

# IBM SOA Architect Summit

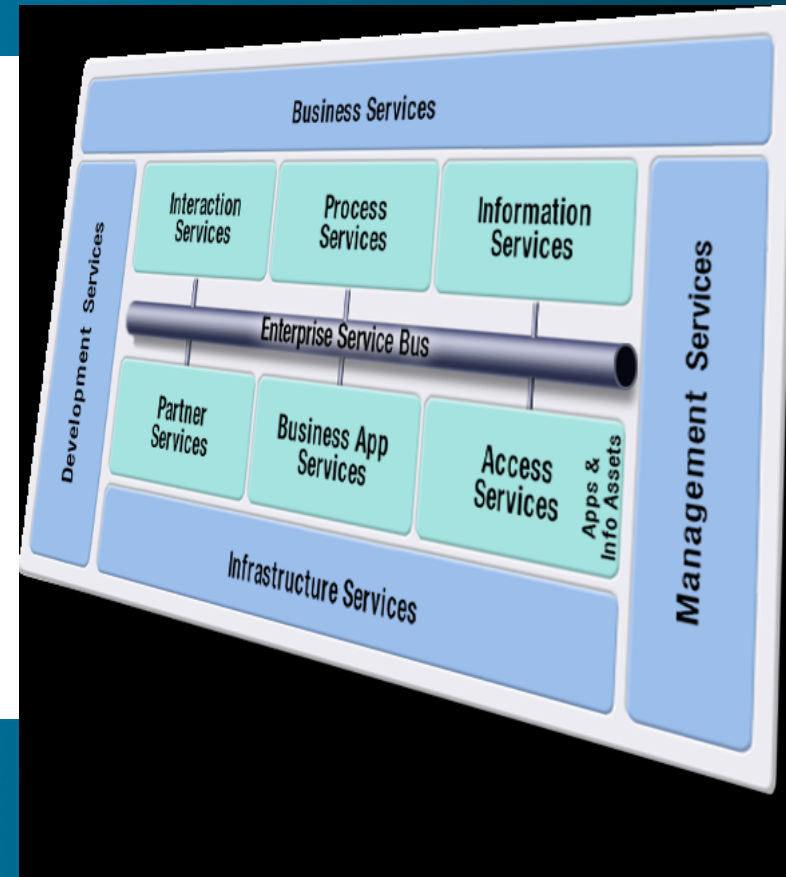


SOA on your terms and our expertise



IBM SOA Architect Summit

# *Business Architecture:* Architecting SOA With A Business Focus



## What is the impact of SOA on current Enterprise Architectures?

- Alignment of Business and IT Architectures
  - SOA Reference Models
  - SOA Governance

## How do you develop SOA with a business focus?

- Componentizing the business
- Service-oriented Modeling and Architecture
  - Business Process Management

## How do you reuse applications in the context of SOA?

- Reuse of existing applications
  - Service registries
  - Connectivity

## How do you leverage information in an SOA?

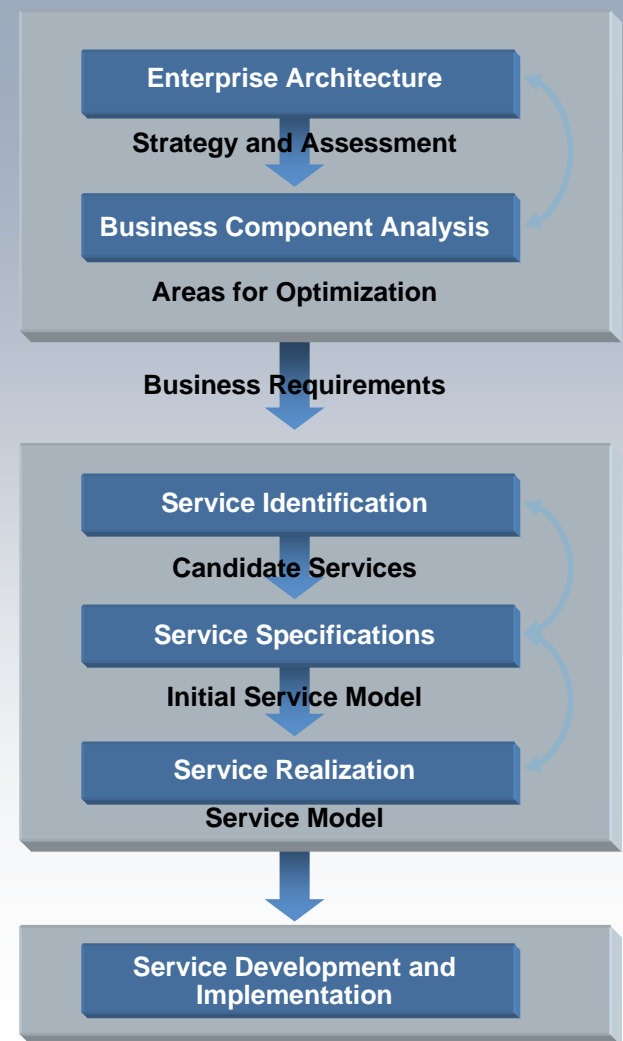
- Information as a Service
- Separation of function and data
  - Master Data Management

## How does my infrastructure support SOA?

- Quality of Service
  - Security
- Service Management

# Architecting SOA With A Business Focus

- Enterprise Architecture and Business Component Analysis
- SOA Design
- Service Development and Implementation
- Providing SOA Governance

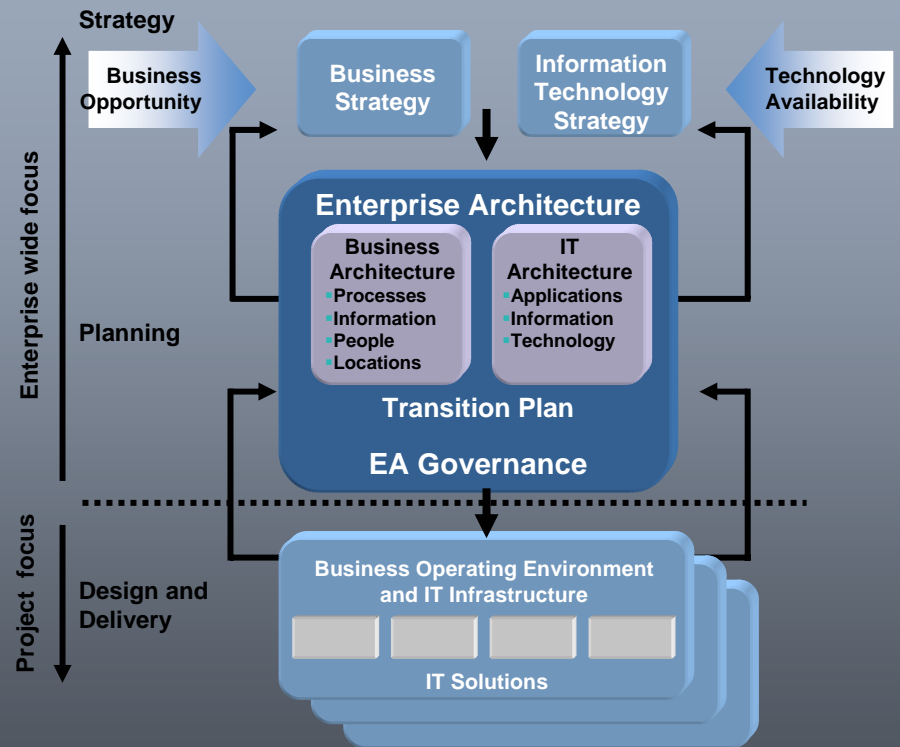


# Agenda

- Understanding The Business
- Designing Services To Support Business
- Orchestrating Services Into Business Processes
- The Evolution of Services to Business Services
- Business Implications of SOA Governance
- Summary

# Enterprise Architecture Links Business and IT

- EA Support Business and IT
  - Drives Business and IT Strategy
  - Enables Architectural Planning Linking Business and IT Objectives
  - Results in IT Solution Design and Delivery
  
