation

- Utilize a robust development tool and execute on a SOA process server that supports:
  - Process flows
  - Business rules
  - Human steps
  - Services
- Rapid process change ensuring business agility
  - Reuse existing services that you already have and create new services for future use.
- Implement an ESB for service virtualization, multiple channel support, and policy enforcement
- Leverage adapters to accelerate development and deployment time
- Keep track and ensure reuse by applying Governance using a Service Registry and Repository

SOA at the core of BPM:

Business Processes

Services (Application & Information) — External

Operational Systems (Application & Information Assets) — Application — Application — Content — Data — Registry
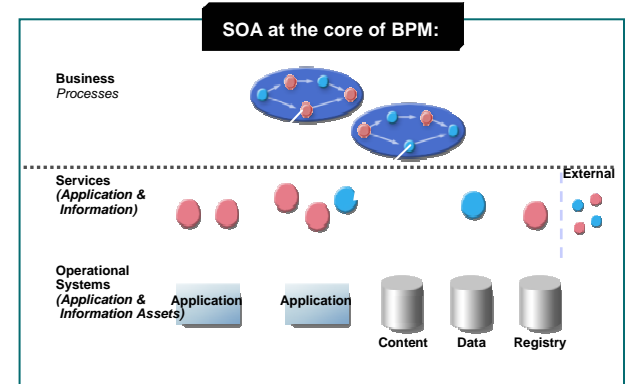
Business Application Architecture

People

Portals for People interacting with systems and processes

Dashboards for People monitoring business KPIs and system performance

B 2 B

Business *Process*

External

Services

Operational Systems

Application

Application

Content

Data

Registry

Connectivity *(Enterprise Service Bus)*

Goal – Increasing people's productivity and the overall company performance
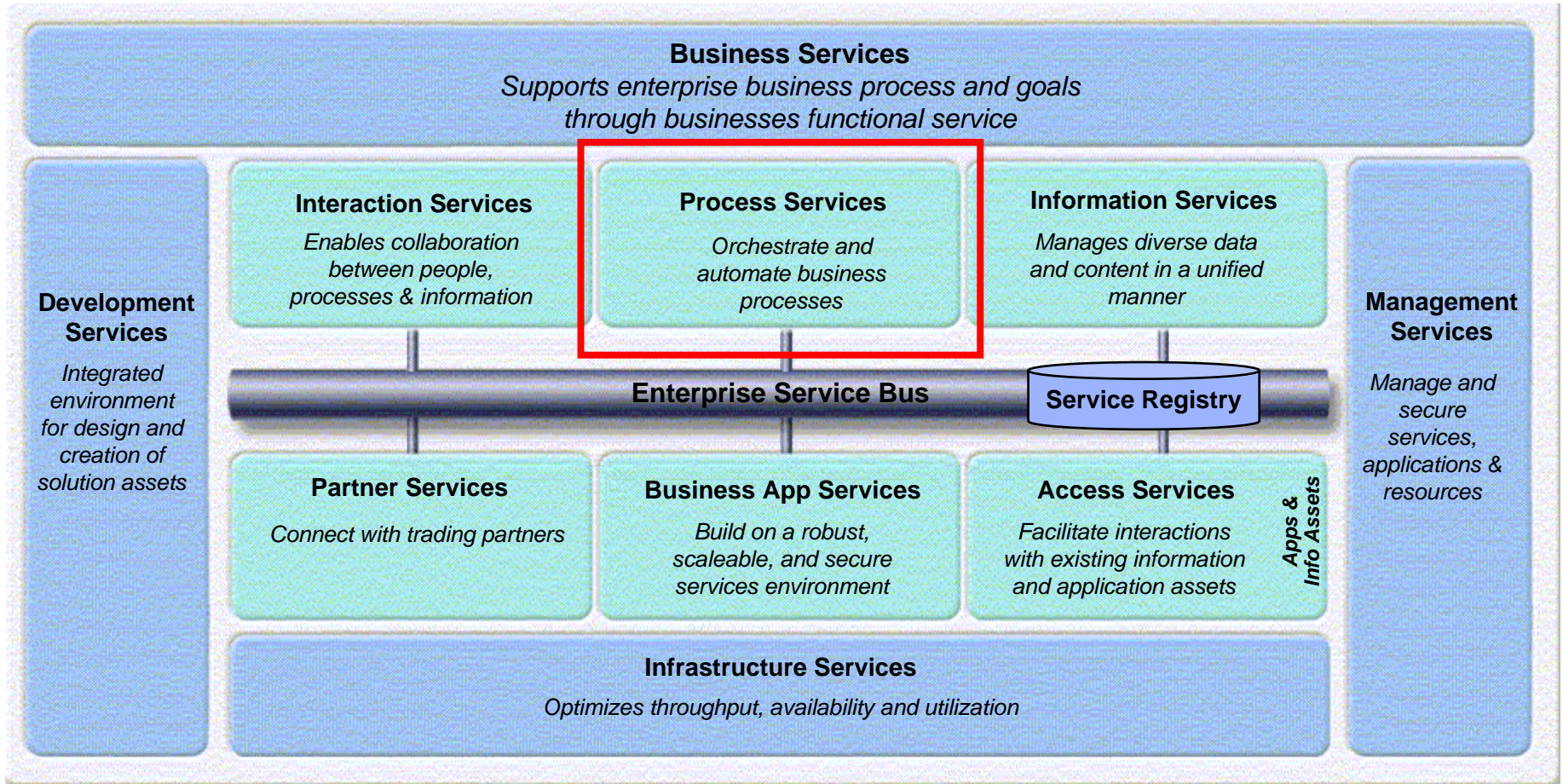
Goal – Highly flexible and automated business processes

