

BPM and SOA using SAP NetWeaver



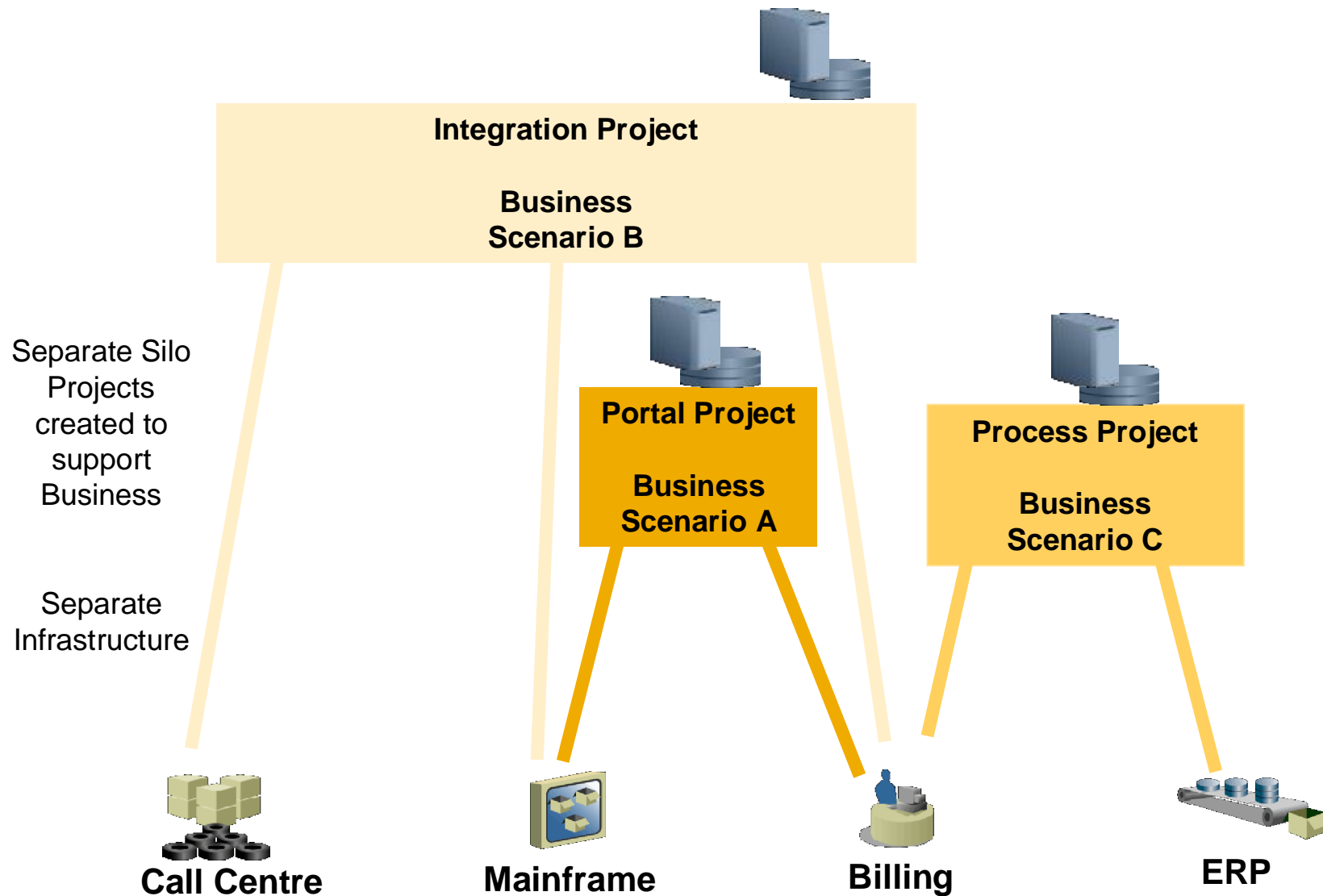
Hong Hua Chin
Lead Architect, BPM and Portals
SAP Asia Pacific, NetWeaver Platform

BUSINESS BEYOND BOUNDARIES

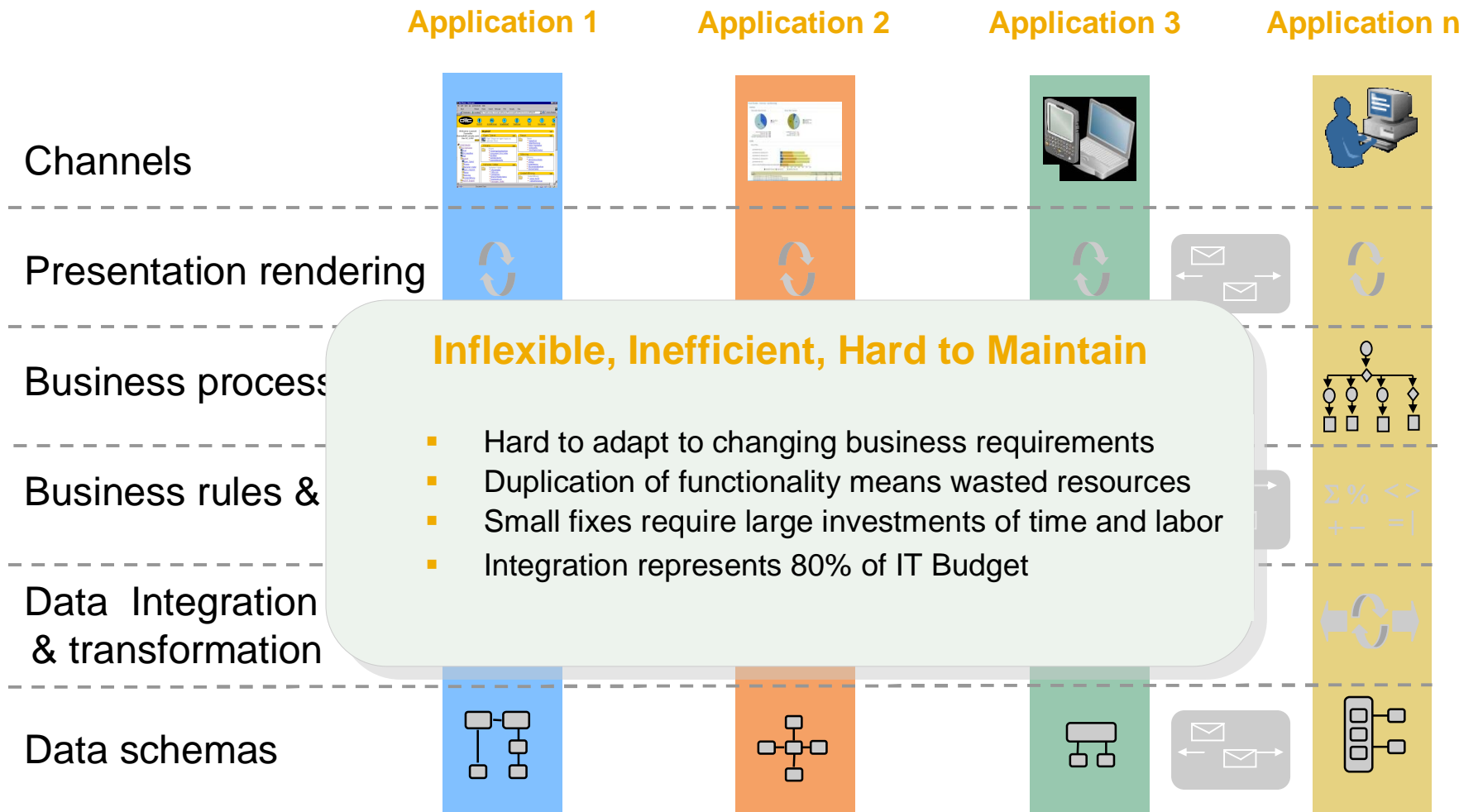
**“You can have it
good, fast or cheap –
pick any two”**

- Anonymous

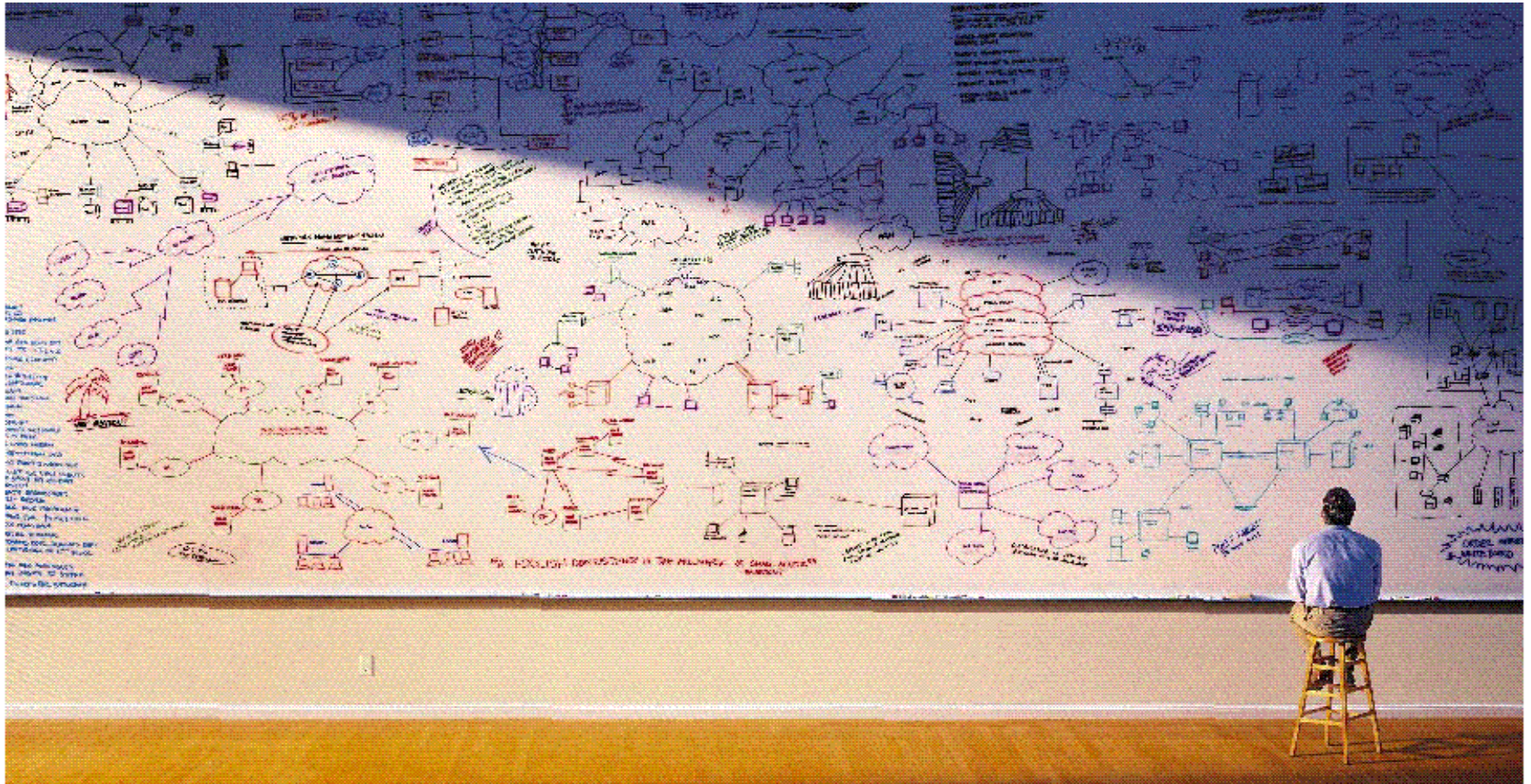
Traditional Business “Alignment” With IT...