- Enabling SOA within the EA mission enhances SOA success



# EA Provides Linkage Between Operational and IT Views

## *Reconciling Business Perspectives and IT Perspectives*



# Business Component Analysis

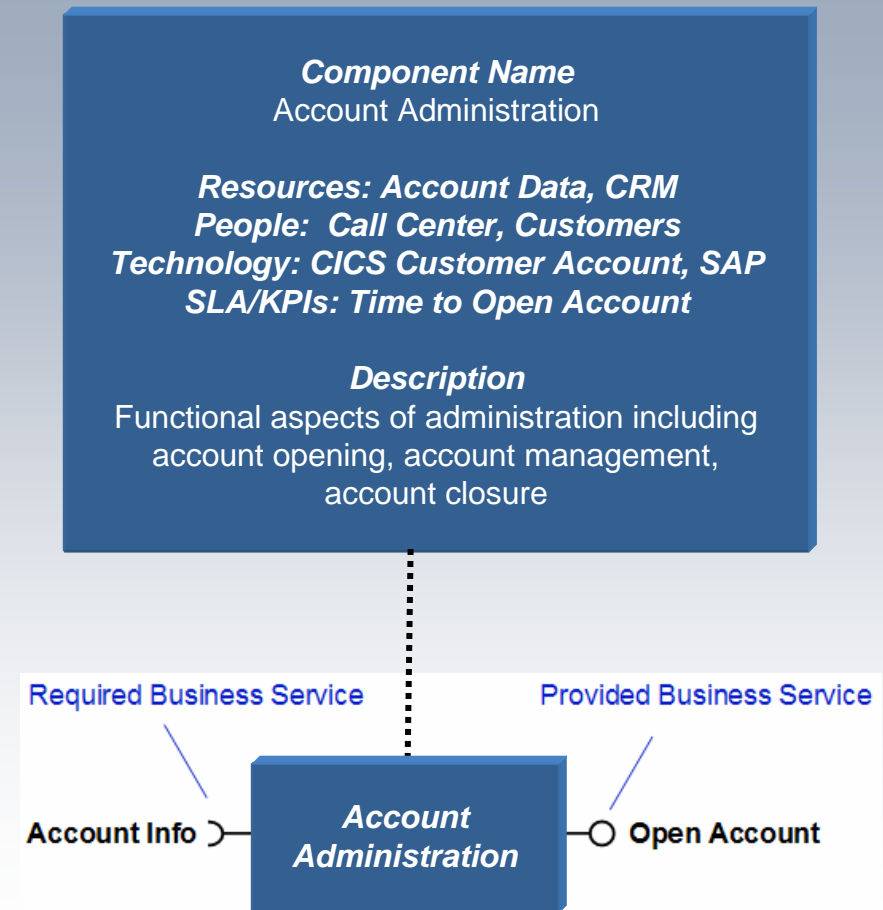
- The enterprise is mapped out as a set of categorized business components
- Heat map highlights components for analysis based on criteria such as gaps and efficiency
- Enables approaches to understanding how the business can be improved

	Business Administration	New Business Development	Relationship Management	Servicing & Sales	Product Fulfillment	Financial Control and Accounting
Directing	Business Planning	Sector Planning	Account Planning	Sales Planning	Fulfillment Planning	Portfolio Planning
Controlling	Business Unit Tracking	Sector Management	Relationship Management	Sales Management	Fulfillment Monitoring	Compliance
	Staff Appraisals	Product Management	Credit Assessment			Reconciliation
Executing	Account Administration	Product Directory	Credit Administration	Sales	Product Fulfillment	Customer Accounts
	Product Administration			Marketing Campaigns	Customer Service	
	Purchasing	Collections			General Ledger	
	Branch/Store Operations					



# Business Components Provide The Operation Model

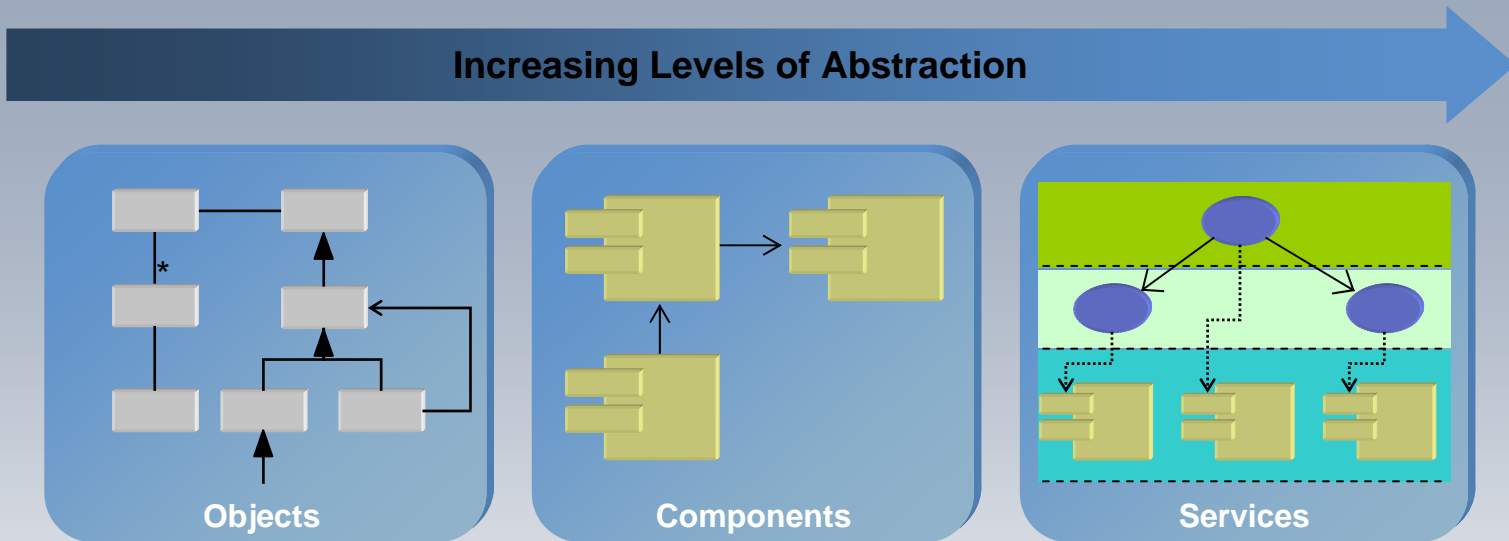
- A **business component** is “a grouping of the people, technology, and resources delivering specific business value”
- Components have well-defined interfaces, allowing them to interact smoothly with each other and to be 'snapped' in and out at will, like building blocks”
- The Interfaces of the Business Components Enable Identification of Candidate Business Services



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# Service-Oriented Design Objectives

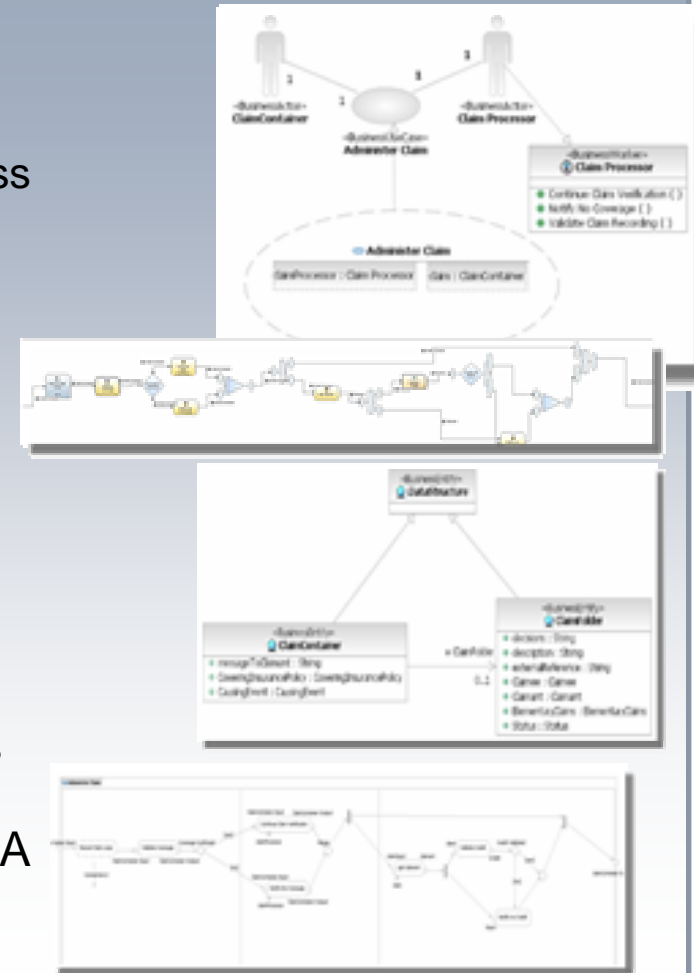


Just as OOAD is necessary to define object-oriented systems and component-based development is used to define component-based architectures, **service-oriented modeling is necessary to define a service-oriented architecture**

