Leveraging New Technologies for Process Flexibility in Logistics Service Providers

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The Management Model: A Prerequisite for Understanding

Developing Competitive Advantage with Executable Architectures
The Problem

- This presentation addresses a critical management problem: Business and IT alignment
  - How do line-of-business managers and IT managers work together to increase profitability through enhanced business performance?

- “Most business processes require real-time integration of data and applications. If the business and IT integration model and investment strategy are not well-understood, you could end up with poor results and out-of-control IT expenses.”
  - Charlie Feld, The Architected Business, CIO Magazine

- In short, this presentation is about “aligning the levels” in the simple management model.
  - Provide an agile approach to adapt information systems to rapidly support new business imperatives.
  - This model is especially relevant to Logistics Service Providers.
Presentation Objectives

- Explain why this topic is important to Executives
  - Operational Executives and IT Executives
- Confirm that the enterprise implementation environment has a business process orientation
  - Address line management’s primary problem
  - Address technology management’s primary problem
- Define Composite Applications
- Explain Business and Technical BPM
- Argue that a typical end-to-end business process is a composite application
- Describe an approach to Architecture-driven implementation that supports the business:
  - Performance management
  - Rapid realignment to changing conditions
  - Incremental implementation with accountable outcomes (no lengthy big bang)
- Describe the benefits of Architecture-driven implementation using Oracle Fusion Middleware
- Describe an implementation project using a transportation management core process
  - Logistics Order-to-Cash
Why is this Topic Important

- Executives expect efficiencies in the IT organization
  - Interface cost minimization is a requirement, not a competitive advantage

- Executives are frustrated with the ability of the IT organization to rapidly deliver
  - As customer requirements change, executives want the ability to quickly and efficiently realign business processes to meet the requirements
  - Controlled business process flexibility and agility are a source of competitive advantage
  - Increasing revenue and profitability is all that matters

- If agility and flexibility can be delivered at a lower cost, commensurable objectives are realized
Business Process Orientation
Typical Enterprise Objectives (Using Product Lifecycle Management as an Example)

- Improve new product development process
- Improve project execution process
- Improve management and availability of product information
- Improve change management/revision control process
- Improve ideation and open innovation processes
- Improve the product design and collaboration processes
- Improve integration between engineering and downstream departments
- Improve portfolio management and project selection processes
- Improve product development resource management process
- Improve knowledge capture and reuse processes
- Improve management of product intellectual property
- Improve the product design for regulatory compliance process
- Improve coordination with the supply chain management process

*Most of the objectives are related to business process execution!*
The assertion is that most all enterprise solutions are aligned with business processes

- Supply Chain Management
  - Supply Chain Planning
  - Supply Chain Execution
- Customer Relationship Management
- Transportation Management
- Inventory Management
- Maintenance Planning & Execution
- Financial Management
- Procurement Execution
- Etc.

The Other Interesting Fact is that in Most Enterprises these Critical Business Processes are Never Executed in a Single Enterprise System
Composite Applications (Automating the Management Model)
Composite Applications

- Business processes are typically enabled by a composite of multiple enterprise applications.
- The applications are engineered from enterprise services that are orchestrated into what is effectively a new application that is comprised of multiple enterprise applications.
- Orchestration, or service orchestration, is the method by which new business processes and composite applications are built from existing services.

*Business Process Deployment and Execution is realized on a single platform!*
The Composite Application Concept

Composite Application Example: Unserviceable Reparable Processing

The Business Process Spans Multiple Information Systems
Business Process Management
Business and Technical BPM

Requirements (Managers)

Documented and Described in Notations and Terminology that Managers Understand (Usually Event-driven Process Chains)

Business BPM

Function 1 → Function 2 → Function 3 → Function 4 → Function K

Development (Technologists)

Technical BPM (BPEL)

Documented and Described in Notations and Terminology that Technologists Understand (Usually Business Process Execution Language)

Step 1 → Step 2 → Step 3 → Step 4 → Step K
Joint Ownership of Requirements is Most Effective

