Is your SOA Agile or Fragile ?

Ian Bromehead, SOA Solution Business Manager

HP Software EMEA

Technology for better business outcomes

Agenda
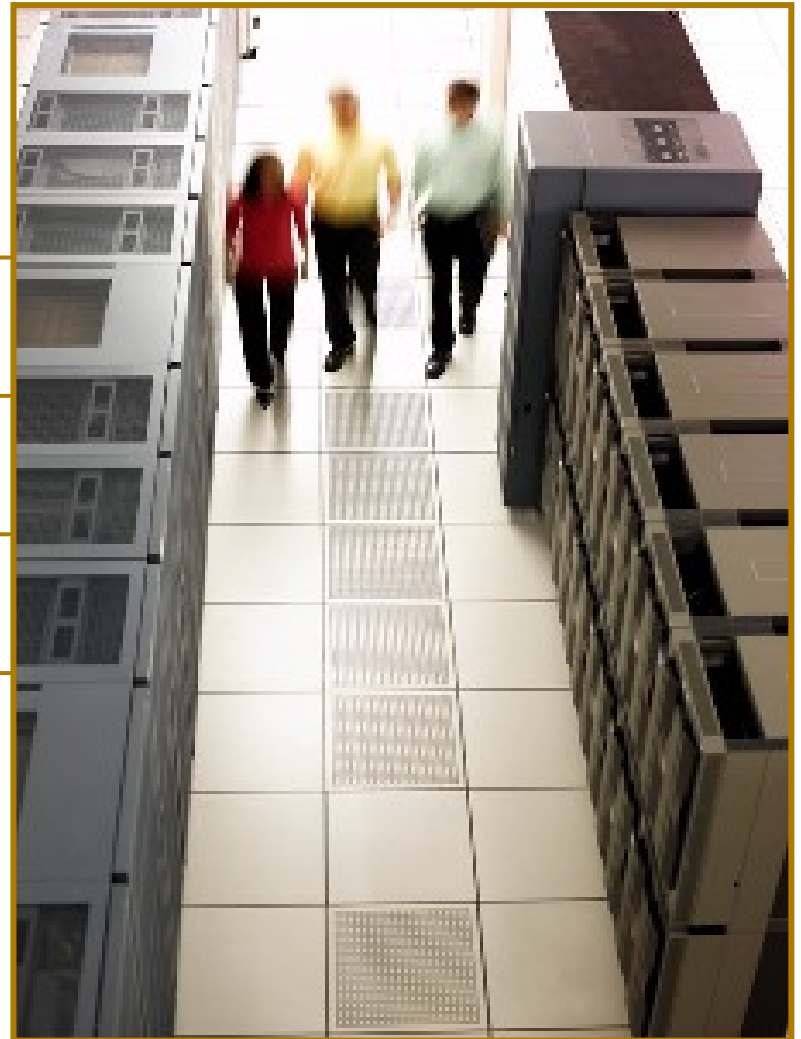
Status of & Challenges with SOA

HP SOA domain model

HP Software

Examples

Q/A

Why Adopt SOA

|	
To Align Business and IT Processes for efficiency	>To eliminate cross organizational costs >To drive cross organizational efficiencies for lower costs
To Design for Rapid Business or IT Change	>To support business during rapid loss of IT expertise >To support business time-to-market for new offerings
To Create an Agile Foundation for Competing and Opportunity	>To drive strategies for Mergers & Acquisitions >To drive implementations of B2B Relationships >To create advantages with Multi-channel selling

Before SOA: Repetitive implementation

ATM Branch Phone Internet

Change customer information

Pay Bills

Transfer money
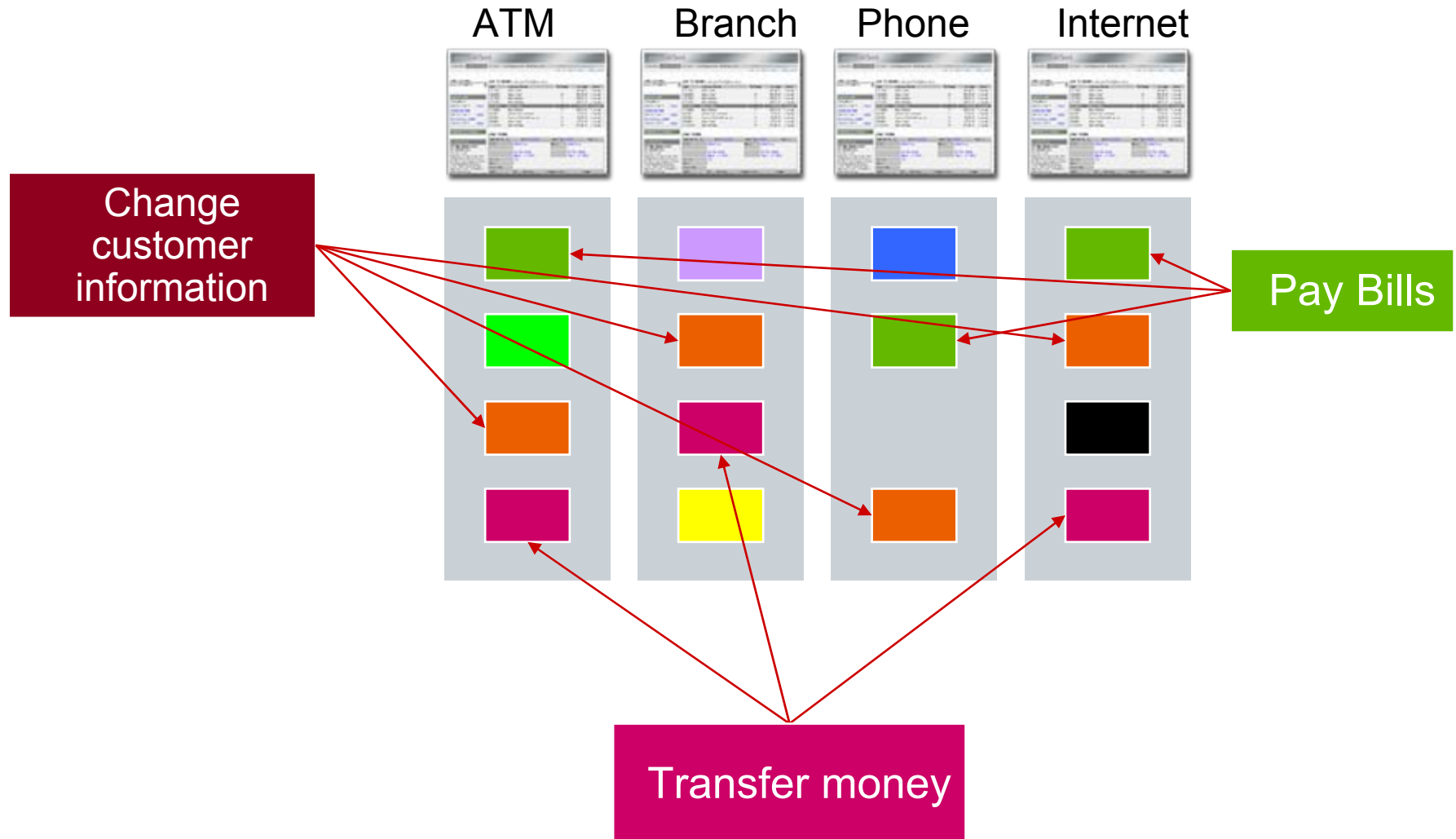
With SOA: Reuse of Shared Services