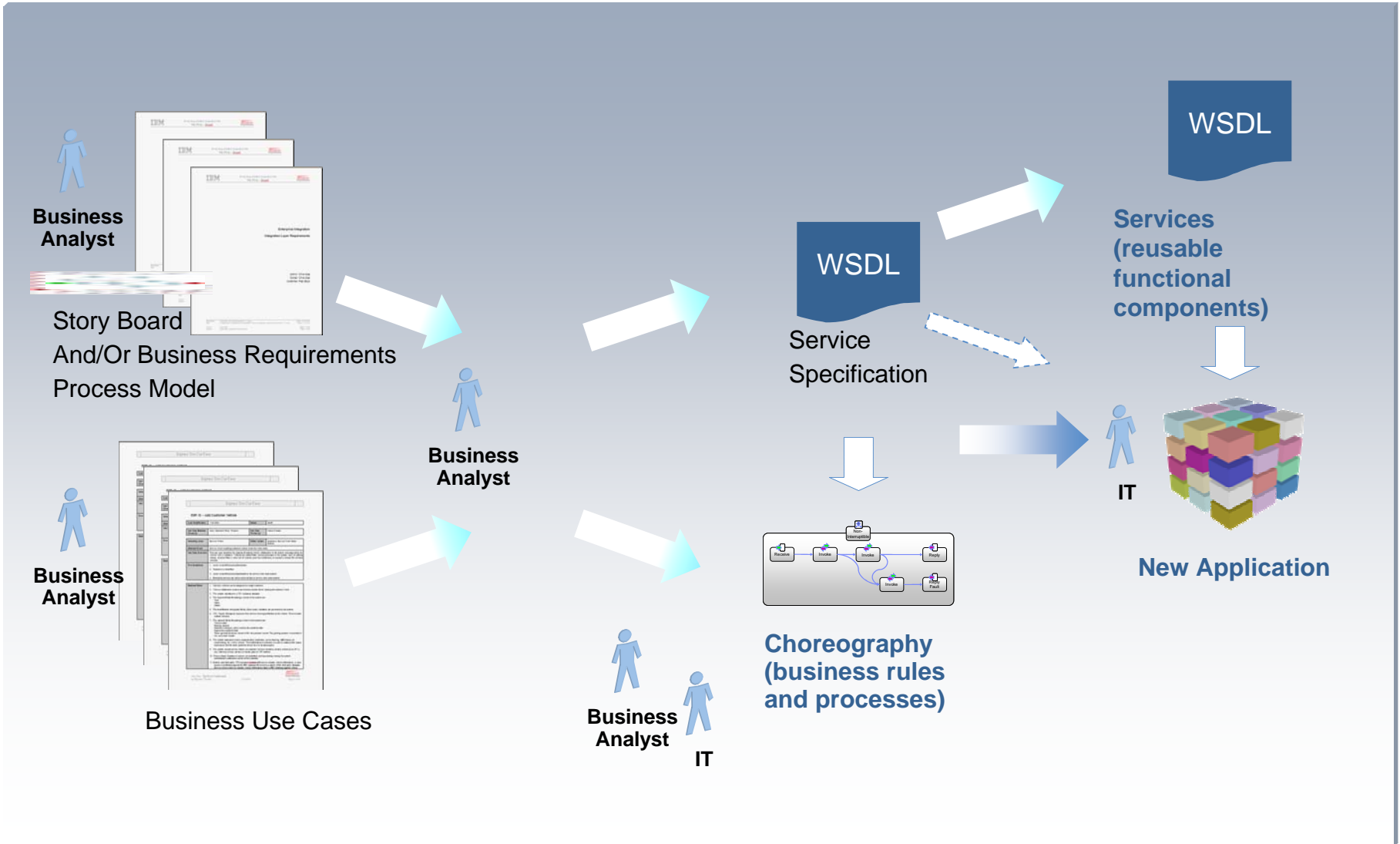
While SOA **builds on** well-established software architecture principles (for example, information hiding, modularization and separation of concerns), it also **adds** additional aspects; thus, service-oriented modeling needs additional techniques for these new aspects

# Service Oriented Analysis, Modeling, and Design

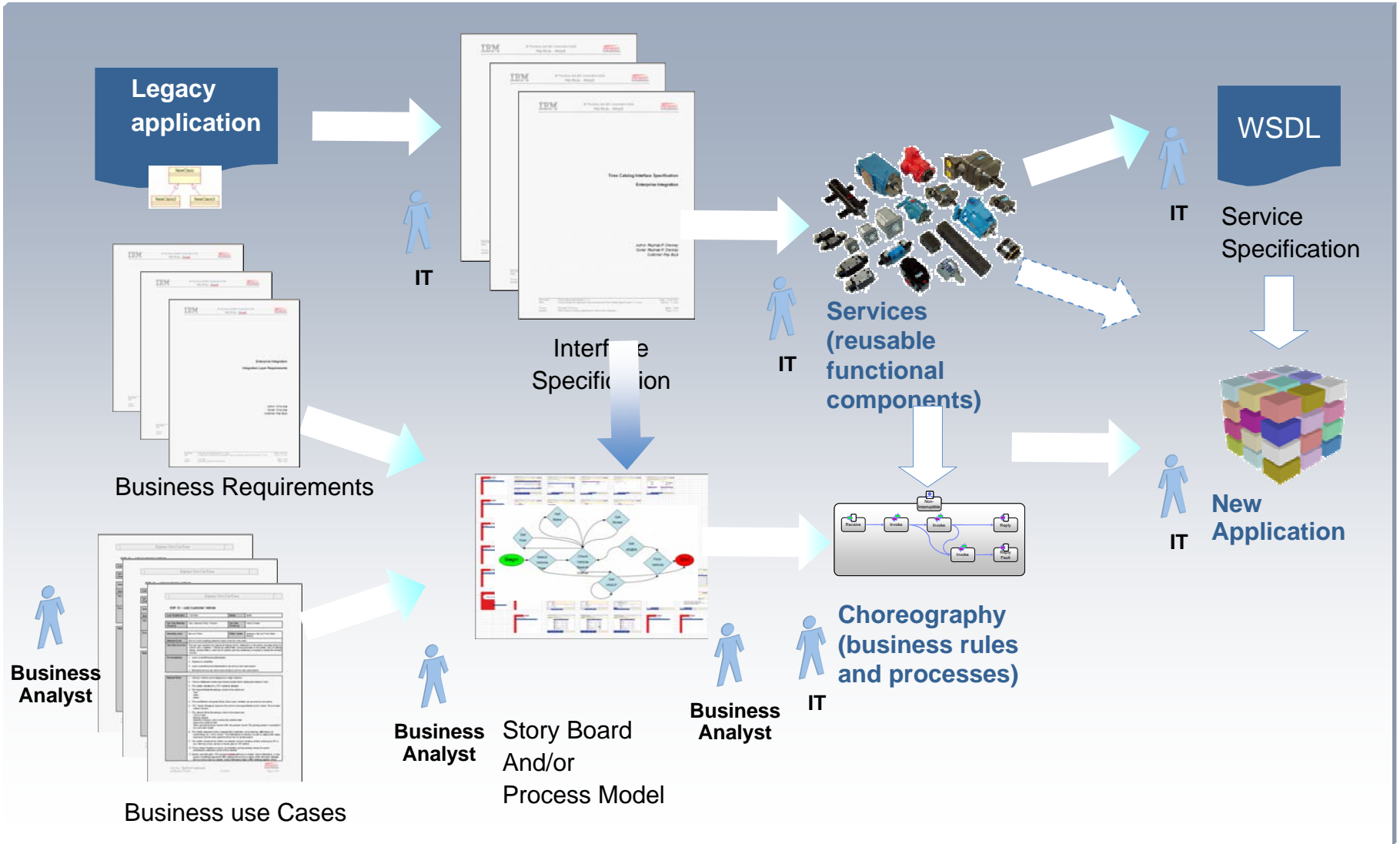
- Top Down Approach – Business Requirements can be rendered as a Business Process Model
  - Articulate and model the business intent as a process
  - Process model becomes an input for service design
- Bottom Up Approach – Existing IT assets are discovered and evaluated as possible services
  - Identify existing components as candidate services
  - Assets can be transformed into service interfaces and implementations
- Meet-In-The-Middle Approach – Identification of business goals and sub-goals
  - Goals and sub-goals correlate to candidate services
- UML Profile for Software Services and RUP SOMA enforces discipline in designing software services