<table>
<thead>
<tr>
<th>Who Owned Primary Responsibility for Requirements?</th>
<th>Budget % of target</th>
<th>Time % of target</th>
<th>Functionality % of Target</th>
<th>Stakeholder time % of Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT Organization</td>
<td>162.9</td>
<td>172.0</td>
<td>91.4</td>
<td>172.9</td>
</tr>
<tr>
<td>Non-IT Business</td>
<td>196.5</td>
<td>245.3</td>
<td>110.1</td>
<td>201.3</td>
</tr>
<tr>
<td>Jointly Owned</td>
<td>143.4</td>
<td>159.3</td>
<td>103.7</td>
<td>163.4</td>
</tr>
</tbody>
</table>

N=109
Source: IAG Business Analysis Benchmark, 2008
Total Business Process Integration

Business BPM – Management Requirements

Order Planning → Inventory Validation → Shipment Planning → Shipment Execution → Freight Settlement

Process Layer
Powered by the Oracle BPA Suite in Fusion Middleware

Automation Layer
Powered by Oracle BPEL Manager in Oracle Fusion Middleware

Technical BPM – Realized Management Requirements


Application Layer

Other Systems as Required

Warehouse Management System (WMS)

Complete Vertical Integration Ensures that IT is Aligned with the Business!

Developing Competitive Advantage with Executable Architectures
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**Business BPM**
(Management’s Business Process Requirements)

**Technical BPM**
(BPEL, BAM, etc)

**Service Execution**

Vendor Responses
The Vendors Converge on the Same Architecture
Oracle Fusion
Oracle Fusion Middleware (FMW) is Critical

Oracle Fusion Middleware is the critical component for being able to rapidly reconfigure business processes as Executive’s demand:

- Adds a true BPM capability that managers can understand
- Ensures that management requirements for how business processes should be executed are clearly realized in the implemented systems
- Ensures that BPM and SOA are completely aligned
- Provides the ability to rapidly realign business processes and requirements change

Why Oracle?

By our assessment, Oracle is about 18 months to two years ahead of the competition

Oracle provides a complete and integrated solution

Oracle supports the alignment of the business with IT
Integration is Critical

- Development and deployment is facilitated in a single integrated environment.
- Business processes that are enabled by other systems can be deployed in this environment – SAP, legacy, etc.
- The “technological details” of SOA are managed inside the Fusion “stack” of components.
- Integration is ensured by Oracle, as opposed to having to build the integration in a best-of-breed solution that is expensive to maintain over time.


Integration is the Key to Flexibility and Agility!
Oracle FMW Provides the Integrated Environment for Realizing the Vision

- Oracle FMW provides the linkage between the business requirements and the technical requirements, providing the ability to rapidly realign business processes without violating requirements
  - Technologists have clear requirements for development
  - Managers are confident that business requirements are being realized
- Oracle FMW provides a “true round-trip” environment

Business Process Flexibility and Agility can only be Realized in an Integrated Design, Development, and Deployment Environment
Round Trip Integration

- Business Analyst – BPA Suite
- Business Process Model

- Process Developer – SOA Editor
- SOA Composite

- Generate/
- Merge

- Shared Metadata Model
- BPA (or ARIS)
- Repository
Logistics Order-to-Cash Solution Definition
Submit PO → Verify Inventory → Validate Address → Change Address → Plan Shipment → Process Completion

Business BPM
- Design Business Process
- Create Blueprint

Technical BPM
- Discover or Develop Web Services (iterative)
- Service Orchestration & Configuration

Service Execution
- Deploy SOA Implementation
- Test & Debug Implementation

Procedural Model for Implementation

Warehouse Management System (WMS)

**SAP**

**United States Postal Service**

**Oracle**
Wrap Up
Benefits of Architecture-driven SOA

- The solution employs state-of-the art SOA methodologies and technologies using multiple solution providers.
- The solution is complete and integrated.
  - Business and Technical BPM are managed in a single implementation environment without complex interfacing and synchronization across the layers.
- The business process, defined in management terms, provides “control” over the technology landscape.
  - Since the middleware provides top-to-bottom integration, one can have confidence that the end-to-end business process scenarios are actually implemented in accordance with business requirements.
  - Technologists have confidence that they are developing and deploying in accordance with business requirements.
- All aspects of the solution are standards based, and the solution accommodates services provided by any vendor that adheres to the WS-* standards.
- The solution allows for the reuse of existing services or the development of new services.
- The architecture leverages the investment in existing systems.
- No one vendor dominates the technology landscape.
  - This is consistent with the technology landscape in most large organizations.
- Implementation does not require a “big bang” approach.
  - The deployment is on a process-by-process basis. This characteristic allows one to begin with smaller initiatives while moving to larger initiatives as experience matures.
Conclusions