Benefits of reuse

- Cost saving
 - New development: less new functionality to develop
  - Maintenance: less (similar) functionality to maintain
- Time saving
  - Implement new applications faster
  - Modify existing applications faster (fewer places to modify)
- Consistency

ATM   Branch   Phone   Internet

Change customer information

Pay Bills

Transfer Money
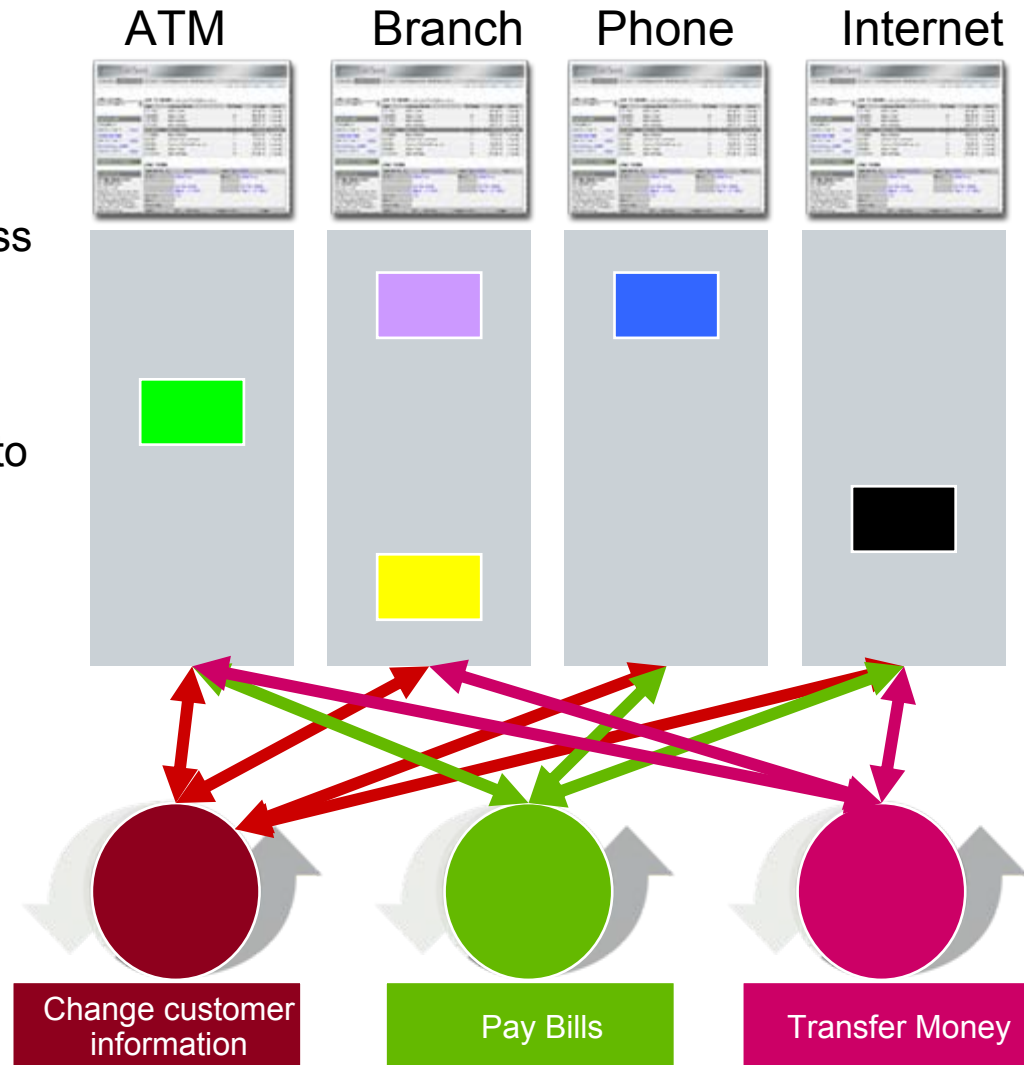
Composite Application

Create new, or modify, a business process.