# Top Down SOA Approach



# Bottom Up SOA Approach



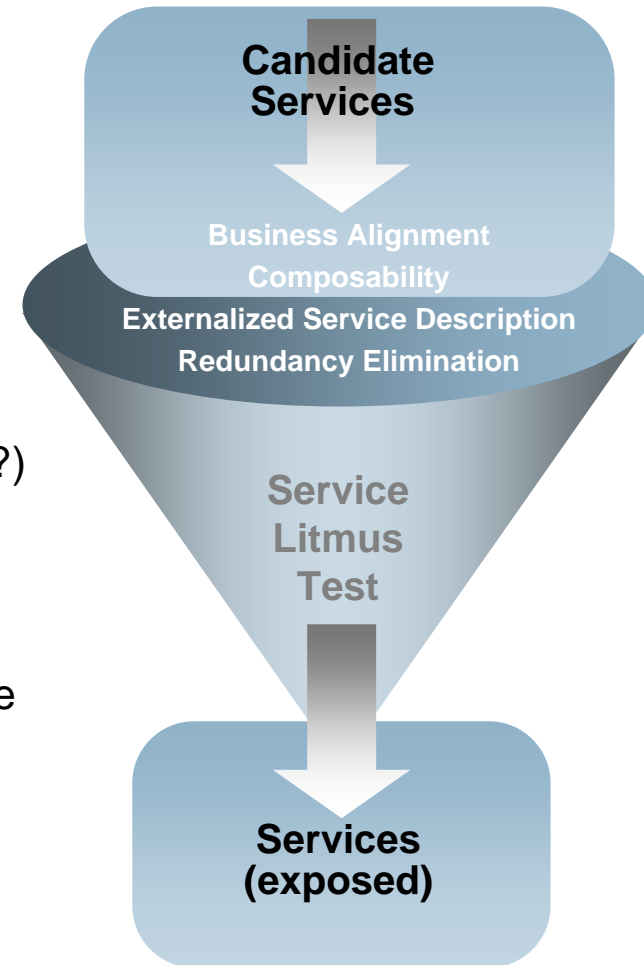
# SOMA (Service Oriented Modeling and Architecture)

*Identification, Specification, Realization and Implementation of Services, Components, Flows*

- SOMA is IBM's end to end SOA Solution development method
- SOMA is an integral part of the Rational Unified Process
- SOMA has the following phases:
  - Service Identification
  - Service Specification
  - Service Realization
  - Service Implementation

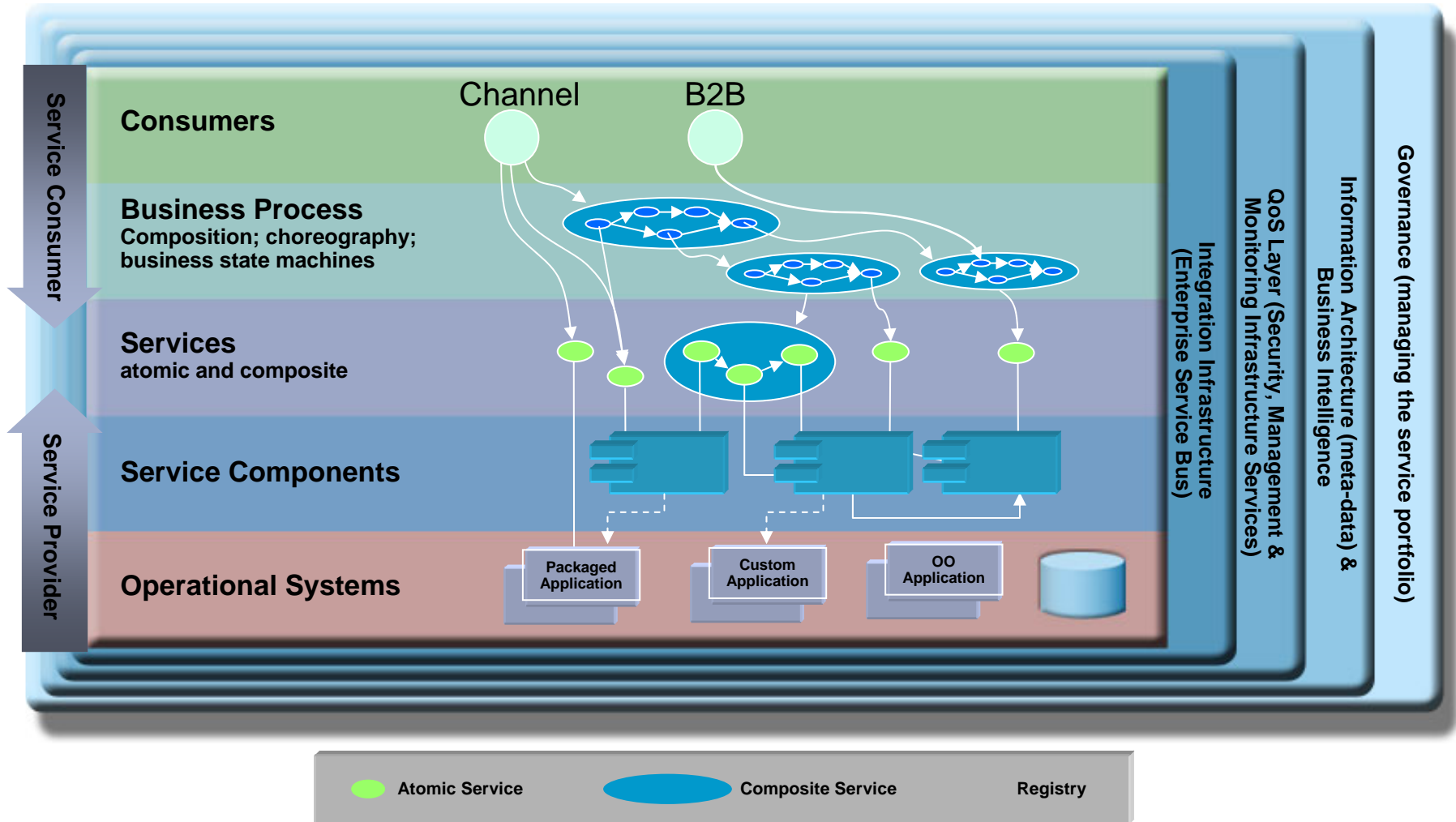
# Service Exposure Decisions Within Service Identification

- **Business Alignment:**
  - Is the service business relevant?
  - Is funding available for service development and management?
  - Is the service sharable?
- **Composability**
  - Is the service consistent with NFRs at the composite level?
  - Is service stateless?
  - Is the service self-contained? (Are there dependencies?)
  - Is the service technology neutral?
- **Externalized Service Description**
  - Is the an externalized service description e.g. WSDL?
  - Can the service be discovered and bound via the service description?
  - Does the description contain meta-data about itself?
- **Redundancy Elimination**
  - Can the service be applied to all processes where its function is required?