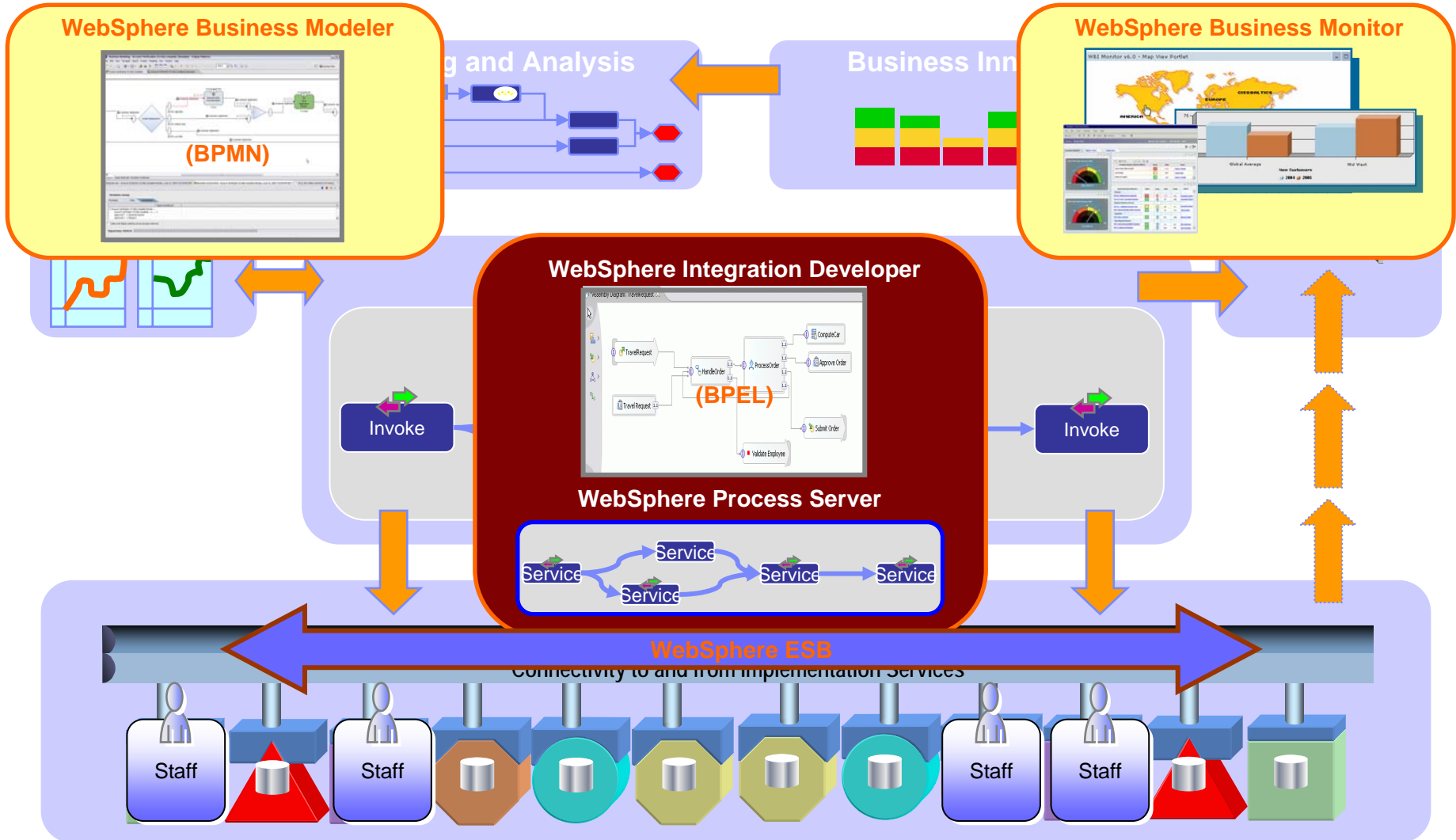*Goal* – Reusable services accessable accross the enterprise