How We Typically Implement Technology...



The Impact This Approach Has Had On IT Architecture



How Has This Inhibited Process Automation and IT Agility?

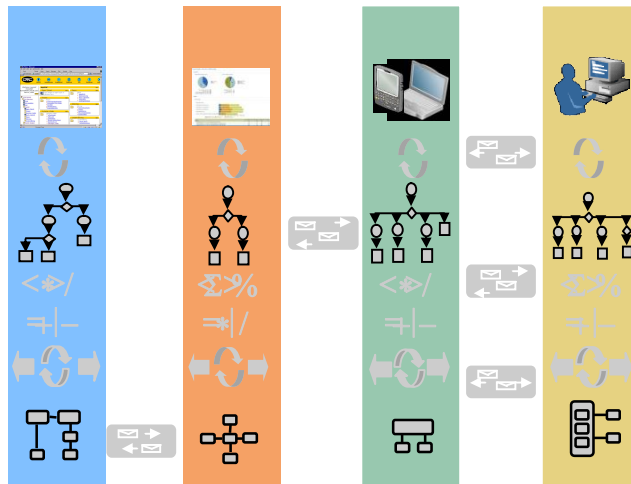


- **Business want to understand and change their operational processes quickly....**
- **Business want to deploy automated processes fast...**
- **Business want a real-time view of operations and the ability to intervene...**
- **Business want to see results and value fast...**
- *...but their process are: misunderstood, inconsistent, hard-wired and inflexible*
- *...but most do not have a way to do this*
- *...but there is typically no way to do this without a massive effort and yielding inflexible solutions*
- *...but they cannot invoke change without expense, risk projects with long payback periods*

A Service Oriented Architecture Allows IT To Increase Automation and Agility...

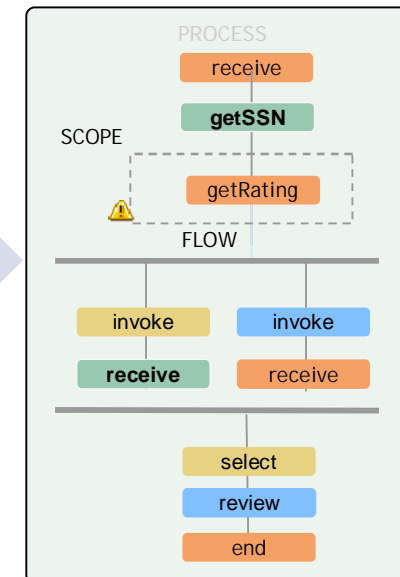


From Application Stove Piping...



Services

To a Services based Architecture...



- Deploy reusable business services
- Increase IT response and alignment to business
- Improved business visibility
- Reduce IT implementation and maintenance costs

Business Process Management 2.0 Drives Competitive Differentiation...



1990s

2000s

2010s

Operational Efficiency

Business Process
Reengineering
+ ERP

Competitive
Differentiation

Business Network Transformation
+ Enterprise SOA

Business Process Analysis

- Focus on Business Process Reengineering
- Process Modeling
- Process Documentation

'BPM 1.0'

- Focus on singular aspects of business processes
- Workflow Automation
- EAI (Integration)

Key Business Drivers

Process Globalization

- Everybody, everywhere
- Process of "me"

Business Agility

- Process Insight
- Process Flexibility

Business Transformation

- Differentiate through process
- Compliance and transparency

Real World Awareness

- Everything, everywhere
- Business events

'BPM 2.0'

- Flexibly enable the complete business process lifecycle
 - Enterprise Modeling
 - Simulation/ Analysis
 - S2S BPM (Automation)
 - Process Collaboration
 - Human Tasks
 - BAM
 - Business Rules
 - Business Content

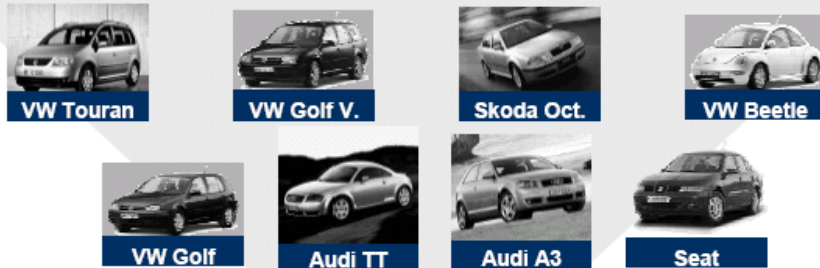
Combining BPM & SOA Gets The Most Optimal Outcome: The Analysts Agree...



- **40% of CIO's in Asia Pacific suggest BPM is driven by business stakeholders (25% in North America)**
- **In Asia Pacific, customers are even split between Top-Down (49%) and Bottom-up SOA Design Approach (51%)**
- **57% of customers in Asia Pacific are likely to source their SOA and BPM technologies from the same vendor**
- **72% of customers in Asia Pacific have created roles to bridge the gap between the business and IT**
- **Top 5 Business Process Initiatives**
 - **Customer Data Integration**
 - **Customer Service**
 - **Master Data Management**
 - **Security Management**
 - **ERP**

Source: CIO2CIO Research for SAP, July 2007

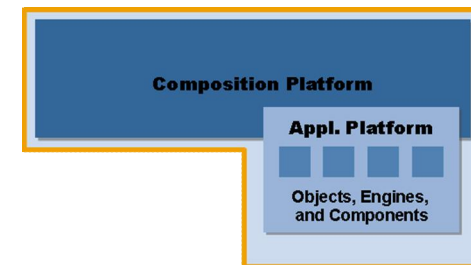
This Evolution Is Driving The Industrialization of the Software Industry...