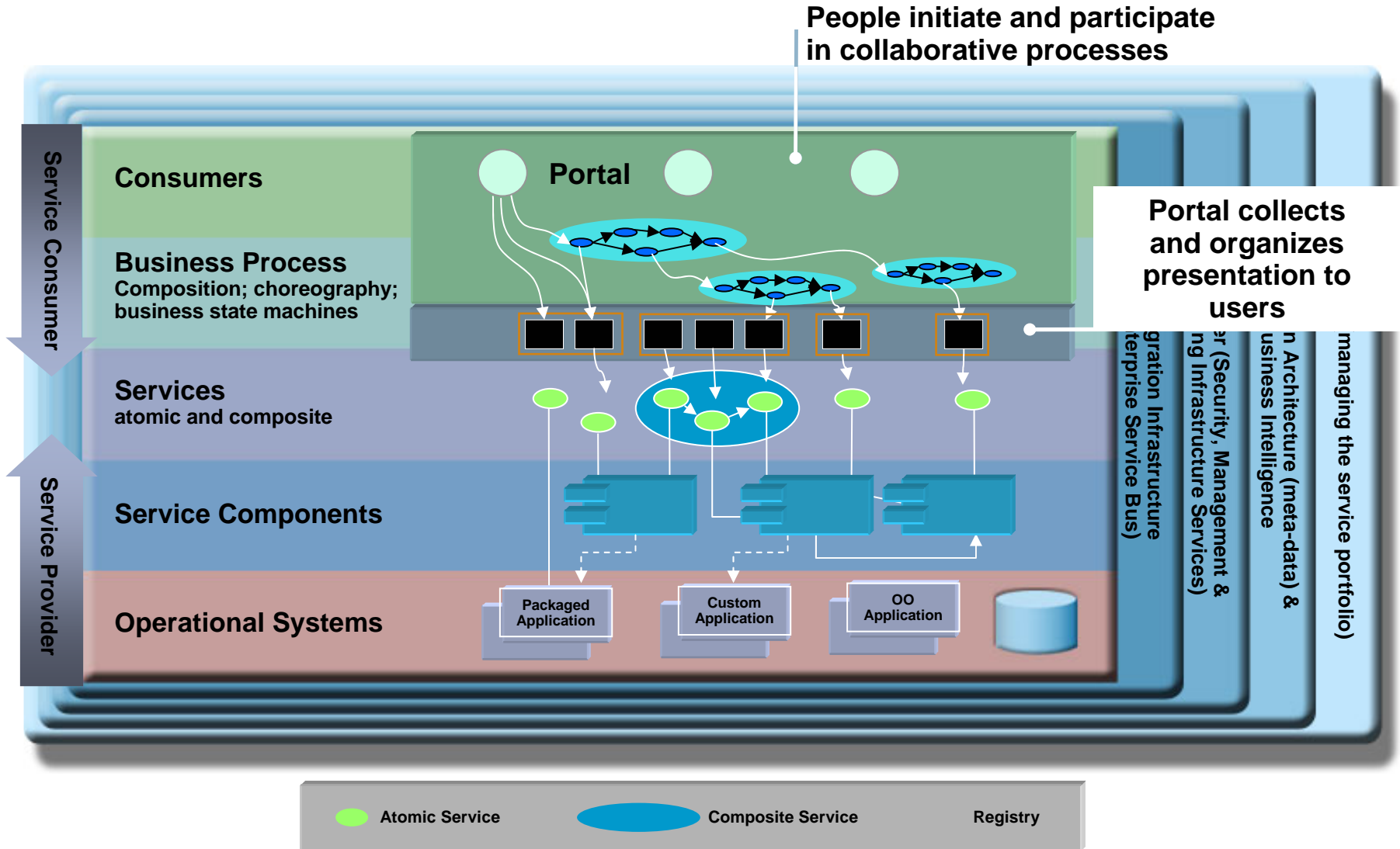




# SOMA Enables An Optimal SOA Design



# SOA Design Enables User-Focused Solutions



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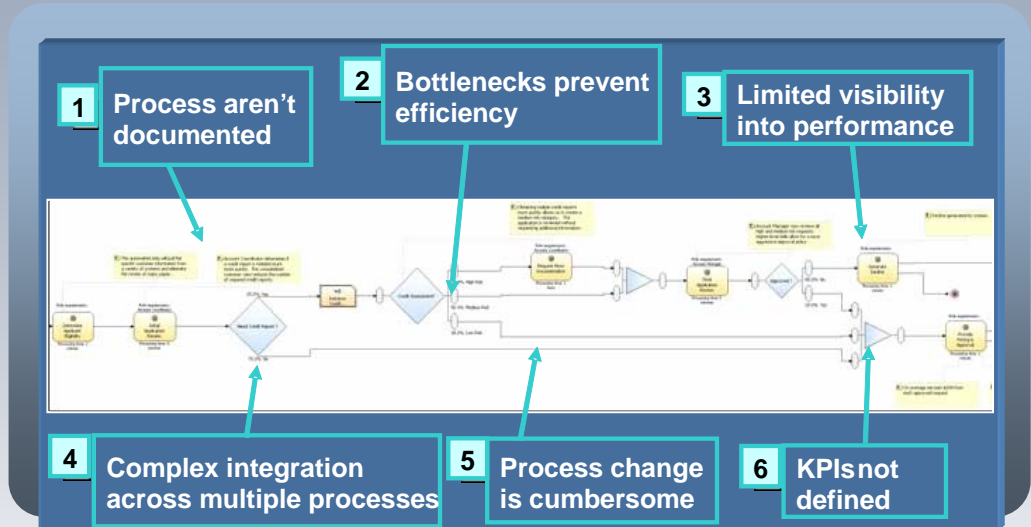
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# Business Process Management

## BPM is:

A discipline combining **software** capabilities and business **expertise** to **accelerate process improvement** and facilitate business innovation

## BPM Solves:



## BPM Includes:

*Integration      Modeling      Monitoring*

**Software that Enables BPM**

*Forms      SOA      Workflow*

*Models and Maps      Process Knowledge*

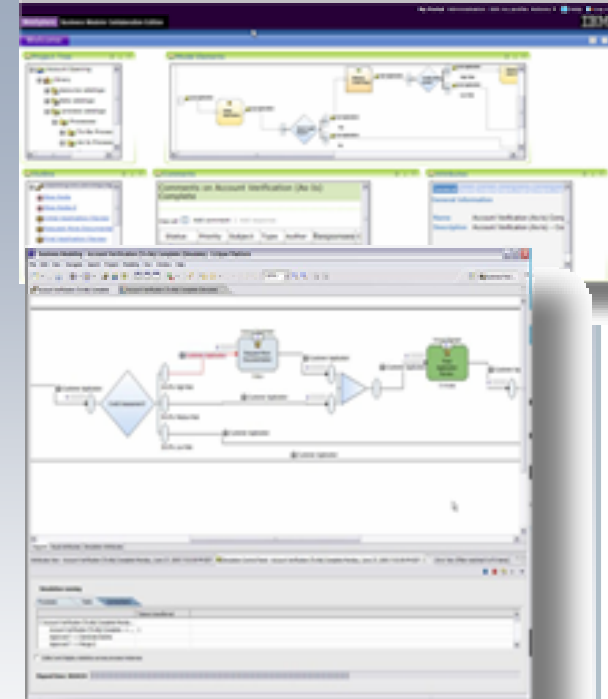
**Expertise that Delivers BPM**

*Policies      Rules      Methodology*

# Business Process Modeling

## *Capture, Simulate, Analyze & Hand-off to Implementation*

- Graphically Model Processes
  - Define: Goal, Scope, Perspective, Audience, Level-of-detail, Content
  - Introduce naming conventions for all process objects (costs, time, resources, decision points, actions, etc)
  - Agree on a maximum number of process levels (3-4) and number of activities per process diagram (15-20)
- Simulate and Analyze
  - Simulate execution with statistical analysis tools
  - Run "what if" scenarios to predict outcomes
  - Identify bottlenecks and workload imbalances
  - Isolate projects that will generate the greatest returns
- Hand off to Implementation
  - Export business and data models for use in IT deployment
  - Direct export of models to IT such as WS-BPEL for execution, XSD for data definitions, WSDL for services interfacing, UML for IT architect refinement