- Managers view the enterprise from a business process orientation
- Modern enterprise systems are implemented from a business process orientation
- From a technology point of view, business processes are usually composite.
- Oracle Fusion Middleware enables the implementation of composite applications in a single integrated development and deployment environment.
Back-up

(Architecture-driven SOA Methodology)
Business Process Orientation (Backup)
Example of a Process-oriented Solution: Product Lifecycle Management

PLM Complexity Requires Understanding, Documentation, and Management!

A Business Process Architecture is Critical for Managing the End-to-End Product Lifecycle!
PLM Processes Are Complex

Information System Alignment with PLM business processes is difficult!

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Composite Applications (Backup)
Example: Composite PLM

Reference KPIs

DCOR reference model

Business Processes

BPM Framework

Technical Execution

Business Requirements

BPEL sequencing of the technical business process

WSDL representation of services

SOAP messages

Web services

Service Representations

The canonical data model tracks the big picture

PLCS Product Information Model

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Vendor Response
(Backup)
Composite Solution in Fusion Middleware

Oracle BPM

Product Lifecycle Management
E2E Business Process Scenarios

Composite Services

BPEL Orchestration

Service Endpoints

Application Endpoints

JPoweLog
PTC Windchill
Legacy
Share-A-Space
Maintenance
SAP

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Oracle FMW (Backup)
Alignment Enables the Business

- SOA without Business BPM (i.e., business process requirements) is efficient misalignment

- Without Business BPM, technology alignment problems continue, but enabled by a new technology paradigm

- Oracle FMW aligns SOA with business process requirements in an integrated design, development, and deployment environment

Business BPM Provides the Ability to Rapidly Realign Business Processes as Customer Requirements Change
Oracle BPA Suite – A Solution for Business BPM

Business Process Design

Business Process Analysis

Oracle SOA Integration

Business Process Publishing

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Oracle BPM Lifecycle

- Closed-loop BPM between Modeling, Execution, and Monitoring

- Model & Analyze: Oracle BPA Suite

- Business Analyst

- Implement: SOA Composite Editor

- Run: SOA Process Execution Engine

- Process Participants

- Manage: SOA Console

- IT Executive

- Monitor: BAM Dashboards

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**Business Stream Overview**

**Phase 1: As-Is**
- Map As-Is business processes in scope
- Map application systems
- Map organisational roles
- Map business documents required
- business sign-off

**Phase 2: To-Be**
- Analyse business processes
- Propose business process improvements
- Get business sign-off for implementation

**Phase 3: To-Be Executed**
- Redesign processes for execution
- Add technical content for execution
Business-driven Roadmap

SOA Framework (Detailed)

Phase
- Discover
- Design
- Build
- Monitor

Roles
- Stakeholders (Business &/or IT)
- Business Analyst
- Business Process Architect (Business)
- Business Process Architect (IT)
- IT Analyst/Developer
- IT Operations
- Stakeholders (Business &/or IT)

Activities
- Stakeholders (Business &/or IT)
- Business Analyst
- Business Process Architect (Business)
- Business Process Architect (IT)
- IT Analyst/Developer
- IT Operations
- Stakeholders (Business &/or IT)

Tools
- SOA Readiness Survey
- Business Optimizer
- Business Architect (e.g., Oracle)
- Simulation
- Business Publisher
- JDeveloper
- Oracle Process Manager
- ORACLE BAM
- ARIS PPM

Developing Competitive Advantage with Executable Architectures
Architecture-driven SOA Work Products

Generated Services/Software Engineering Requirements...

- Function Allocation Diagram
- Designed Web Service Definition Language (WSDL)
- Access Diagrams
- Data Models
- Interface Definitions
Defining “Business” Services Requirements in BPA...

Single Repository of Information

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