Goal – New and reusable assets, wrapped as services, listed in repositories for reuse and administration

Services are the building blocks for business processes. They allow efficiency in creation, reuse for execution and flexibility for change.

SOA Foundation Reference Architecture

Business Services
Supports enterprise business process and goals through businesses functional service

Interaction Services
Enables collaboration between people, processes & information

Process Services
Orchestrate and automate business processes

Information Services
Manages diverse data and content in a unified manner

Development Services
Integrated environment for design and creation of solution assets

Management Services
Manage and secure services, applications & resources

Enterprise Service Bus

Service Registry

Partner Services
Connect with trading partners

Business App Services
Build on a robust, scaleable, and secure services environment

Access Services
Facilitate interactions with existing information and application assets

Apps & Info Assets

Infrastructure Services
Optimizes throughput, availability and utilization

Disciplines of Business Process Management

WebSphere Business Modeler

(BPMN)

...g and Analysis

Business Inn...

WebSphere Business Monitor

WBI Monitor v6.0 - Map View Portlet

WebSphere Integration Developer

Assembly Diagram: TravelRequest

TravelRequest — HandleOrder — ProcessOrder — ComputeCar — Approve Order — Submit Order

Travel Request

(BPEL)

Validate Employee

Invoke

Invoke

WebSphere Process Server

Service — Service — Service — Service — Service — Service

WebSphere ESB

Connectivity to and from Implementation Services

Staff   Staff   Staff   Staff

Some of our experience

- **e-Government in Dubai**

- **Banking in Australia**

- **Telecommunications in the Netherlands**

- **Shipping Industry in China**

Dubai Municipality

- **What makes it special**
  - Size
  - Completeness of vision
  - Investment in a platform
  - Compliance and openness

- **Business benefits**
  - Establish clear business requirements using formal models for services
  - Establishment of SLAs
  - Ability to quickly rearrange business processes to respond to changes in the local laws/regulations

- **Fact sheet as of Oct 2006**
  - Number of e-services - more than 385
  - Total Online Transactions - 2,385,050
  - Total Amount Paid Online - DHS 34,831,112
  - Registered Companies - 8,387
  - Registered Business Users - 21,843
  - Average number of weekly transactions is about 60,000
  - Customer visits have been reduced by 70% and in some cases by 100%

- **Process Automation and Service Oriented Architecture require Governance to be successful**
  - Mitigate business risk and gain control, maintaining quality of service, and ensuring consistency of service
  - Improved team effectiveness by measuring the right things, communicating clearly between business and IT

- **Partnership between the business and IT**
  - explore how the business is organized

- **Kick start the approach**
  - Experience and iterations will help drive the change in managing the business requirements