Composite Application
Create new, or modify, a business process.

Availability-to-Sale

Source Procure **P2P**

Auction **O2C**

Plan Manuf. **M2i**
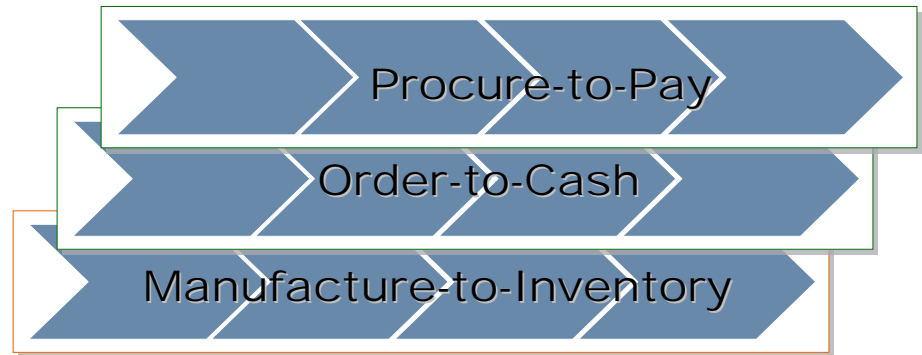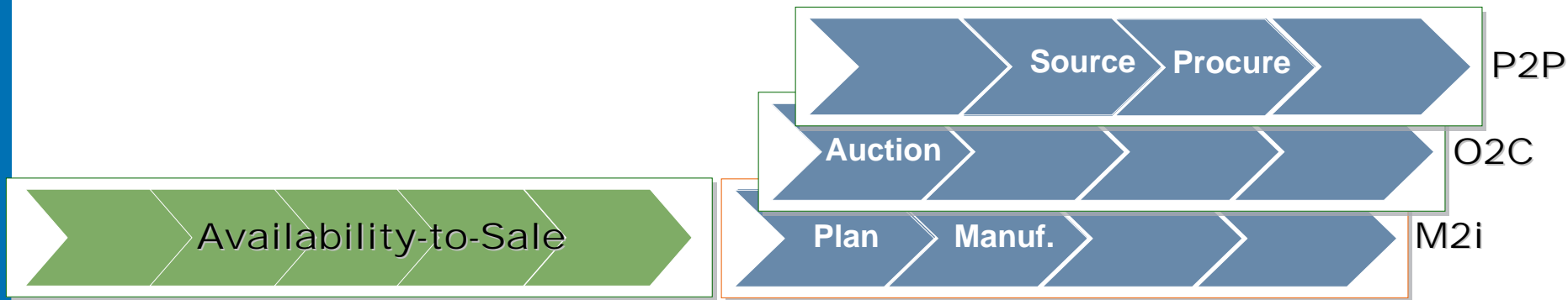
SOA Transformation

- Industry-wide transformation
  - Business-defined consumer-provider model

- Requires changing much more than development
  - Culture
  - Organization
  - Technologies

- Aligns with 21-century IT initiatives
  - business aligned, changeable, scalable

HP SOA Transformation

- To be the best at helping customers Transform to SOA and Manage entire SOA IT environments to optimize business outcomes

- Customer Entry Points:
  - ➢Enabling Enterprise SOA and Infrastructure
  - ➢Modernizing Business and Packaged Applications
  - ➢Implementing Industry Business Services and Value Chains

SOA Transformation Challenges

|	
Creating and Governing SOA Assets	• Business valuable SOA Business Services • Shared SOA Technical Application and Infrastructure Services
Defining & Incorporating SOA Processes	• Processes for SOA Business Architecture, Governance, Operations • SOA lifecycle management
Managing SOA-ready Infrastructure	• Flexibility at Application Platform and Infrastructure levels • Capacity & resource management
Managing and Optimizing IT efficiency	• Maximizing supply & demand resources, costing, budgeting • Service management at all levels of IT