69% of the parts
are the same



>50% of the processes
are the same

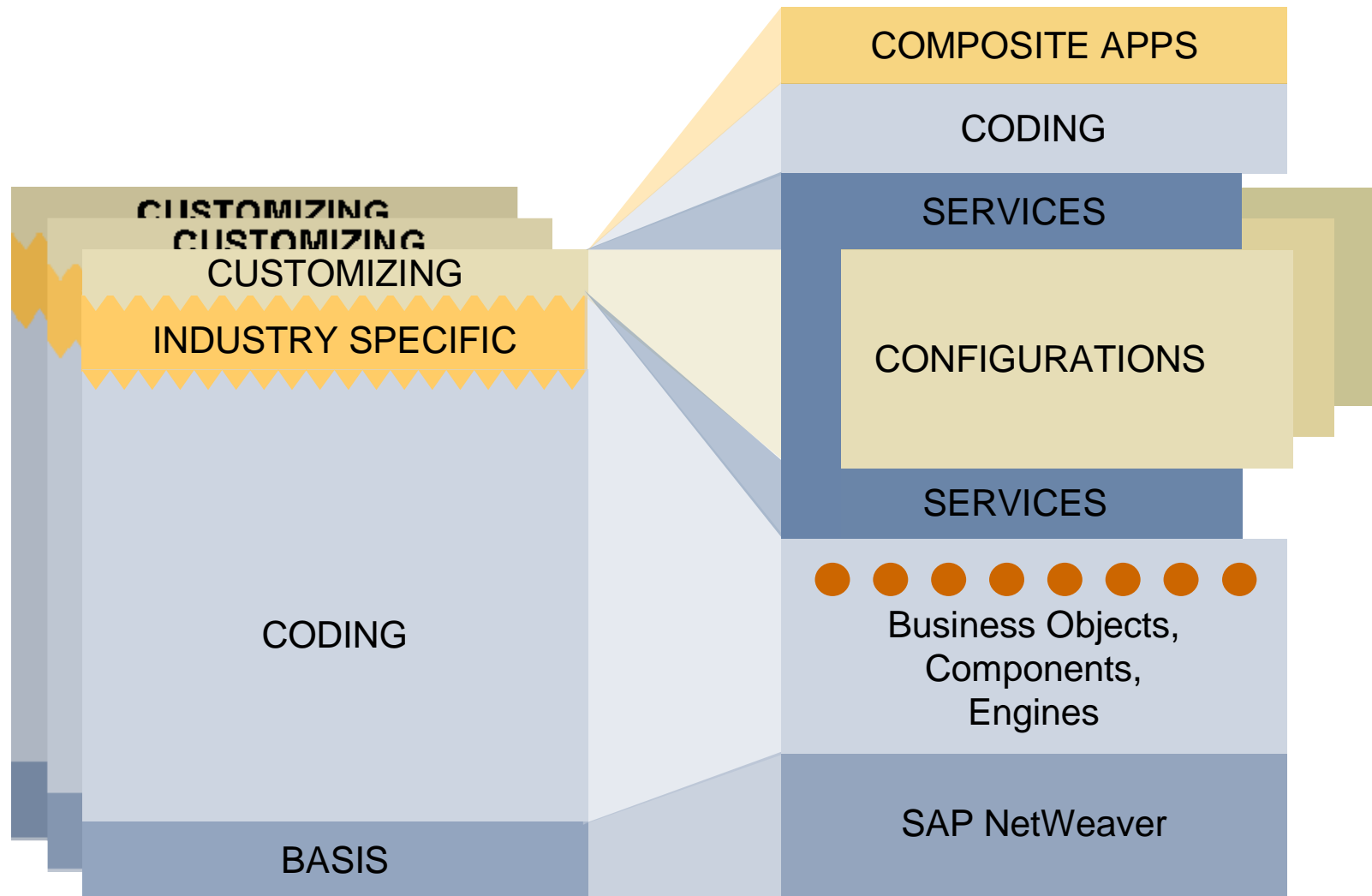


Speed: Shorter time to volume

Efficiency: Systematic re-use across solutions

Quality: Unprecedented level of quality and scalability

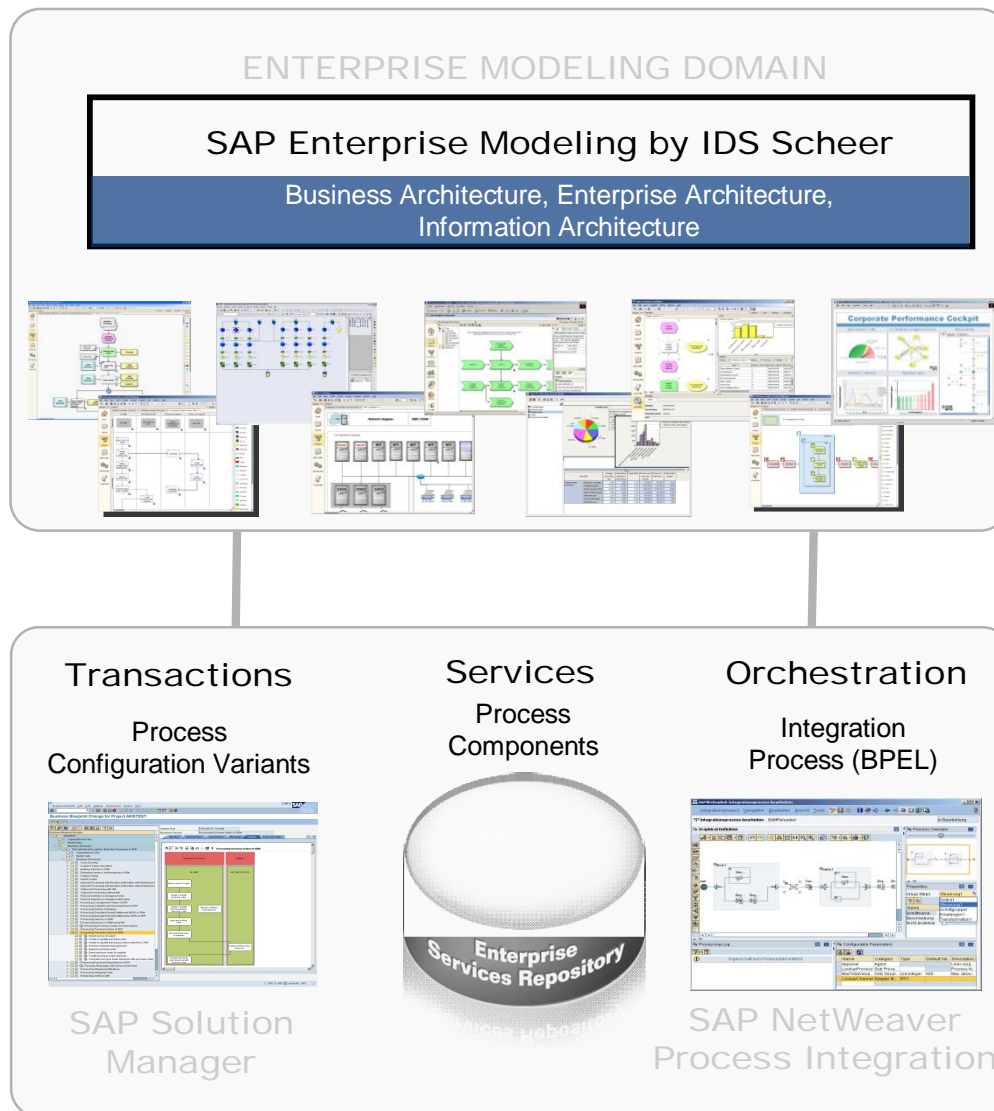
With Service Oriented Architecture Enabling Better Business Process Management



20th Century SAP (R/3)

21st Century SAP!

SAP and IDS Scheer: From Model to Execution



Enterprise Modeling

Extending the goals of ...

- Business Process Analysis (BPA)
 - Process Governance/ Standardization
 - Simulation/ Optimization
- ... to cover the Corporate Architecture

Enterprise SOA

- Process Implementation Content
 - Process Configuration Variants
- SOA Design Governance
 - Process Components
 - Expose platform processes
 - Service-enabled packaged applications
- Orchestration
 - Model-to-Code
 - Integration process

SOA Business Cases: IT-Centric to Business Driven Approach



Joint research study on how companies (SAP and non-SAP customers) set up “SOA Business Cases”

IT-Centric Approach

- SOA is a pure IT topic evolved from EAI
- Business case focuses only on IT benefits
- Missing connection between business and IT – SOA benefit hard to communicate
- SOA infrastructure projects are founded out of IT budget

Business-Driven Approach

- Business-driven approach is an enhancement of the IT-centric approach and shows proven quantifiable benefits on IT **and** business side
- All SAP customers in the study turn out to pursue the business-driven approach
- Study shows direct effects of enterprise SOA on efficiency, flexibility, and insight benefits

Organization

IT
Productivity

Technology
Foundation

Process
Optimization

New
Processes

Strategic
Capabilities

SOA Adoption Linked To Process Automation Usage Patterns



Connectivity in Business Networks



"The benefits are stronger relationships and reduced costs through self-service – agents can select the right package of products for a bid changer."

Dan King
Hubbell Project
Capgemini



Lean Interaction



"Innovative store processes, tailor-made using enterprise SOA to provide store associates with role specific access to accurate, real-time inventory information."

Matt Stultz
Director of SAP Technology
The Home Depot



Fast Process Innovation



"SAP's Business Process Platform enabled by enterprise SOA empowers business units to drive innovation".

Junji Yasui
Senior Vice President
NEC Corporation



Proven: Jebson & Jessen, South East Asia Usage Pattern: Lean Interaction

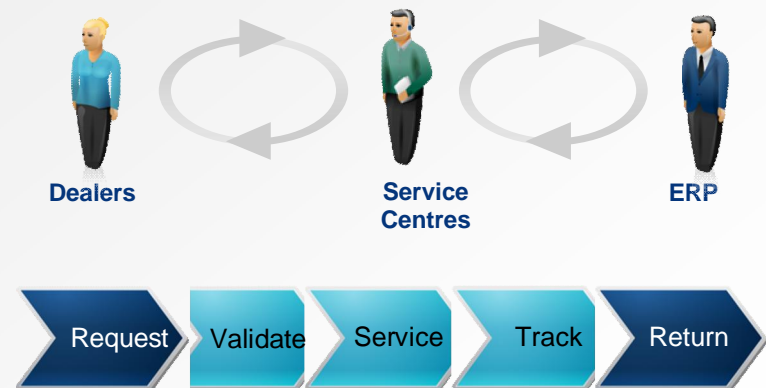


Consumer Electronics Distributor Faces Business Challenges Head On with Enterprise SOA

Business Challenges

- Delayed turnaround time due to manual processing of service requests
- Inefficient, time-consuming data-entry
- No collaboration on processing between dealers and service centre
- Slow response to customer queries/requests
- Poor information accuracy and easy retrieval
- Poor tracking reducing customer service
- Limited ability to differentiate and introduce new value-added services