- **Beware of terminology !**

Process Management -
Business Process

- Business Manager View
- Focused on complex high-level business process flows
- Can have long-duration activities
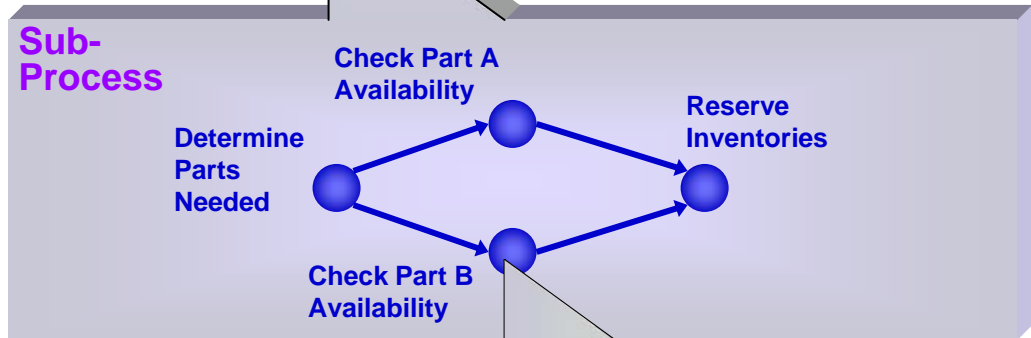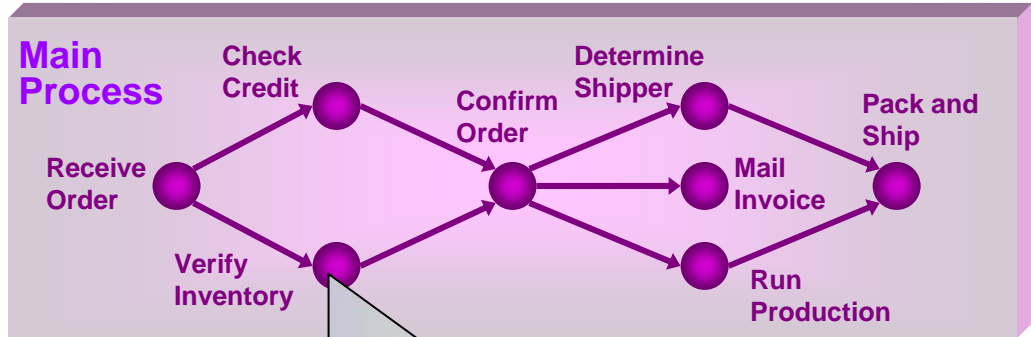- May also involve People-to-App

Process Management -
Sub-Process

- Business Translation view
- Focused on detailed micro-level hybrid data & info process flows
- Moderate duration activities
- Blended App-to-App-to-B2B Service