Defining an SOA Transformation Vision
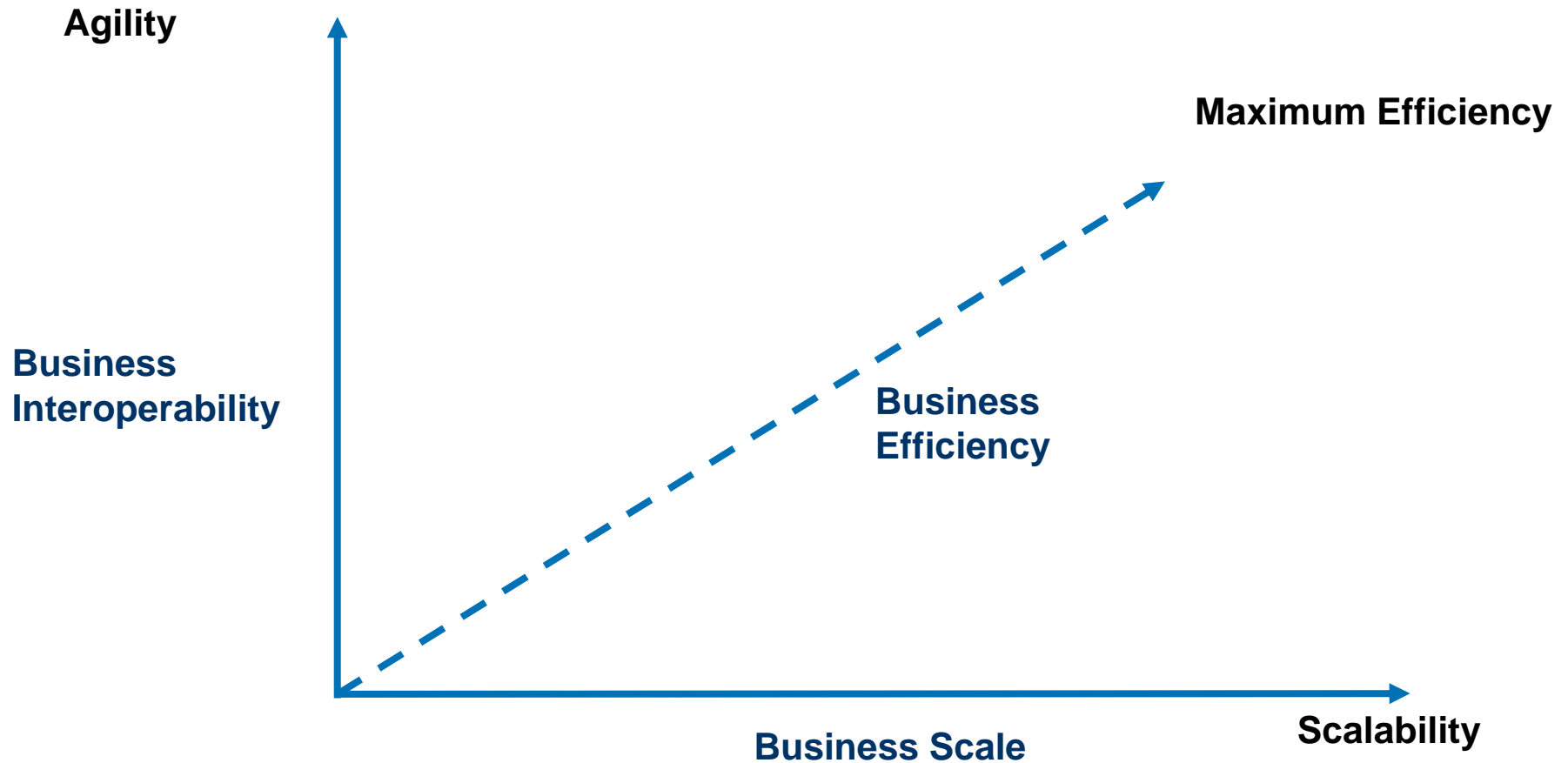
Complete SOA Transformation Requires Adoption on all Dimensions
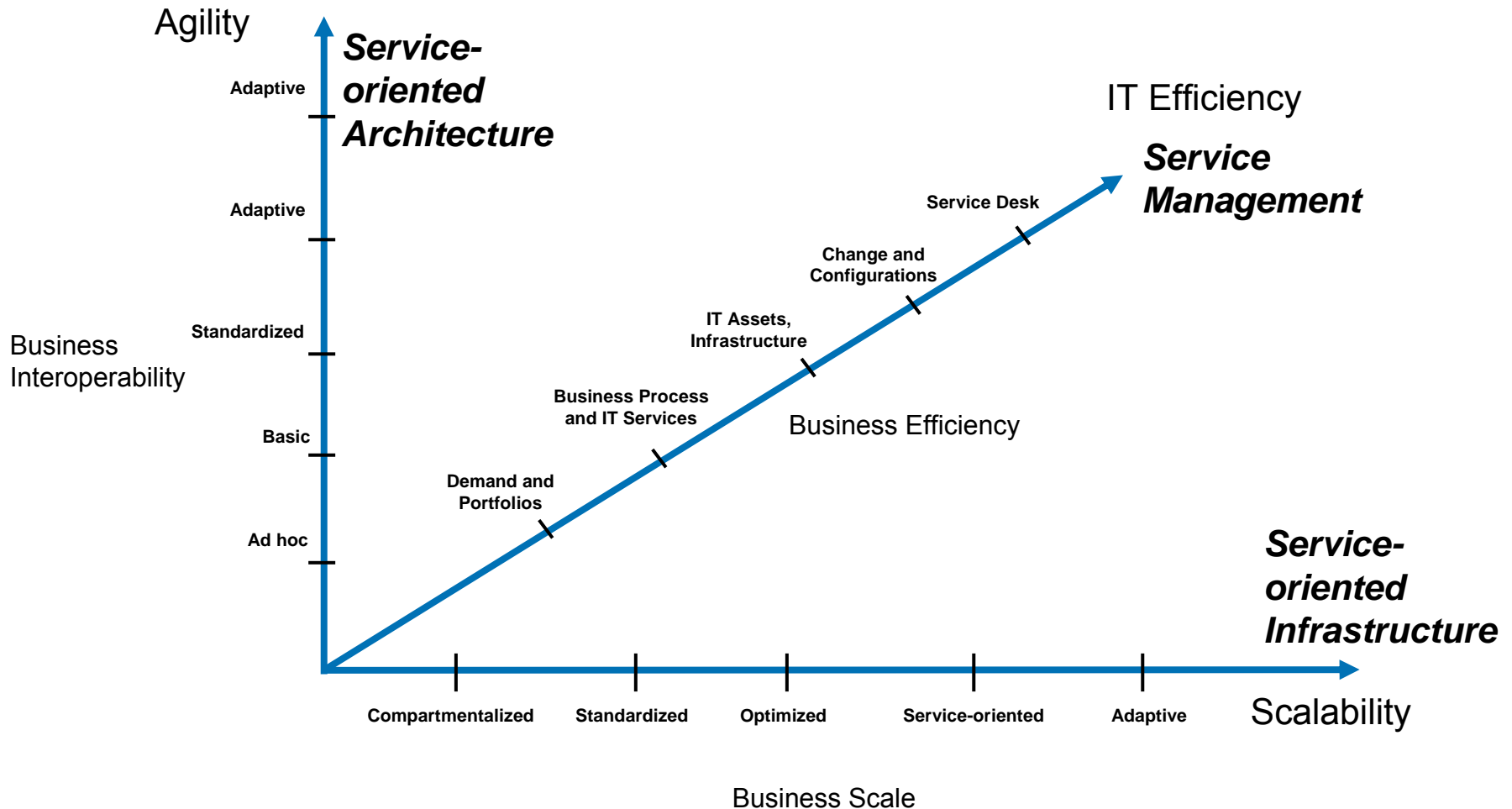
Develop new Processes and Best Practices for End-to-end SOA Transformation