Enterprise SOA enables a **shorter** warranty cycle



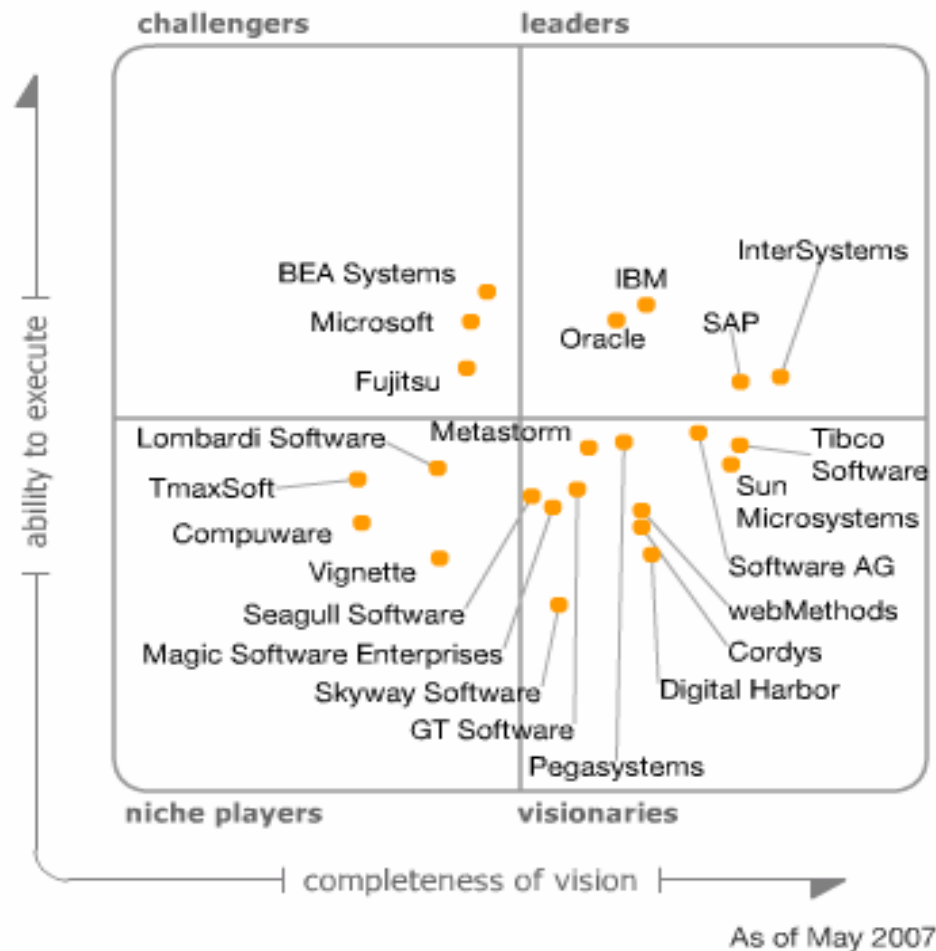
Benefits of Enterprise SOA Approach

- Capacity to handle 30% higher volume of service requests without additional headcount
- 50% time saving on service request data entry
- Faster turnaround time for servicing
- Improved customer service and logistics processes
- Approach reduced development by 30%, future projects by 50-70% reduction through reuse

Composite Applications: Model Driven Development & Composite Processes



Gartner MQ: Application Infrastructure for Composite Application Projects



Composite Applications

- New, user-Centric applications front-ending pre-existing applications
- Provide new multi-channel front-end to one or more pre-existing established applications
- **Increasingly a solution in the context of SOA initiatives**
- Leverage back-end systems that are “service enabled”
- **Will experience exponential growth in next 3 years in line with SOA adoption**
- **Considers lifecycle of modeling, composition, orchestration, integration and governance – all part of “BPM & Integration Suites”**

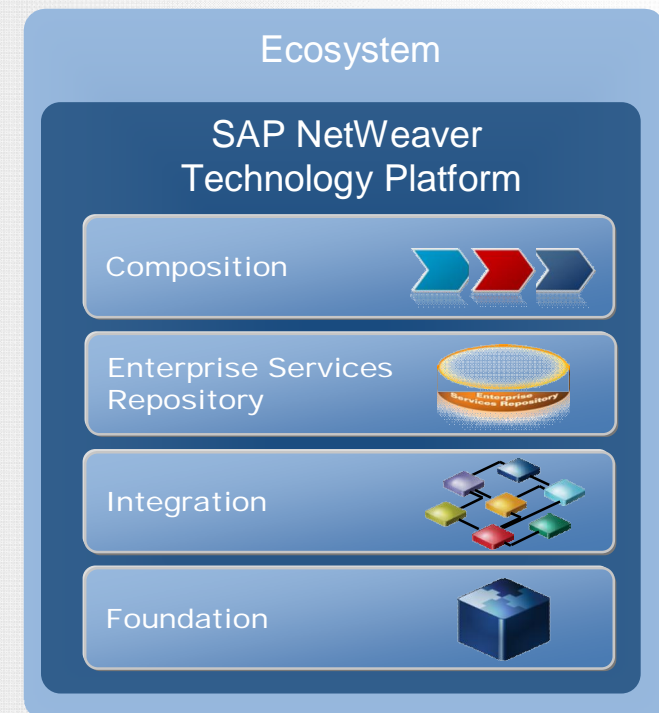
SAP NetWeaver as SOA Infrastructure

Model, Compose, Orchestrate and Deploy Composites



SAP NetWeaver:
Platform of choice for integration of SAP and non-SAP applications

- Composition: Driving strategic differentiation by co-innovation and lean consumption of Enterprise Services
- Enterprise Services Repository: Enabling governance, life cycle management and co-innovation of SAP enterprise services and non-SAP web services
- Integration: Integrating SAP and non-SAP applications by the unified principles of SOA
- Foundation: Reliability and productivity of all business applications built in



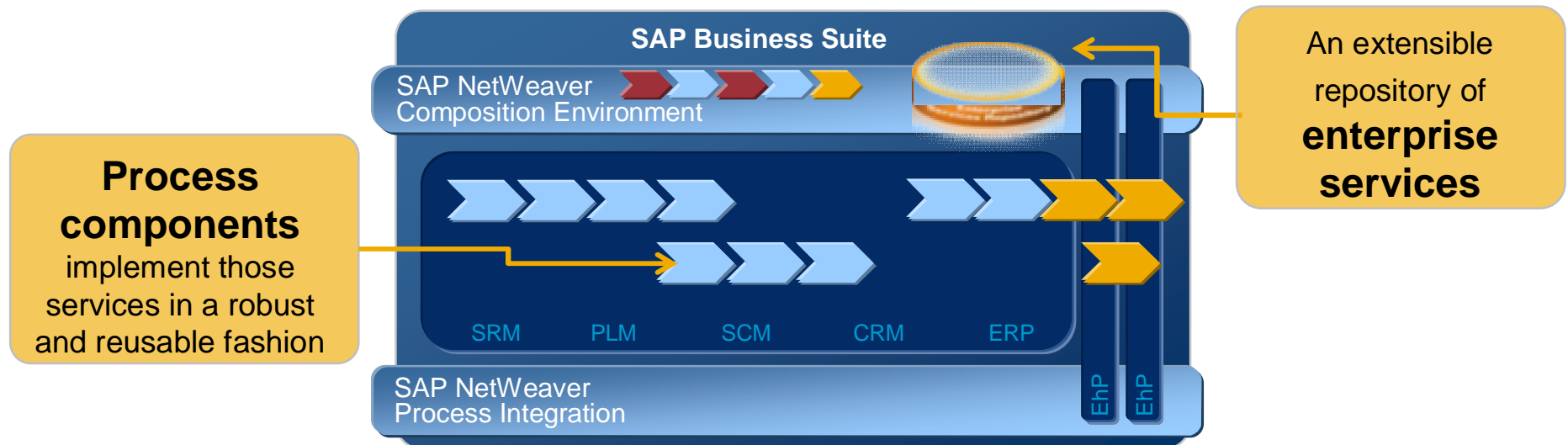
Service Enabled SAP Business Suite

Ready-to-Run Enterprise Services



More flexibility for you to drive accelerated differentiation

- 2800+ ready-to-run services, of which 50%+ were co-defined with our ecosystem
- Extended SAP NetWeaver composition to reuse services in new, competitive processes



More efficiency from us as we continuously innovate best practices

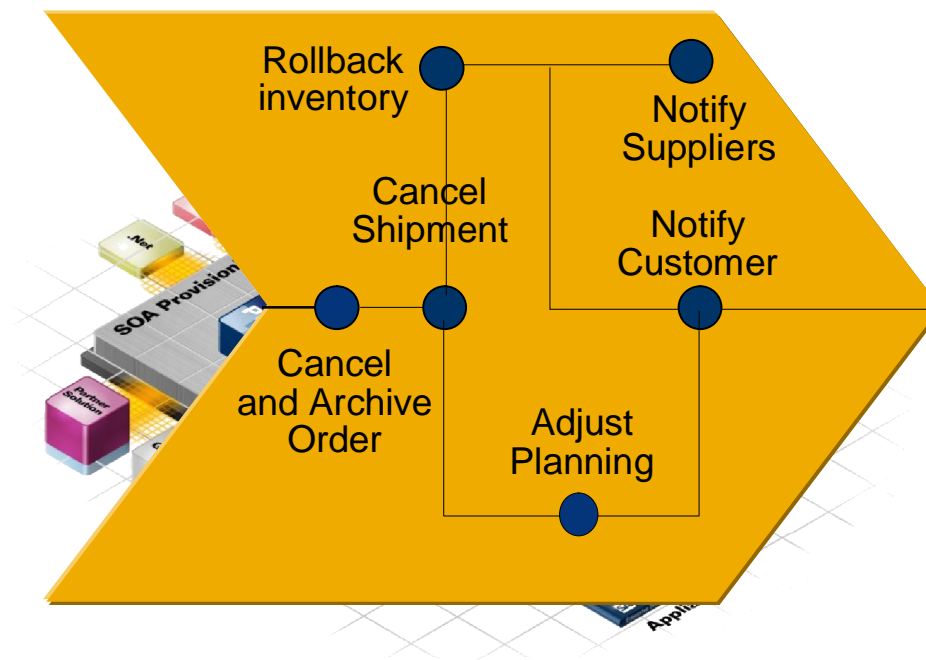
- Extended, end-to-end best practices that cross applications, companies, and industries
- Further functional and technical enhancements can be consumed without the need to upgrade

SAP Enterprise Services

Ready-to-run Services with SAP Business Suite



Turning SOA into a business language, e.g. Cancel Order



SAP enterprise SOA is our common language for business and our integration platform."