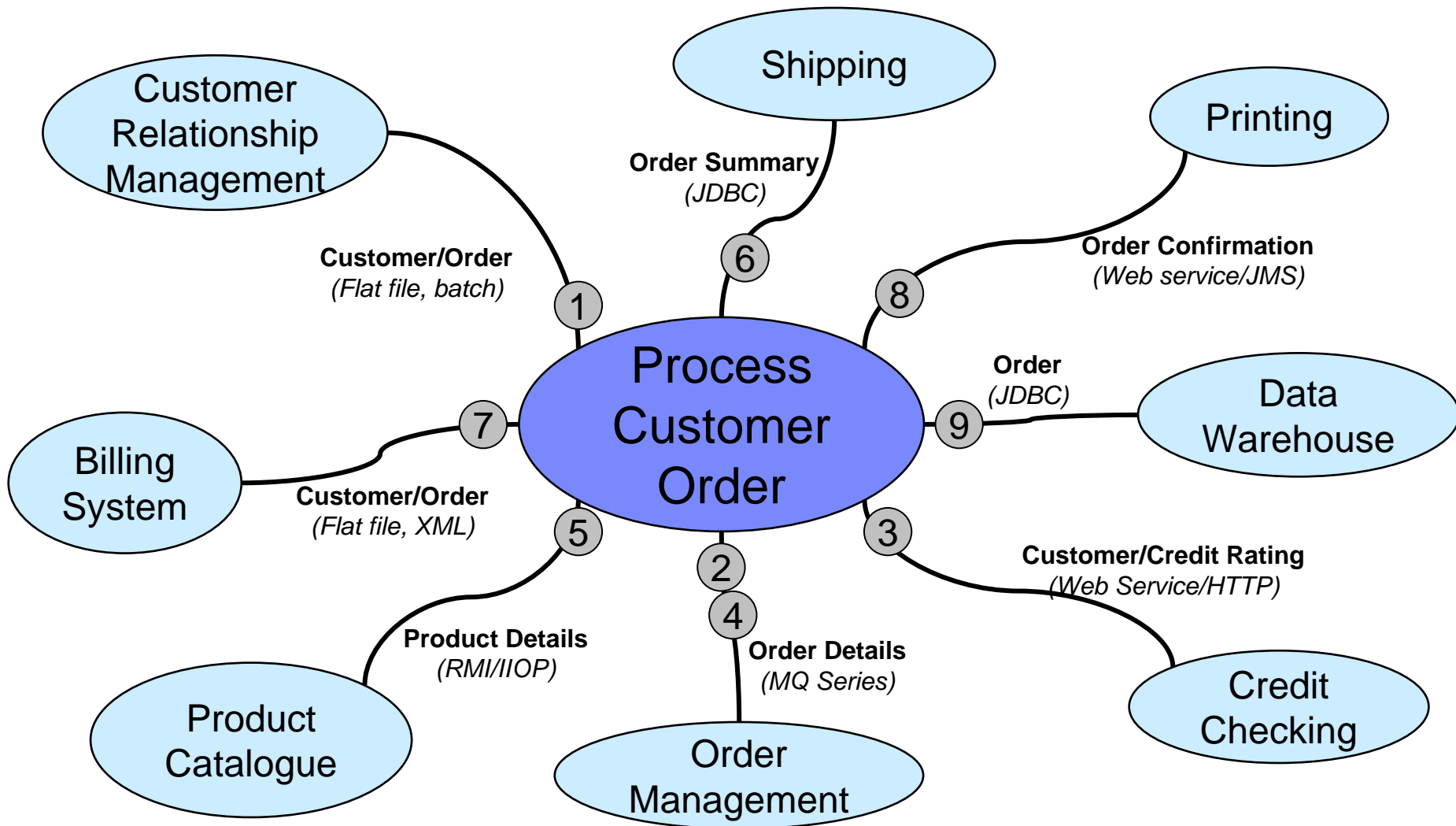## Data Access, Transport, Transformation, Routing
Basic Brokered Interaction

- Technical Manager App-to-App view
- Focused on technical interactions
- Simple sequences
- IT & organizational infrastructure

Main Process

Check Credit
Receive Order
Confirm Order
Determine Shipper
Verify Inventory
Mail Invoice
Run Production
Pack and Ship

Sub-Process

Check Part A Availability
Determine Parts Needed
Reserve Inventories
Check Part B Availability

Basic Interaction

Data Object	Warehouse App	Data Object	Inventory Sourcing App	Data Object
•Transport •Transform •Route	*Check for Part B at Warehouses*	•Transport •Transform •Route	*Determine Least-Cost Sourcing*	•Transport •Transform •Route

Shipping

Printing

Customer Relationship Management

Order Summary
(JDBC)

Order Confirmation
(Web service/JMS)

Customer/Order
(Flat file, batch)

1

6

8

Process Customer Order

Order
(JDBC)

7

9

Data Warehouse

Billing System

Customer/Order
(Flat file, XML)

5

2

3

Credit Checking

Customer/Credit Rating
(Web Service/HTTP)

4

Product Details
(RMI/IIOP)

Order Details
(MQ Series)

Product Catalogue

Order Management

Interface Characteristics

- Interaction type
- Transport
- Protocols
- Data formats
- Principal data objects
- Re-usability
- Reliability
- Availability

- Volumes
- Time windows
- Response times
- Service level agreements
- Message size
- Throughput
- Batch or real-time

Business agility and flexibility depends on reuse, which is encouraged by loose coupling:
- In BPM, between processes;
- In SOA, between internal and external applications exposed on a distributed technical infrastructure.

- **Huge effect on design choices such as the expectations in concurrency and throughput.**

- **Need to understand what is the SLA for different branches of the process and design each branch appropriately.**

- **Combined/aggregated SLAs are particularly difficult.**

- **May need to alter design parameters based on the remaining SLA budget**

- **Example**
  – The 99.99% case may require sub-second response times or high throughput, even though rare error cases can be handled over a period of days.