Service-oriented Architecture

Agility

Business Interoperability

IT Service Management Processes

SOA Governance & Quality Processes

SOA Architecture Processes

Service-oriented Infrastructure

Business Scale

Scalability
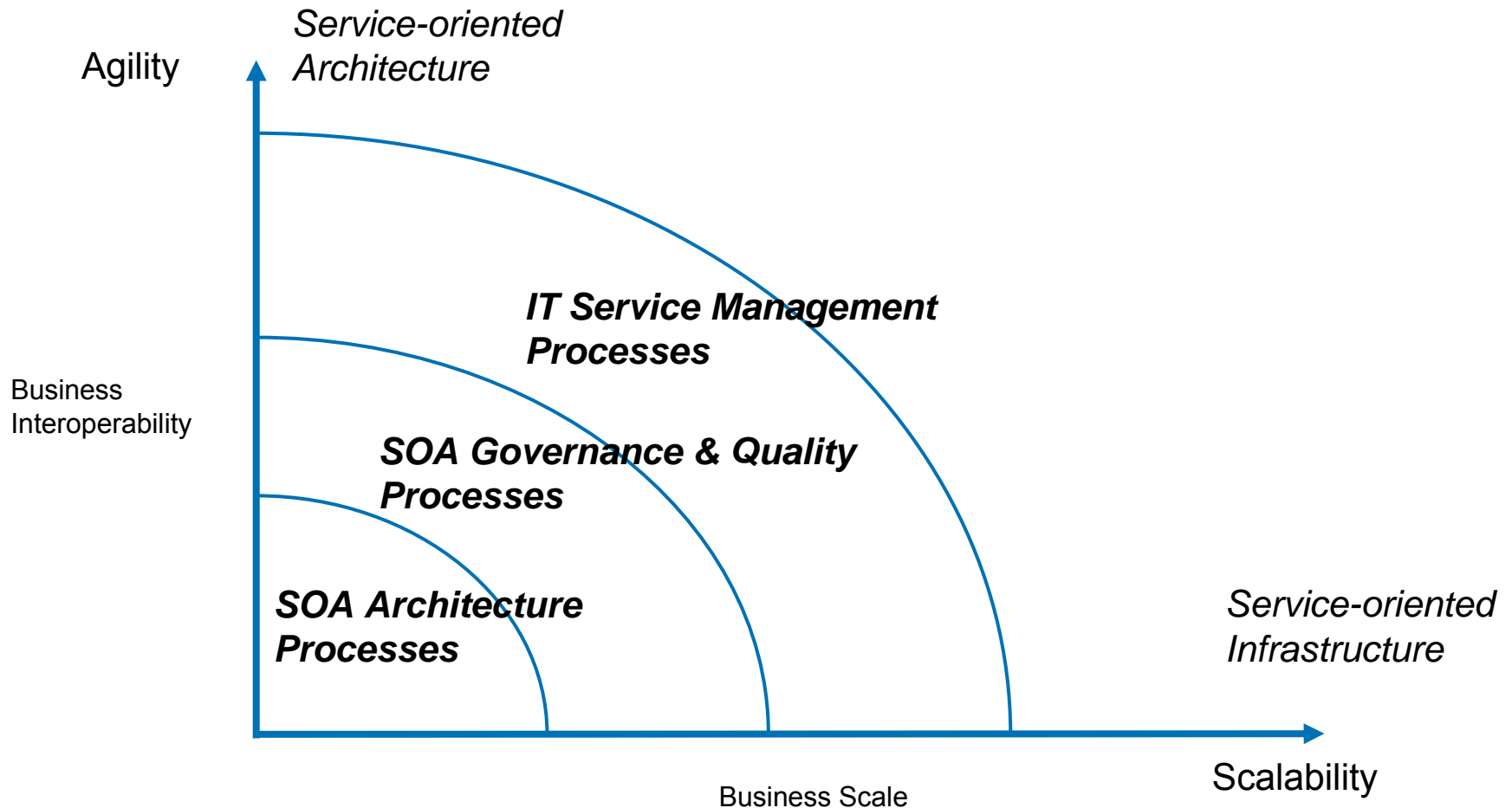
Understand the entire SOA Value Chain