SAP Enterprise Services Repository

Comprehensive Meta Data for SOA Provisioning

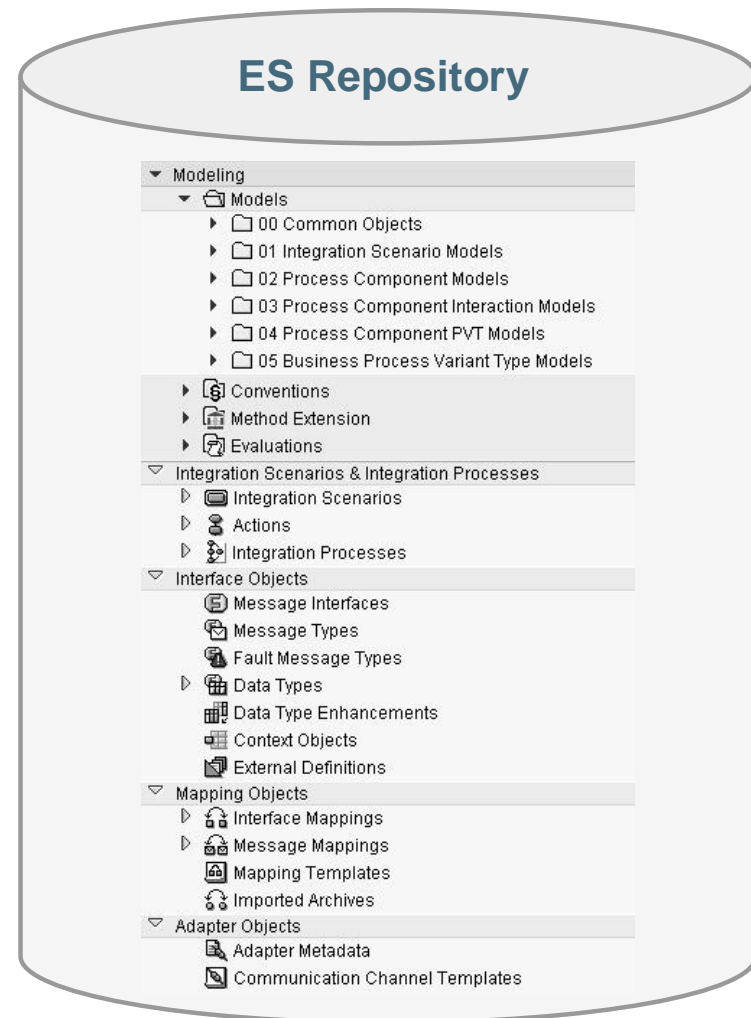


Major artifacts

- **Process Component Models**
 - **Process Context for Enterprise Services**
- **Service Interfaces**
 - **Enterprise Services**
- **Global Data Types**
 - **Based on UN/CEFACT CCTS**
- **Mappings**
 - **Graphical, XSLT, Programmed**
- **Integration Scenarios**
- **Executable Integration Processes**
 - **BPEL**

Drill down to . . .

- . . . **Service Interface Design**
- . . . **Global Data Types (GDT)**



Bundles of Enterprise Services

ERP Core



Sales and Service

- Customer Fact Sheet
- Customer Service Execution
- Order to Cash
- Quote to Order for Configurable Products
- Internal Service Request with Duet

Product Development and Manufacturing

- Integration of Manufacturing Execution Systems
- Manufacturing Work Instructions
- Technical Document Management Connectivity

Procurement

- Document Builder
- External Requirement Processing
- Procure to Pay
- Supplier Order Collaboration with SRM
- Trade and Commodity Management

Human Capital Management

- HCM Enterprise Learning
- HCM Master Data
- HCM Organizational Management
- HCM Time Management
- Absence Employee Time Request with Duet
- Benefits and Compensation with Duet
- Organizational Management with Duet
- Personnel Administration with Duet

Corporate Services

- Asset Configuration
- Batch Traceability and Analytics
- Environment, Health, and Safety Services
- Integration of Quality Mgmt Systems
- Maintenance Processing
- Maintenance Service Collaboration
- Project System
- Travel Management

Transportation, Warehousing

- Integration of External Warehouse Management System
- Integration of Transportation Management System
- Inventory Lookup
- Transportation Collaboration and Subcontracting
- Yard and Storage Management Processes

Financials

- Credit Management
- Bank Communication Management
- Electronic Bill Presentment and Payment
- External Cash Desk

Supply Chain Visibility

- Business Event Handling for Process Tracking

Demand and Supply Planning

- Demand Planning
- Service Parts Management

Order Fulfillment

- Availability Issue Resolution and Back Order Processing
- ATP Check with SCM

Supply Network Collaboration

- Outsourced Manufacturing
- Supplier Collaboration for the Supply Chain
- Customer Collaboration for the Supply Chain

RFID Enablement

- Kanban Processing
- Management of Devices Through Enterprise Services
- Management of Tag IDs and Tag Observations

View them** in www.sdn.sap.com → Enterprise SOA → Explore Enterprise Services (→ ES Workplace / → ES Wiki)

*Disclaimer: SAP reserves the right to change the ES bundles listed without prior notice.

**Some of the bundles listed on this page can be viewed in the ES Wiki.

Bundles of Enterprise Services

Industry Specific



Banking

- Credit Risk Management – Financial Instrument Pricing
- Credit Risk – Modeling
- Customer Information Management – Business Operations
- Current Account Management – Business Operations
- Financial Accounting – Financial Instrument Accounting Integration
- Financial Accounting – Financial Instrument Pricing
- Financial Accounting – Loans Integration
- Financial Accounting – Results Integration
- Loans Management – Business Operations
- Management Accounting – Results Integration
- Sales and Service – Account Origination

Higher Education and Research

- Course Approval Processes

Insurance

- Insurance Billing and Payment
- Insurance Claims Handling
- Insurance Credentialing
- Insurance Document Vendor
- Insurance External Claims Investigation
- Insurance External Reporting

Public Sector

- Funds Commitment Processing
- Public Sector Accounting Structures
- Public Sector Budget Management

Defense

- Information System Integration

Healthcare

- Foundation for Collaborative Health Networks
- Resource and Supply Chain Planning for Healthcare Providers

Utilities

- Advanced Meter Infrastructure

Media

- Advertising Management
- Subscription Management

Retail

- Demand Management
- Global Data Synchronization
- In-Store Food Production Integration

Wholesale Distribution

- Trade Price Specification Contract

Oil and Gas

- Supply Chain Operations and Execution for Oil and Gas

Travel and Logistic Services

- Compliance Relevant Data Exchange – eLogbook

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Enterprise Services Workplace

Explore and Discover Enterprise Services



Address: <https://www.sdn.sap.com/irj/sdn/explore-es>

SAP COMMUNITY NETWORK
Welcome Angeline Ng

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Enterprise SOA
■ **Explore Enterprise Services**
■ ES Workplace

Develop Composite Apps
Define Enterprise Services
Share Best Practices
Solutions and Showcases

SAP NetWeaver Capabilities
+ User Productivity
+ Information Management
+ Business Process Management
+ Development and Composition
+ Lifecycle Management
+ Security and Identity Management
+ SOA Middleware

SAP NetWeaver Product
+ Main Releases
+ SAP NetWeaver Composition Environment

Explore Enterprise Services

Enterprise SOA frontrunner: ES Workplace
The ES Workplace is now upgraded completely to the latest technological stack SAP provides (SAP NetWeaver 7.0 SP 14). It also incorporates the most recently released and most comprehensive enterprise service bundles exposed via ES Workplace's SAP Business Suite systems (Year-End 2007 shipments including SAP Enhancement Package 3 for SAP ERP 6.0). 28 Jan 2008

Enterprise Services Workplace
■ [Browse the ES Workplace](#) to explore all enterprise services shipped by SAP today
■ [Test-drive Enterprise Services](#) using the ES Workplace testing system landscape
■ [Get your user for free](#) for the ES Workplace testing system landscape

How to Access Enterprise Services using Axis2 **New!**
In this [blog](#), Jan Karstens, development architect at SAP, gives a brief overview of what is required to consume SAP's enterprise services using Axis2 and the Java platform. It is a step by step guide: from installation of the required software packages, via

How to use Services Registry for ES Workplace (PDF 2 MB)
After recently announcing the latest

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Services Registry
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[Enterprise Services En](#)
[How to use Services R](#)
[Workplace](#)

<https://www.sdn.sap.com/irj/sdn/explore-es>

Browse

- Enterprise services
- Collaborate via SAP Developer Network (SDN)
- ES bundles

Test-drive

- Consume enterprise services
- SAP Business Suite
- Enterprise service repository

Use

- Easy access to implement required pieces

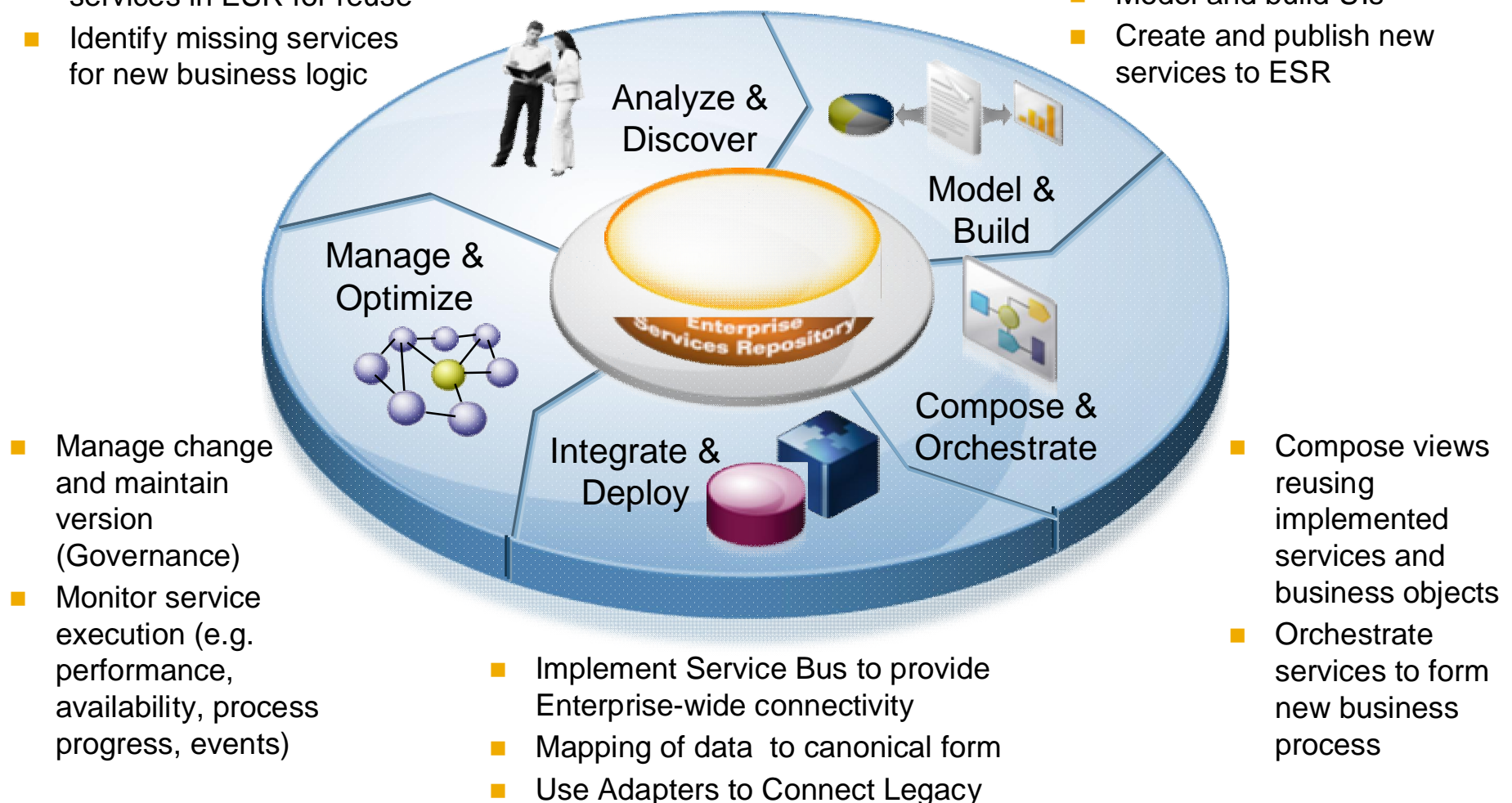
Lifecycle for Building Composite Applications