- **Plan for effort on maintaining the alignment between a pure Business process model, and the same with Technical implementation taken into account**

- **Maintaining alignment of the BPEL process with the BPMN model is not insignificant ***

- **The level to which business analysts understand business modeling and IT has a very strong impact on the nature of what is captured in BPMN. Beware when, as often, the BPEL model is derived directly from the BPMN model**
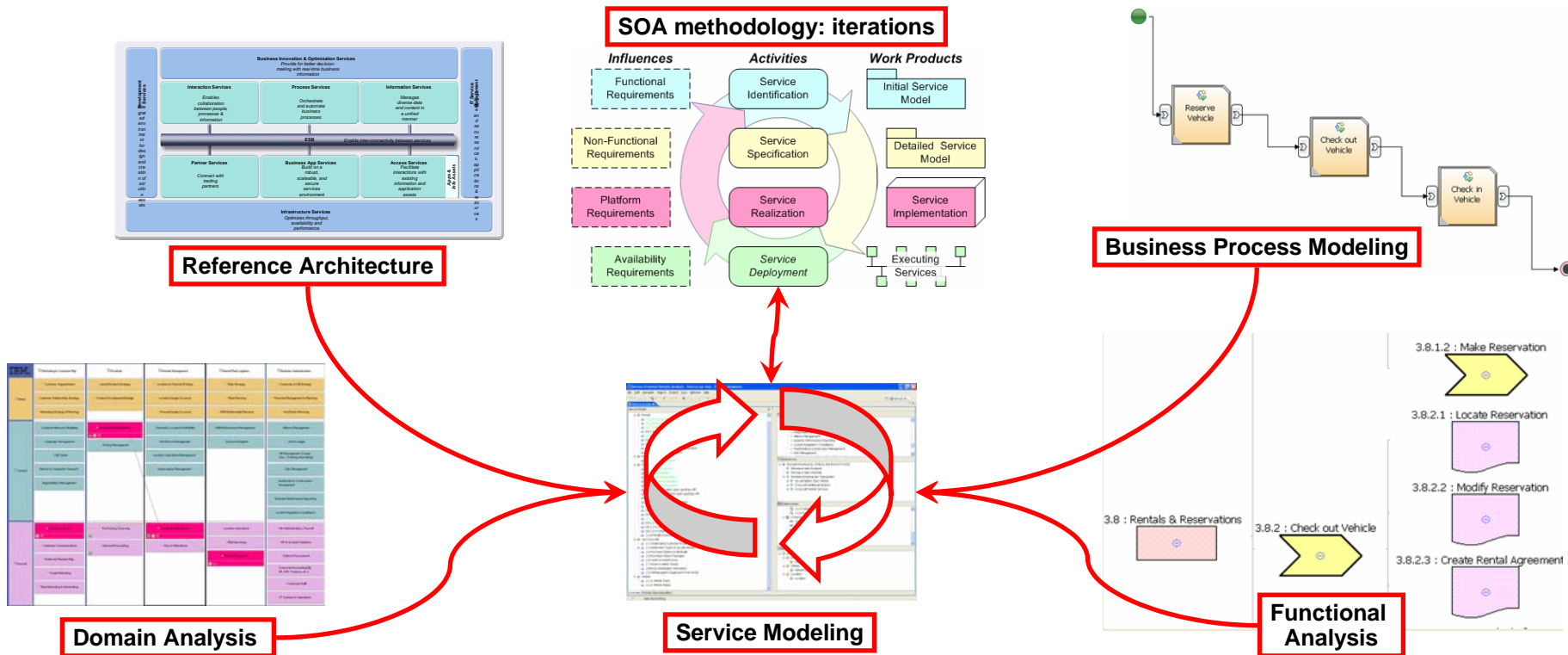
Business Analyst