Business

Business Process and Services

IT Strategy

SOA Governance

IT Applications

SOA Quality

SOA Development

IT Stack

SOA Execution Platform

IT Operations

SOA Management and Security

IT Infrastructure

SOA-ready Infrastructure
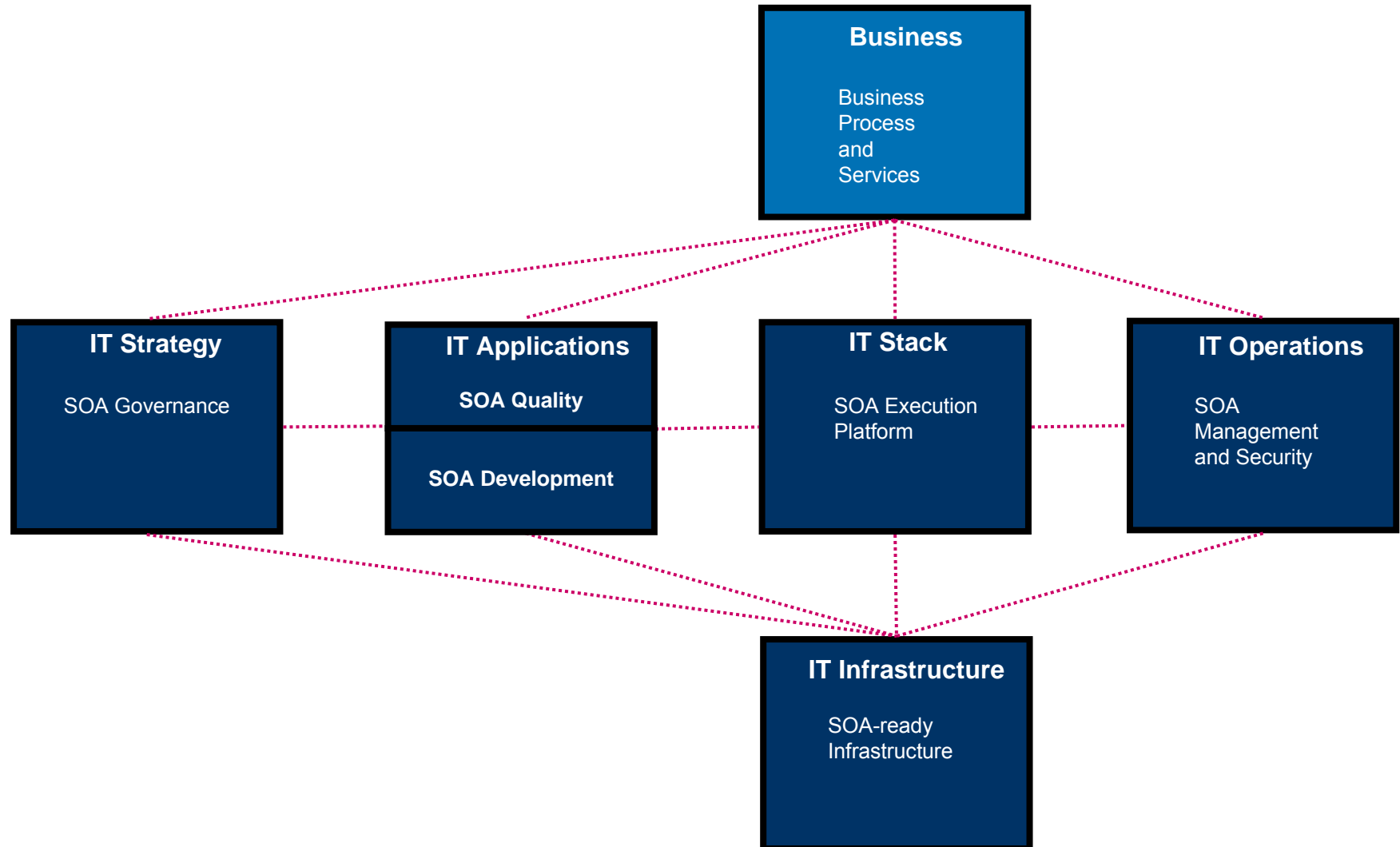
HP Proven Leadership in SOA
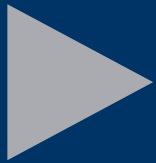
Leadership in SOA Governance
(market share and thought leadership from **systinet**™)

Automation and Management of SOA IT Processes
(leaders in IT Management and Quality Markets)
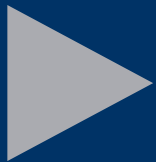
Interoperability of Applications and Infrastructure
(Support for Customers' Heterogeneous IT Environments)

Service Oriented Architecture is promising but risky

SOA promise

Business agility

- Business process flexibility
- Faster time to market
- Lower implementation and maintenance cost

SOA risk

Business disruption

- Inability to change the implementation
- No reusable services
- Duplication of implementation effort

"SOA necessitates new processes, ranging from governance, through development, to operations."

Gartner, Positions 2005: Service-Oriented Architecture Adds Flexibility to Business Processes

hp invent

Controlling the business risk of SOA
Challenges across the lifecycle

	Plan	Build	Operate
SOA CoE	Does the enterprise work on the right services?	Can I establish a consistent and repeatable imple-mentation process?	Can I control and secure services in production?
Providers	Will others see value in my services?	Can other groups develop against my services?	How do I manage changes without disrupting my consumers?
Consumers	Can I find and trust services?	How do I develop and test against services out of my control?	Do I get the expected quality of service?

HP SOA Domain Model
Aspects of SOA successful enablement

- Skills and expertise
- Experience
- Culture
- Communication
- Education

- IT Governance
- Organization structure
- Compliance management
- Portfolio management

- Service Infrastructure (ESB, Registry, Service hosts, Development Environment, etc…)
- Legacy migration/integration
- Technical infrastructure (Servers, Storage, Network, etc…)

- IT services for business
- Vendors and suppliers for IT
- Sourcing strategies
- Service level contracts, obligations and agreements

Business

People

Program Mgmt.

Governance

Architecture

Enabling Technologies

Operations & Mgmt.