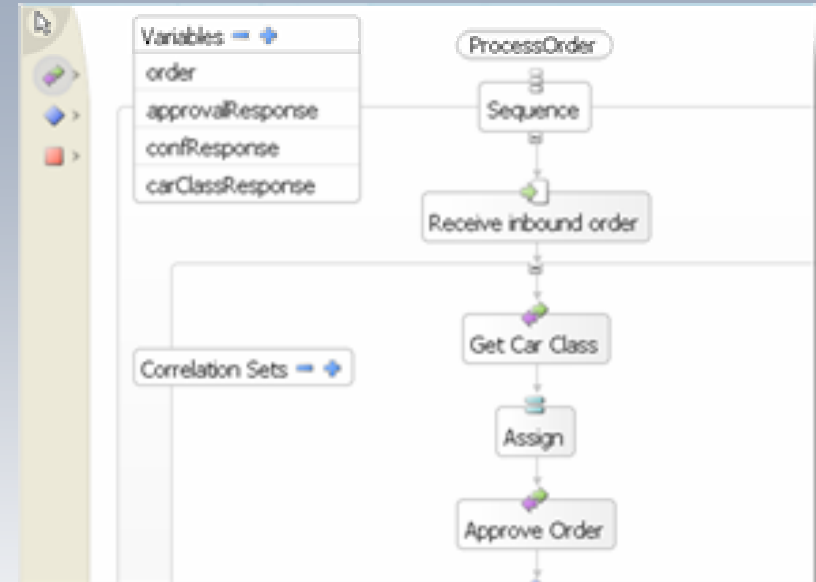


### **Architectural Benefit:**

- Business analysts provide top-down approach to service and process design
- Enable coordination of process development across business stakeholders
- Creation of artifacts to support down-stream implementation

# SOA-Based Business Assembly and Execution

- Business Process Choreography orchestrates services to form *deployable* processes:
  - *Process model based on WS-BPEL*
  - *Choreography includes automated and human based services, business rules, service invocations and control of flow aspects*
  - *Processes support transactions and compensation*
- Service consumers can initiate as well as create SOA-based process solutions
- Mediation creation to transform/route service requests and responses
- Enables inter and intra-enterprise (B2B) service integration over the ESB framework



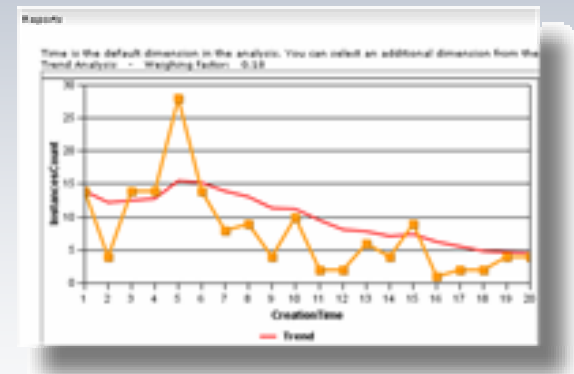
## Architectural Benefit:

- Simplified, standards-based business process development
- Support for industry process and data models
- Directly invoke mediations for routing/transforming requests between services

# Business Process Management

*Provide the Ability to Monitor and Evaluate Events and Activities*

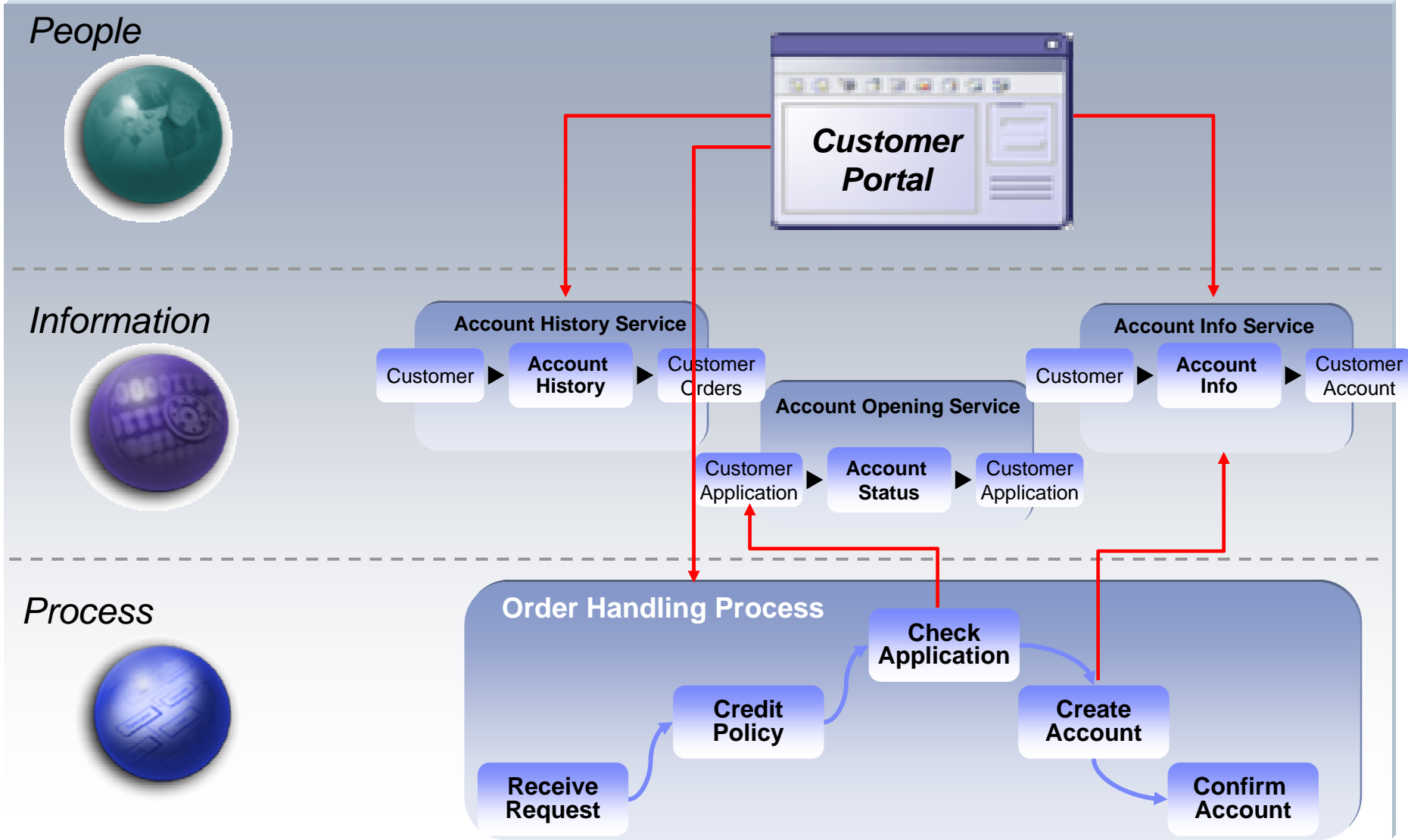
- Assemble dashboards from different views
  - Views include Monitor, Report, Dimensional, KPI, Scorecard, Gauge, Alert, and Organizational
  - Combine standard and custom portlets to meet various business needs
- Enable business event triggers and notifications via email, pager, SMS messages
  - Intervene based on business events and trends as they emerge by redirecting workload or changing process flows based on real needs
- Generate preprogrammed responses
  - Automatic corrective action based on pre-defined business triggers leveraging BPEL process and Web Service
- Analyze business metrics over time to identify trends
  - Discover previously hidden patterns using dimensional analysis
  - Use analytics and business intelligence technologies
  - Populate a business performance warehouse



## Architectural Benefit:

- Process management is linked to KPIs and Metrics defined by business analysts
- Enables support for an event-driven infrastructure
- Analyze trends in the business to enable ongoing optimization of solutions