Extending the Value of Your Enterprise Applications



- Analyzes business requirements
- Identify needed business services
- Discover available enterprise services in ESR for reuse
- Identify missing services for new business logic

- Design and model business objects
- Implement new business logic
- Model and build UIs
- Create and publish new services to ESR

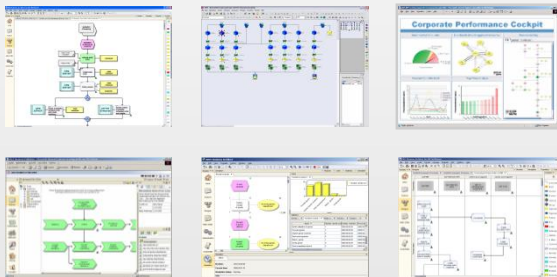


Analyze, Discover and Model IDS Sheer and SAP NetWeaver



SAP Enterprise Modeling

- Descriptive models
- Business Process Analysis
- Conceptual simulation / optimization
- Process planning & governance
- Process performance measurements

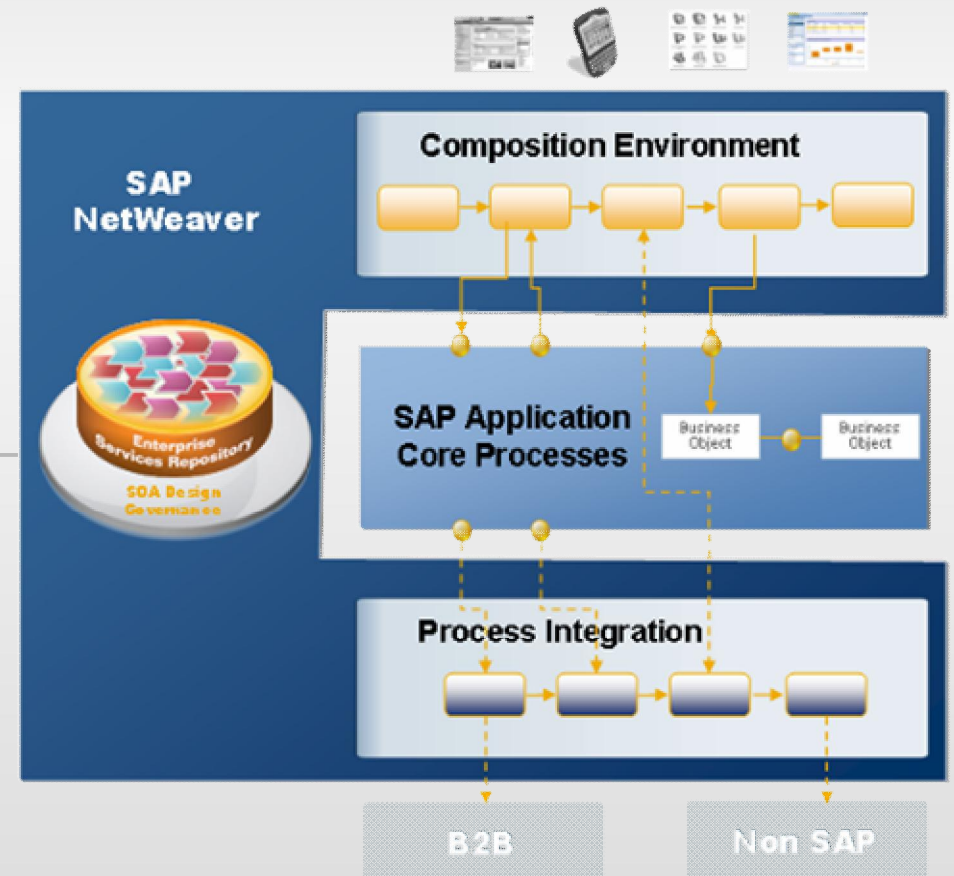


Enterprise
Modeling

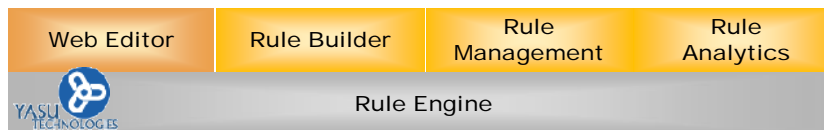
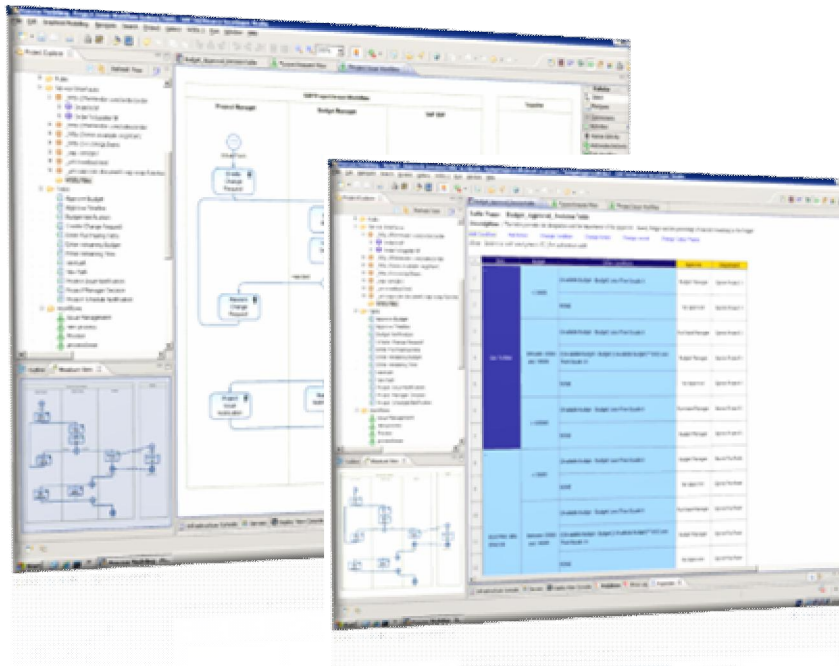
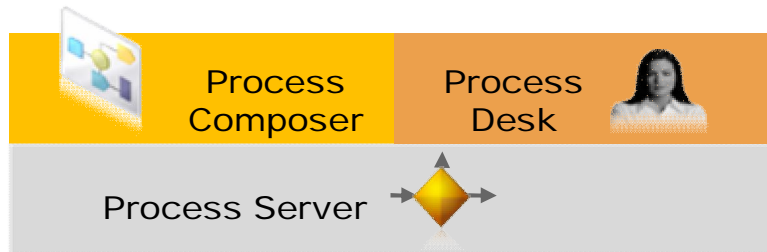
Business
Architecture

Enterprise
Architecture

Information
Architecture



Analyze, Discover, Model and Build SAP NetWeaver Business Process Management (Q32008)



Graphical Modeler Based on BPMN

- Eclipse-based
- Support key process concepts (workflow, event, task, rules, context, roles, UI) throughout their lifecycle
- Combine human interaction and system integration in one model

Direct Path From Model to Execution

- Nothing 'lost in translation'
- Dynamic role-based views
- Single active model
- Flexible execution

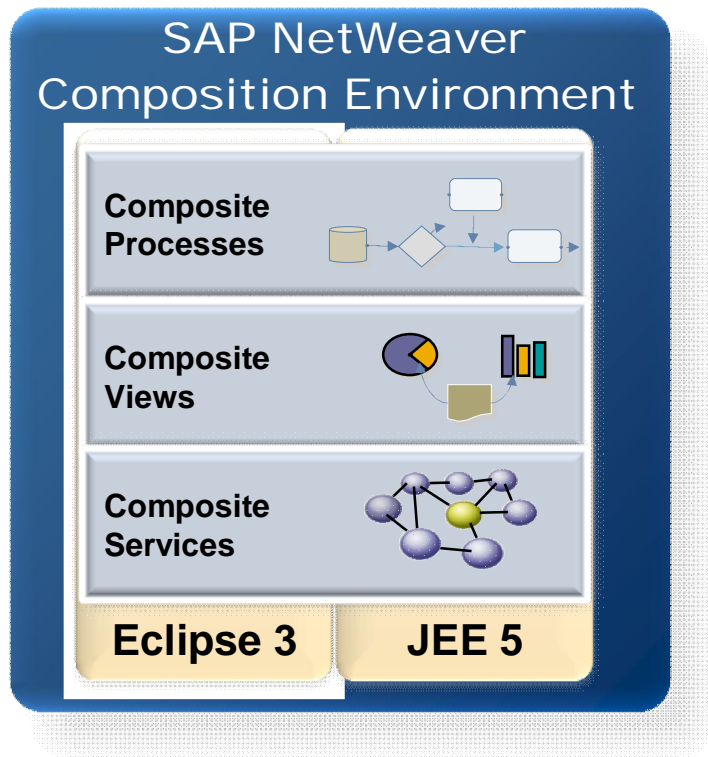
Embedded in SAP NetWeaver CE

- Integrated composition experience
- Common UI technology
- Service-based connectivity
- Common business rules management