Supply & Demand

- Business goals and strategy
- Business metrics
- Stakeholder participation
- Business/IT Synchronization

- Program management
- Project management
- Transformation program
- POC, pilot and roll-out
- Assessment & measurement

- Enterprise Architecture
- Solution/Service Architecture
- Principles, Standards and Models
- Domain Architecture (Security, Management, Network, etc…)

- Day-to-day service operations
- Management of SOA IT
- Integrated management of business & IT

A framework based on the analysis of many different SOA implementations

Business domain
Challenges

- Insure stakeholders participation and commitment
  - Cross-functional business sponsorship required for "buy-in"

- Align SOA program with business strategy
  - Business case drives SOA
  - Change is the catalyst for driving up adoption

- Change the perception of IT value
  - from a cost center to a business contributor
  - From a reactive role to a comprehensive service provider role

- Organization structure
  - IT silos or shared IT organization
  - Who owns the IT budget?

Business

Business domain
Best practices

- Create awareness
  - Stakeholders understand the principles and concepts of SOA
- Speak the stakeholders' languages
  - Avoid the word SOA
  - Nothing sells as well as success
- Seek for other business cases
  - What is the competition doing?
- Build a business case
  - ROI analysis is complex and challenging but required
- SOA will drive business process standardization
  - Effective services sharing requires process uniformity
- Provide financial "incentives" for SOA adoption
  - Budget cuts are strong motive for sharing services
- Align IT organization and budgets
- Define your SOA vision

The People Domain
Challenges

- Skills
  - Requires knowledge about new tools , technologies and standards
- Culture
  - Moving the development of composite apps to a mixed team of developers and business people
  - Are people ready to share?
  - What are the incentives?
  - How to make accountable providers from developers?
- Trust
  - Increased cross-functional team collaboration required
  - Expand trust boundaries
- Communication
  - Services, projects, goals

Business
People

The People Domain
Best practices

- Create a curriculum for SOA training
    - Address both technical and business audience

- Make the SOA program information accessible to the staff
    - including all service characteristics and relationships
    - included in IT communications

- Review rewards metrics
    - Based on re-use and quality

There is no such thing as too much evangelizing!

Business

People

The Program Management Domain
Challenges

- How do we build collaboration across business units ?
- Applications and operations tribal behavior
- Fostering adoption, no re-use, no ROI
- Managing the best assets
  - My Top 10 services
- Establishing corporate standardization for:
  - Compliance
  - Quality
  - Normalized work methodologies for design, test and operations
- Lifecycle metadata
  - Measurement for lifecycle management

Business

People

Program Mgmt.

The Program Management Domain
Solution

- Project management cross teams, departments, business units, and entire enterprise

- Manage and communicate on the transformation program

- Establish skills maturity and certification standards

- Define a service consumer and provider lifecycle
  - Processes; roles; phases; monitoring

- Manage the depth of the services portfolio
  - Establish reusability standards & policies
  - Add tracking and visibility
  - Set up service metrics

Business
People
Program Mgmt.
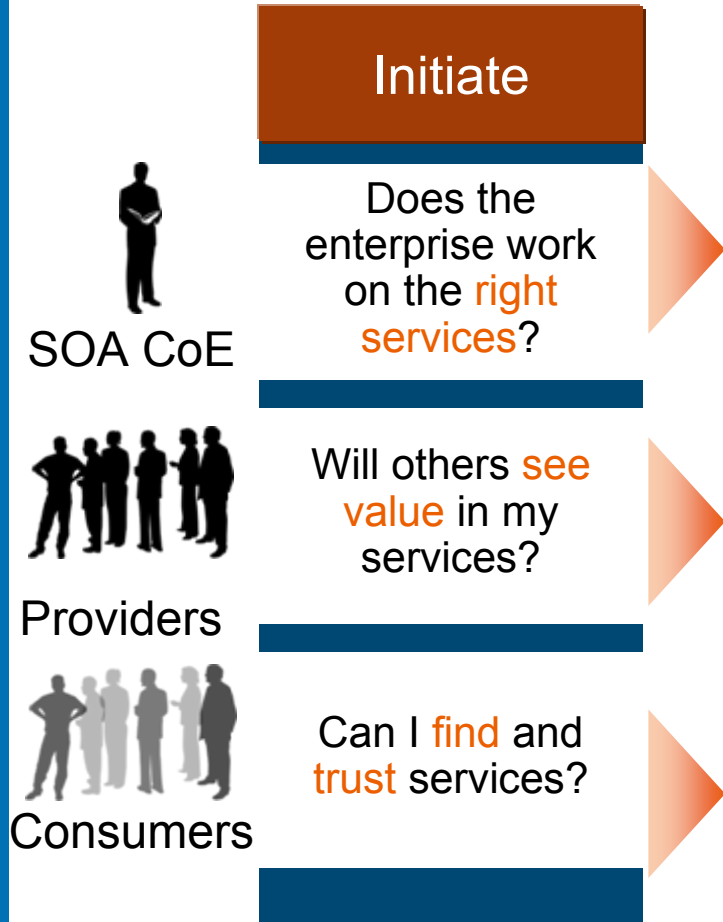
The Program Management Domain
Best practices

- Iterative approach
  - Pick a service with a good business case and a 'first customer'
  - drive from development to pilot to production
  - Bottom-up and top down

- Lay out the metrics to measure results
  - Each step provides a complete business solution
  - Each step delivers measurable business value

- Establish
  - Governance
  - Quality
  - Management

The Governance Domain
Challenges during lifecycle debut

Initiate

SOA CoE

Does the enterprise work on the right services?

Providers

Will others see value in my services?

Consumers

Can I find and trust services?