As-Is model

To-Be model

Deployment model

SOA Design

Integration Developer

Deployment BPEL

Components
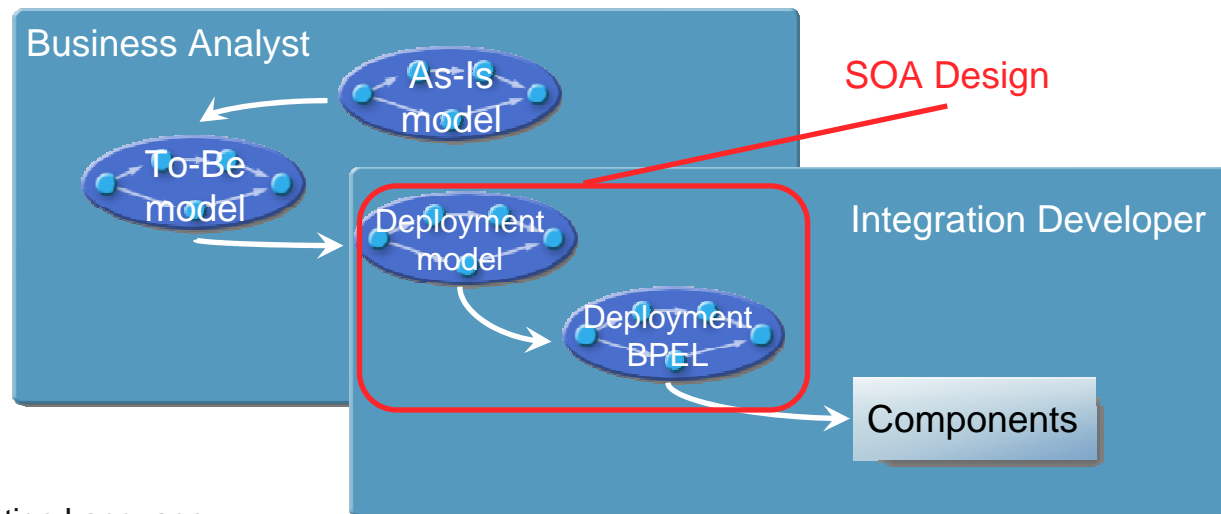
* BPEL: Business Process Execution Language
  BPMN: Business Process Modeling Notation

Lessons Learned
Methodology is key

- **Business Process models are a key (but not unique) input into the approach for identify services**
- **You need a lot of discipline (governance) to do more than just decompose and implement small silos**
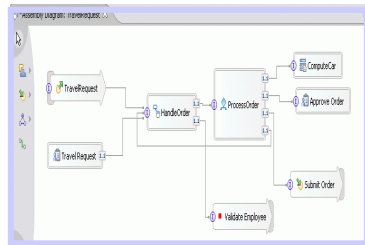

SOA methodology: iterations

Reference Architecture

Business Process Modeling

Domain Analysis

Service Modeling

Functional Analysis

# BPM and SOA
Enabling complete life cycle of business process

IBM

Clean hand-off from IT with Business Models, Metrics

Constructs for dynamic and adaptive business processes based on an integration platform

WebSphere Integration Developer
WebSphere Service Registry & Repository

WebSphere Business Modeler

Assemble

Deploy

Model

Manage

Service Service Service Service Service Service Service Service
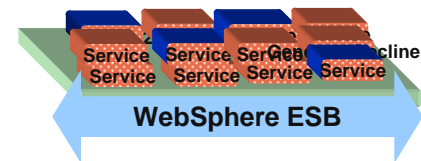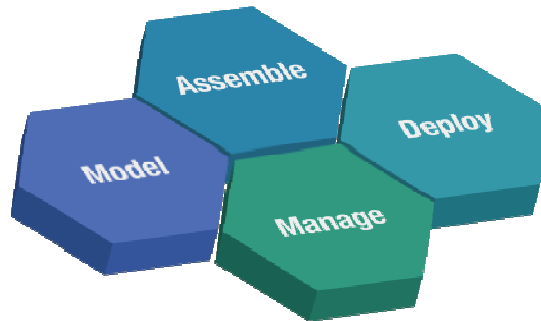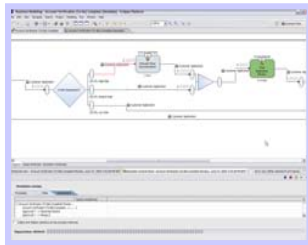
WebSphere ESB

WebSphere Process Server
DB2 Content manager

Feedback for continuous improvement

Real time management of business processes
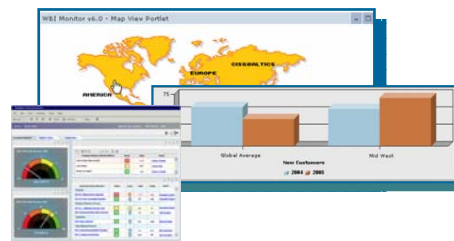
WebSphere Business Monitor
WebSphere Portal
IBM Workplace and Collaboration Services