[Sneak Preview....](#)

Compose and Orchestrate

SAP NetWeaver Composition Environment 7.1



Developer productivity

- **Model-driven development**
- **Integrated toolset**
- **Out-of-the-box ESR integration**
- **Comprehensive life-cycle management**

Lean consumption

- **Fast set-up**
- **Live update**

Standards-based

- **Java EE 5**
- **Eclipse 3**



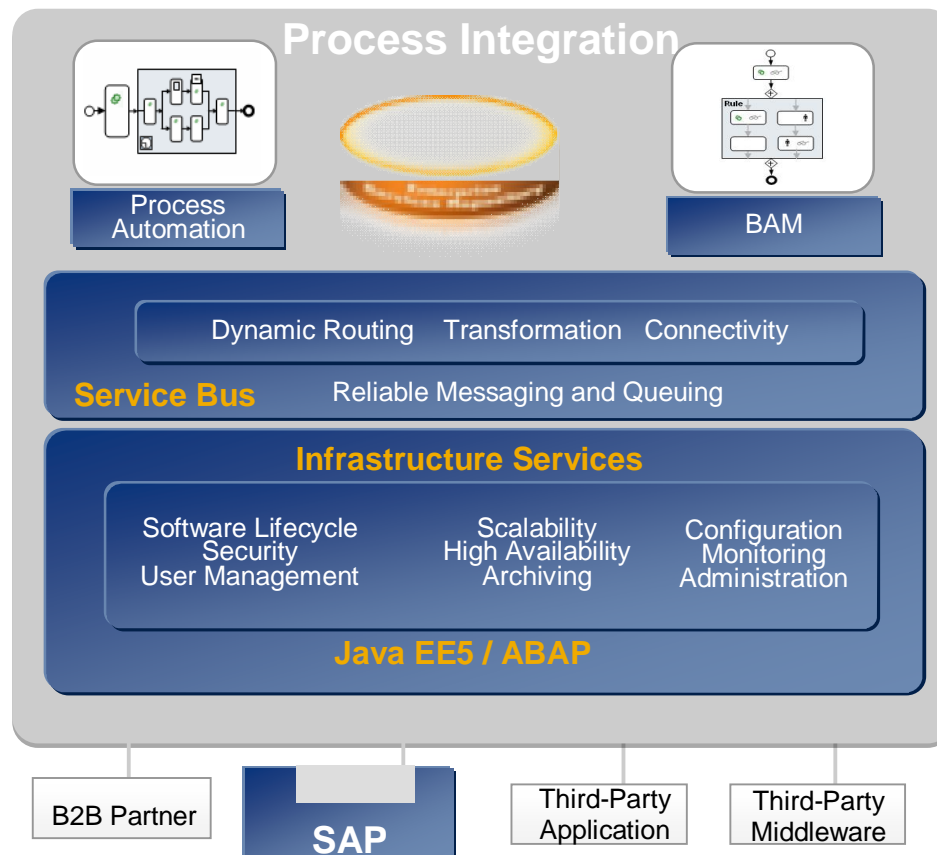
<http://sdn.sap.com/irj/sdn/ce>

Compose and Orchestrate Multi-channel Delivery for the Information Worker



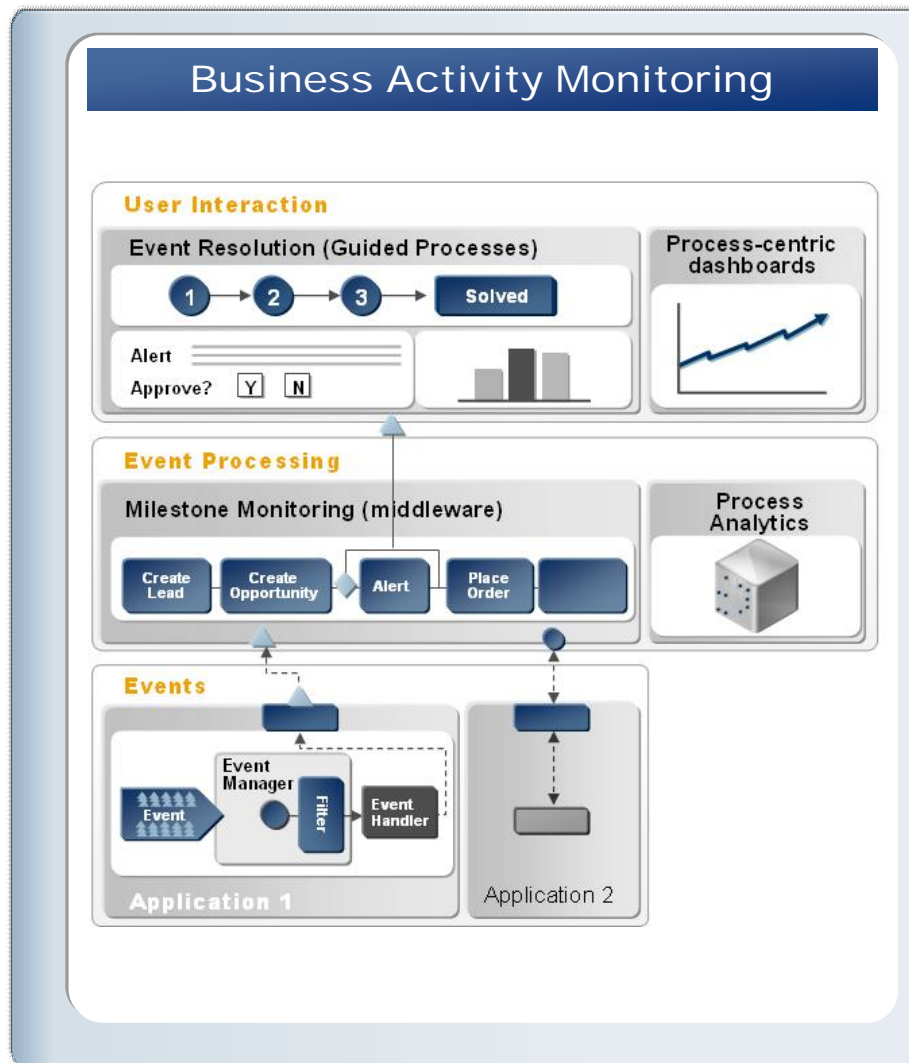
Integrate and Deploy

SAP NetWeaver Process Integration 7.1



- **High performance**
- **Standard compliance and interoperability**
- **Message Transformation, Routing, BPEL**
- **SAP and non-SAP A2A Integration**
- **B2B integration using EDI, AS2, SWIFT, RosettsNet, CIDX**
- **Reduced TCO**

Manage and Optimize Business Activity Monitoring Closes The Loop



Event Resolution

- Event Resolution Templates to guide users context-sensitively through problem inspection and resolution of expected and unexpected events

Process Efficiency

- Analysis of efficiency of processes

Event Correlation

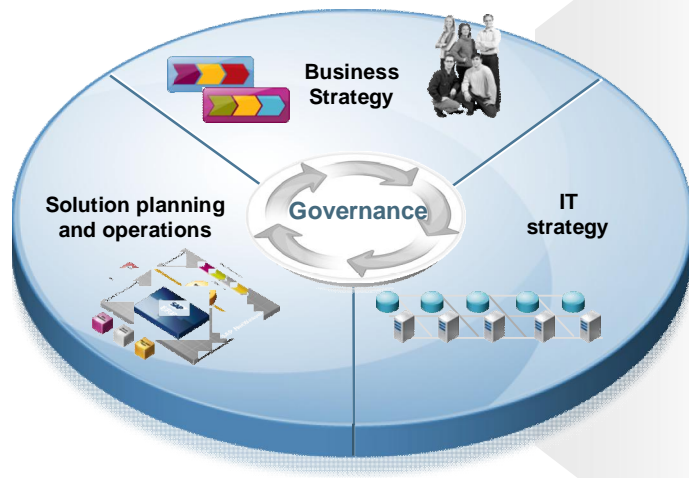
- Subscription and handling of business process events (key process milestones)
- Milestone Monitoring Process Definition
 - BPEL-based BAM patterns
 - KPI look-ups (data enrichment from BI)
 - Integrated Alert Management

Embedded Event Infrastructure

- Collecting, pre-filtering and publication of events for inter-system usage across SAP and Non-SAP systems

Manage and Optimize

SAP Design and Runtime Time Governance for SOA



Organizational Governance for Enterprise SOA

Aligning Organization, Procedures, and Structure to Enterprise SOA Strategy

Enterprise Services Repository

Governance Automation and Life-Cycle Support of SOA-Based Applications

Design and Modeling Methodology

Integrated Models and Patterns for Enterprise Services

Enterprise Services Community

Codesign and Best Practices

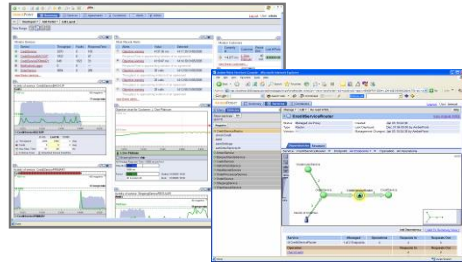
“ Less than 12% of enterprises feel that their current SOA governance approach is sufficient”