# Process Services Within An Enterprise Solution

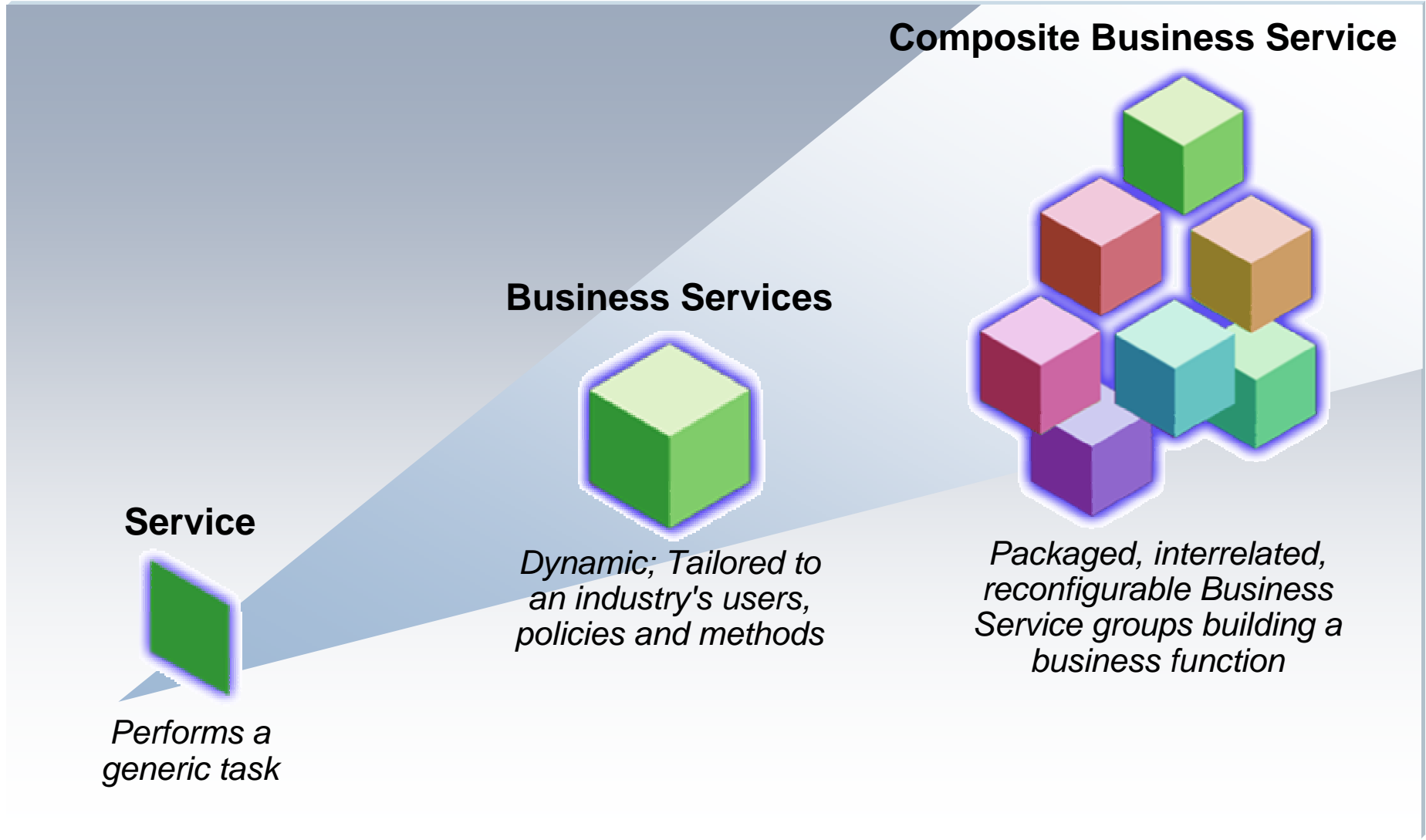




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# The Evolution Of Services to Business Services



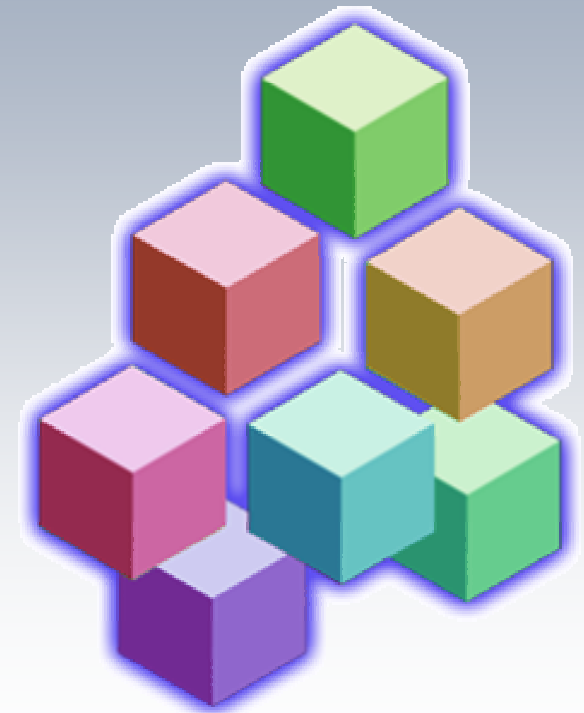
# Business Services are the “Building Blocks”

## *Align Business Intent with IT Execution*

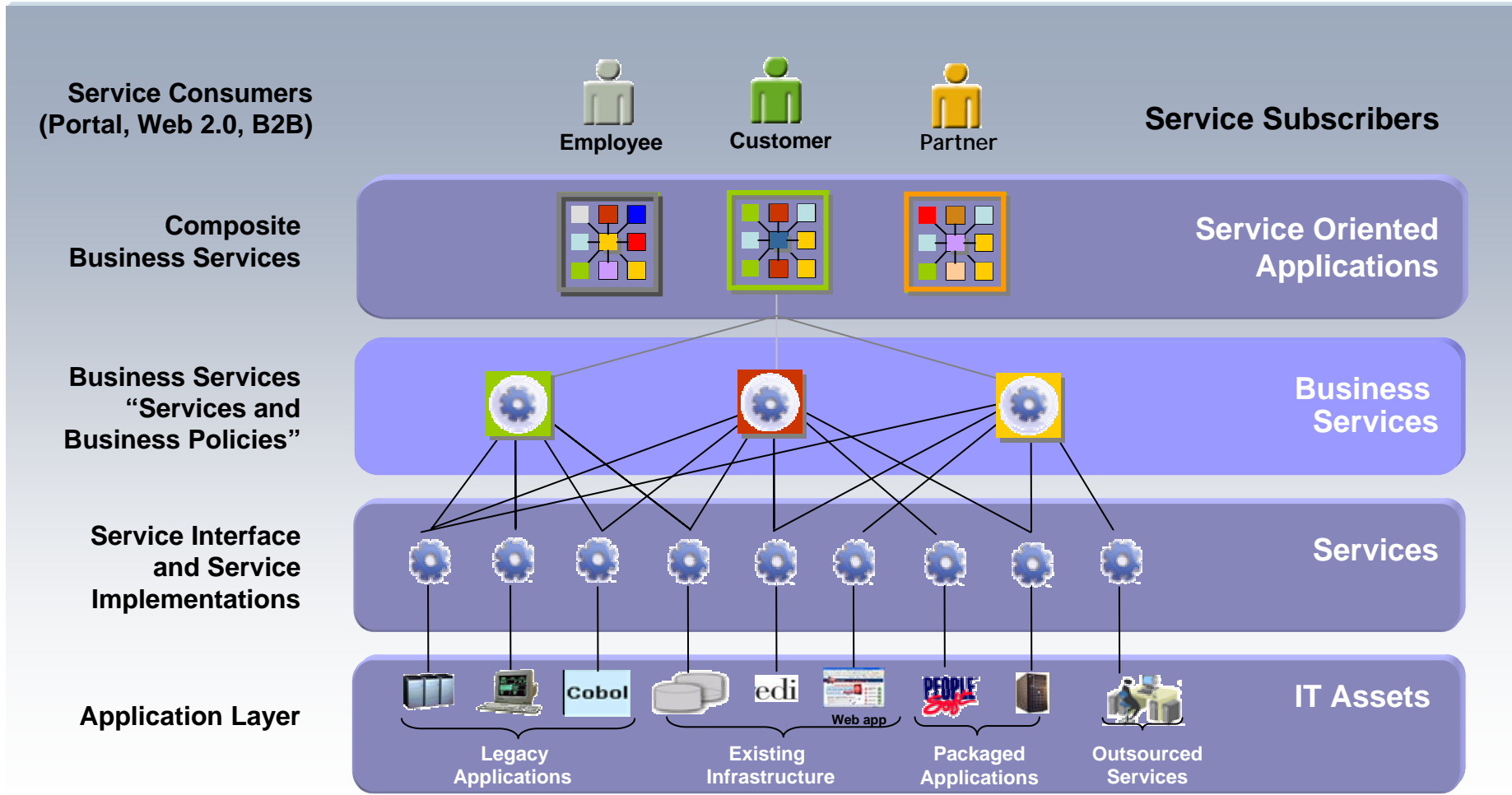
### ***Business Services definition:***

A business function whose execution can be adapted at runtime based on business policy and user context