The SOA Forum, Survey, September 2007

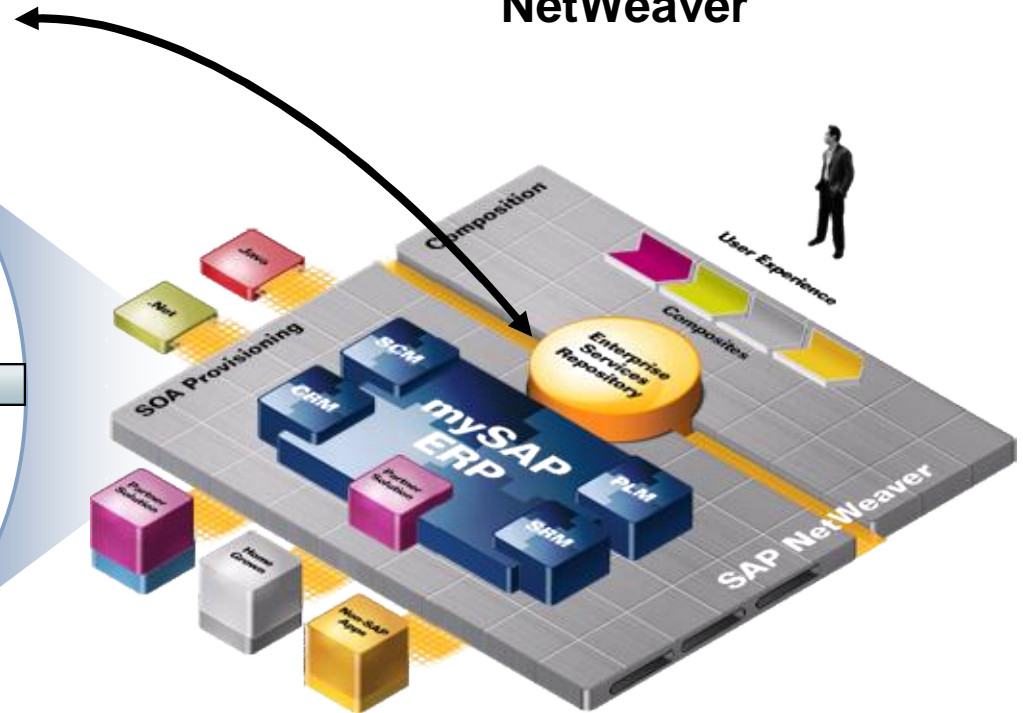
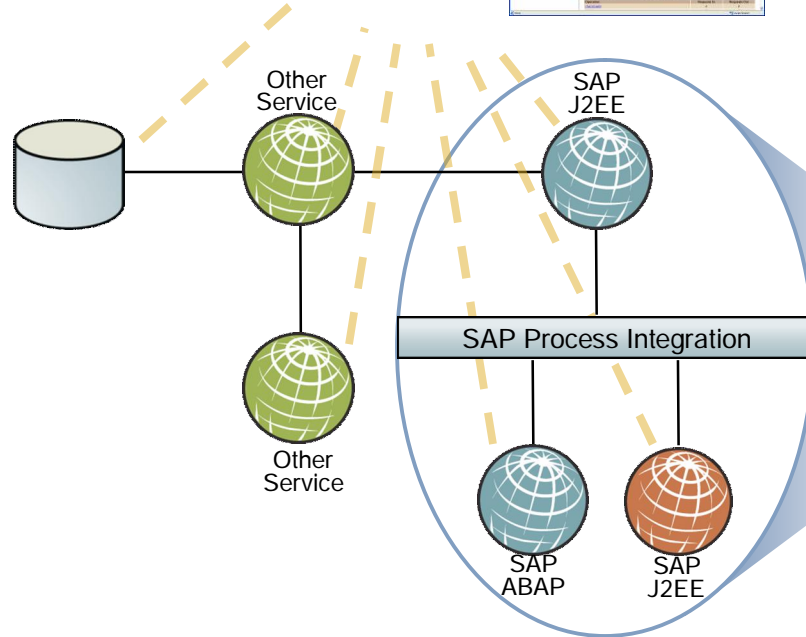
Manage and Optimize Run-time Governance for SOA via AmberPoint



AMBERPOINT



**Out-of-the-box Management
capabilities for Java and ABAP
Web services on SAP
NetWeaver**



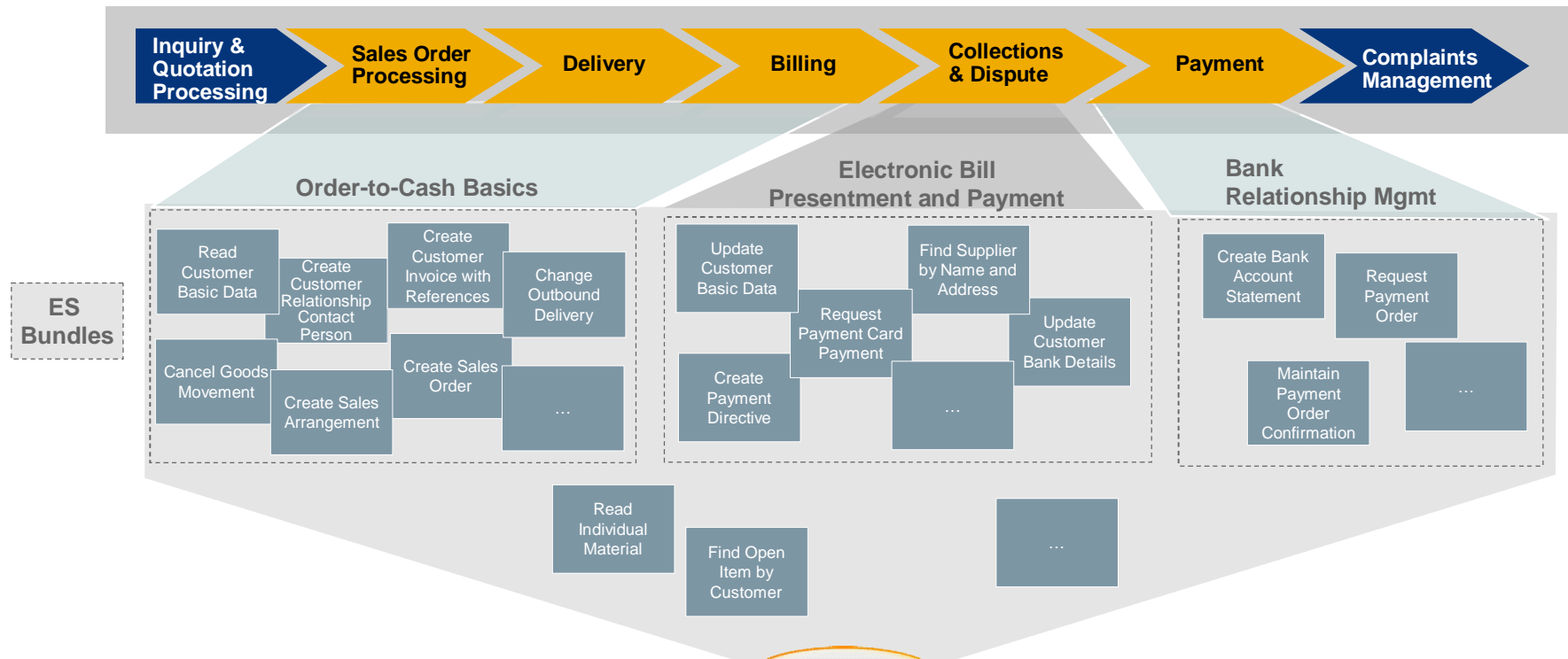
Visibility into and control of heterogeneous service networks
including Java and ABAP services running on SAP NetWeaver

SAP NetWeaver as SOA Infrastructure

Example: Order-to-Cash Process



Order-to-Cash Process



Definition of ES Bundles

- Set of enterprise services addressing specific business topic
- Available for cross-industry and industry-specific business processes
- Increase flexibility in connecting business partners and third-party applications (system integration)



Enterprise
Services
Repository

Benefits of ES Bundles

- Provide “quick wins” for the business
 - Easy to implement
 - Targets real business problem
- Enables new business functionality via flexible composition on top of a stable back-end
- Lower cost of ownership enabled by reusability and shared governance costs

Proven: SOA Adoption Underway

SOA is the Blueprint of Strategic IT



Higher efficiency (and reduced risk) while increasing insight and flexibility

“

...NetWeaver covers the whole BPM lifecycle...design, modeling, execution, monitoring.....It is the perfect solution for us”



“

...with the Business Process Platform, staff can now focus on providing quality customer service.”



JEBSEN & JESSEN
MARKETING

“

... improved cross selling and loyalty management while increasing flexibility.”



Standard Bank

“

... a company-wide single point of contact to our retail customers.”

PHILIPS

“

SAP is now a vital part of our enterprise SOA-based strategy.”



The SAP and IDS Scheer Advantage

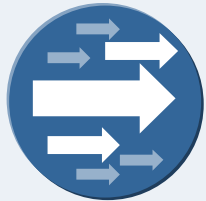


Leverages IT assets and reduces TCO



- Reduces drastically project times for upgrade and implementation
- Simplifies customizing based on business process requirements

Provides transparency and supports Governance



- Enables process oriented standardization of core processes
- Provides the conceptual business, IT and information architecture

Improves Performance, Transparency and Compliance



- Ensure process compliance and governance, support easy documentation
- Measure Process Performance and Savings

HOME

PLATFORM

BUSINESS VALUE

SERVICES

CUSTOMERS

ECOSYSTEM

EMPOWERING AND CONNECTING PEOPLE

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**Learn From Their Successes, Download Your SAP NetWeaver Customer Successes e-Book.****Key Highlights:**


- 34 success stories and profiles, over 16 industries;
- From 13 countries across Asia Pacific Japan region
- Spotlight story: Singapore Ministry of Defence

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