- Designed at business level to represent a discrete business function (e.g. check credit, open account)
- Can provide flexible, adaptable behavior based on business policy and user context
- Derived from disparate IT resources
- Built using Web service and industry standards
- Provisioned through multiple communication channels
- Can be combined into loosely coupled Service Oriented Applications



# Business Services in the SOA Solution Stack



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# Business Implications for SOA Governance

## *Providing A Governed SOA Development Lifecycle End-to-end*

### Development Process

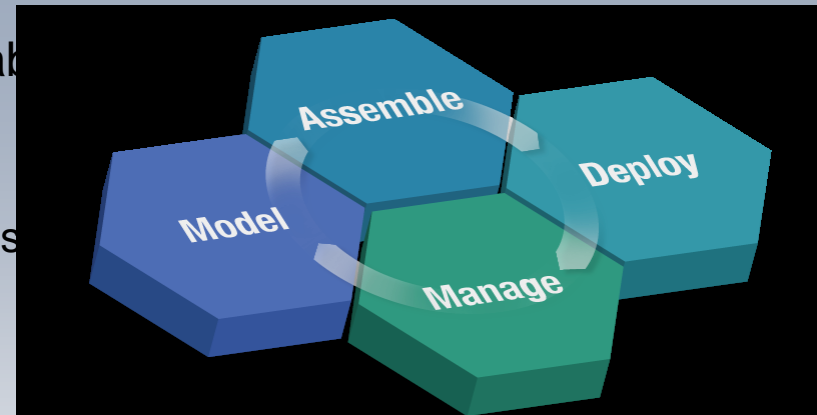
An approach and tools that effectively enable organizations to

- Determine the business priorities
- Execute development against those priorities
- Measure their effectiveness

### Development Infrastructure

In the context of a governed SOA infrastructure

- Supports complex sourcing and shared service models (including geographically disperse)
- Support development of funding models
- Provides development compliance (audit trails and security that is transparent to the developer)
- Enforce standards and discipline



# Business-Focus as Part of the SOA Governance Approach

## Design the governance approach

- Define / modify governance processes
- Design policies and enforcement mechanisms
- **Identify success factors and metrics**
- **Identify owners and the funding model**
- Charter / refine an SOA center of excellence
- Design the governance IT infrastructure

## Put the governance model into action

- Deploy governance mechanisms
- Deploy the governance IT infrastructure
- **Educate and deploy on expected behaviors and practices**
- Deploy policies

## Scope the governance need

- **Document and validate the business strategy for IT and SOA**
- Assess current IT and SOA capabilities
- **Define / refine the SOA vision and strategy**
- Review current governance capabilities and arrangements
- Lay out the governance plan

## Manage and monitor the governance processes

- Monitor compliance with policies
- Monitor compliance with governance arrangements
- **Monitor IT effectiveness metrics**

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# Summary

- Enterprise Architecture promotes a linkage between Business and IT
- Decomposing the Enterprise into Business Components defines the requirements needed to design business-relevant service architectures
- SOMA ensures an optimized service design for the enterprise
- Developing a business-oriented SOA solution consists of 3 key steps
  - Using Top-Down, Bottom-Up and Meet-In-The-Middle Approaches to support the service design activities
  - Development of the service and process components using industry standards
  - Developing user interfaces to support the user facing aspects of the solution
- Defining and enforcing SOA Governance aligns a consistent SOA lifecycle development approach and addresses business/IT linkage

## Mapping to IBM Services

SOA Strategy Services

SOA Diagnostic Services

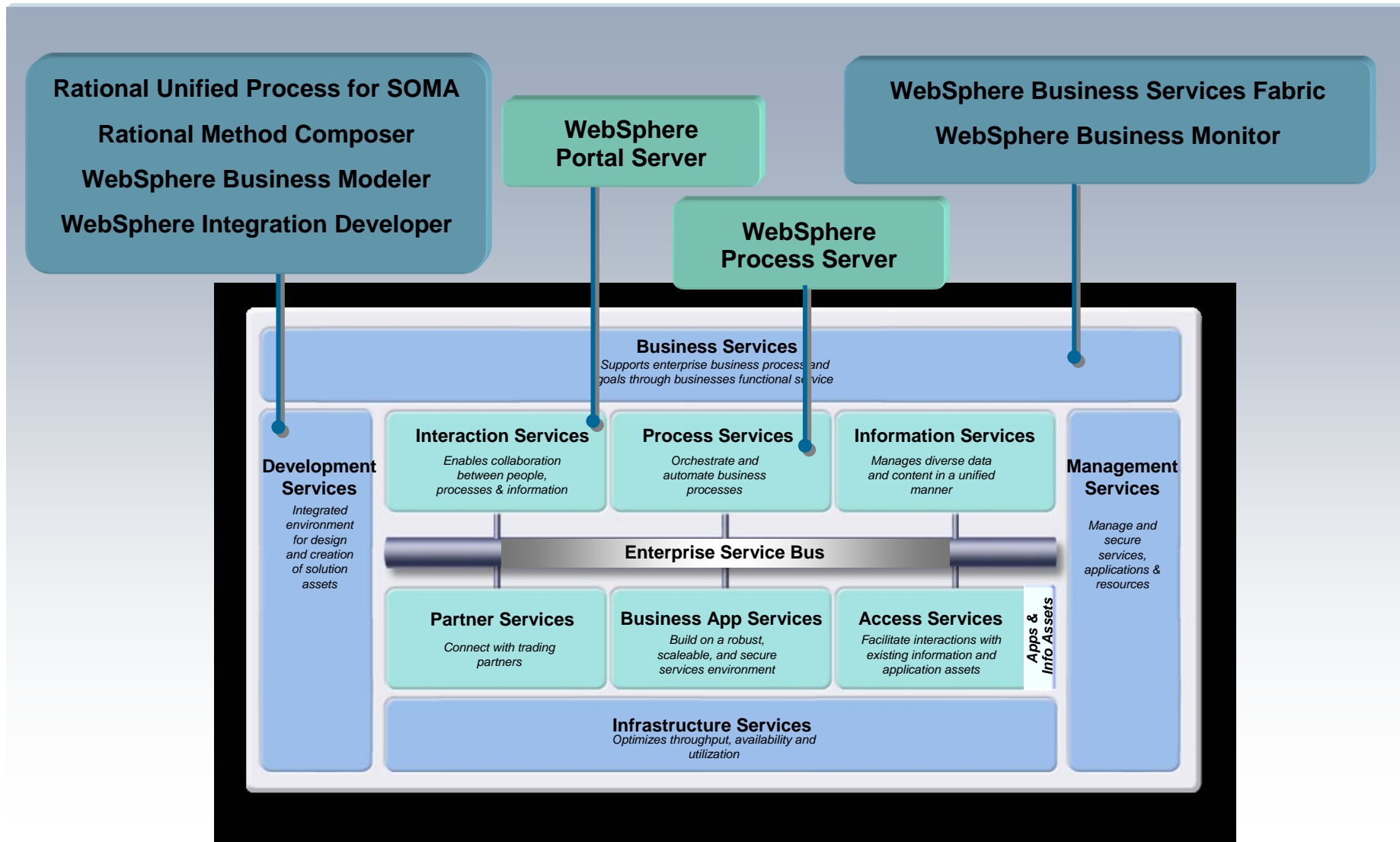
SOA Design, Development and Integration Services

BPM Enabled by SOA Services

*Application Infrastructure Services* –  
Portal Infrastructure

SOA Model, Assemble, Deploy & Manage Services

# Mapping to IBM Products



धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบพระคุณ

Thai

Спасибо

Russian

Gracias

Spanish

شكراً

Arabic

Thank You

Obrigado

Brazilian Portuguese

Grazie

Italian

Danke

German

Merci

French

நன்றி

Tamil

多谢

Simplified Chinese

감사합니다

Korean

ありがとうございました

Japanese