- SOA program failure
  - Lack of enterprise-wide adoption
  - Chaos, redundancy
  - No ROI

- Losing control of deployed business services
  - No idea who accesses systems/processes
  - Failing to drive use of my services
  - Service consumption breaking systems

- SOA makes applications worse
  - Increased cost, time, complexity
  - Cannot count on others' services
  - Composite applications impossible to build

Business
People
Program Mgmt.
Governance

The Governance Domain
Approach

- Visibility
  - Single System of Record
  - All artifacts centralized
  - Live feedback of results
- Trust
  - Enforce architecture
  - Design and enforce policies
  - Standardize implementation
  - Manage consumer <-> provider rendezvous
- Control
  - Enforce lifecycle and change management
  - Measure for management
  - Impact analysis

Visibility into:
- Schemas
- Operations
- Messages
- WSDLs

- Processes
- Policies
- Dependencies
- Impacted
- Metrics &SLAs

Trust between
- Provider and Consumer
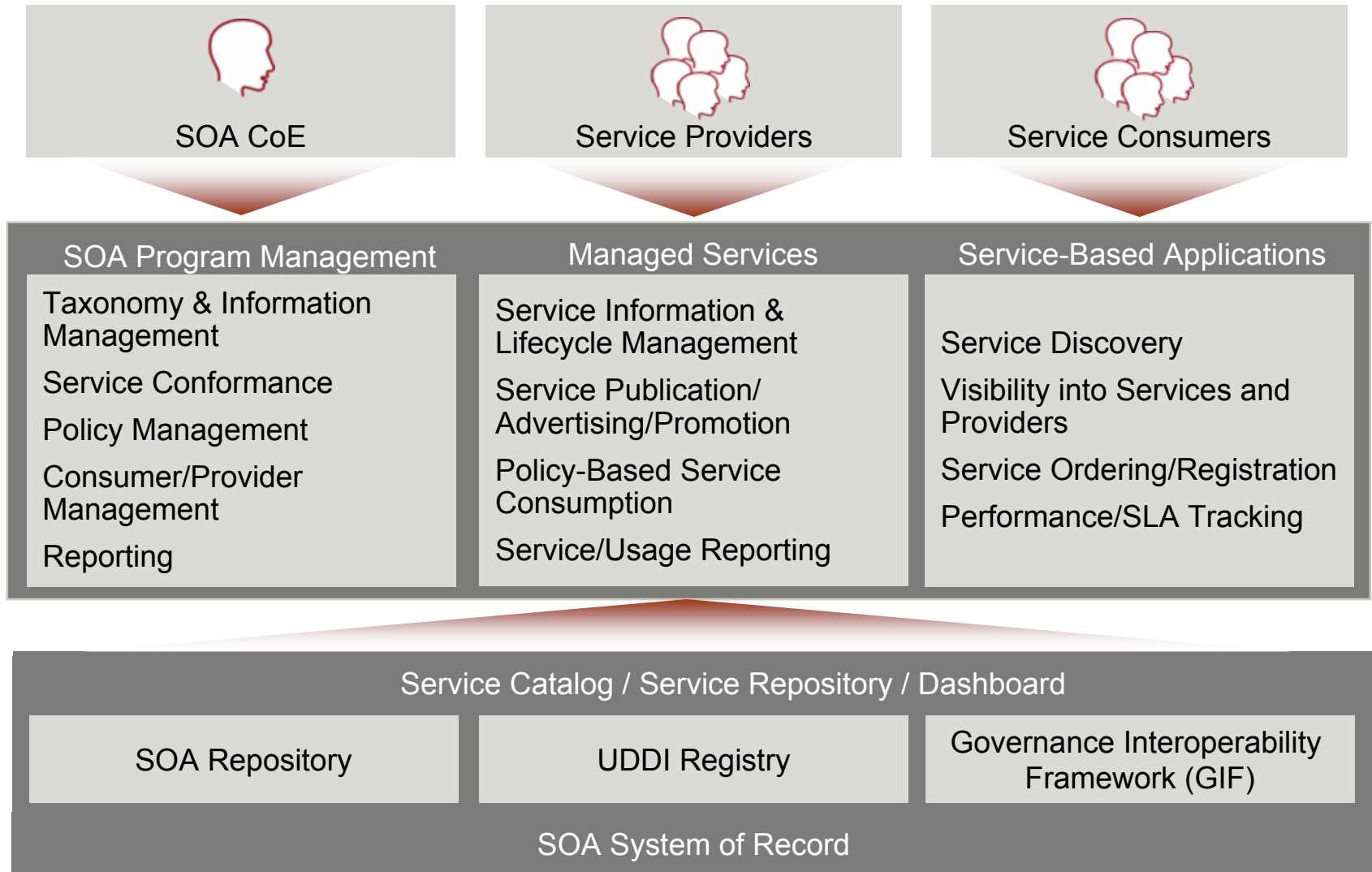- Applications development, testing & operations
- Business and IT
- Customer and supplier

Taking control of
- Governing SOA Interoperability
- Managing the Business Service Lifecycle
- Managing all facets of the SOA Model

Business
People
Program Mgmt.
Governance

The Governance Domain
Solution outline

SOA CoE	Service Providers	Service Consumers

SOA Program Management

Taxonomy & Information Management

Service Conformance

Policy Management

Consumer/Provider Management

Reporting

Managed Services

Service Information & Lifecycle Management

Service Publication/ Advertising/Promotion

Policy-Based Service Consumption

Service/Usage Reporting

Service-Based Applications

Service Discovery

Visibility into Services and Providers

Service Ordering/Registration

Performance/SLA Tracking

Service Catalog / Service Repository / Dashboard

| SOA Repository	UDDI Registry	Governance Interoperability Framework (GIF)

SOA System of Record

Architecture domain
Challenges

- Requires enterprise architecture program

- Full architecture spectrum
    - Enterprise architecture, data architecture, solution architecture and technology architecture

- Dealing with evolving standards and technologies

- Increasing scalability and availability requirements
    - Risk of overall application is now dependent on the availability of each service (new points of failure)
    - Network becomes a point of failure

Business
People
Program Mgmt.
Governance
Architecture
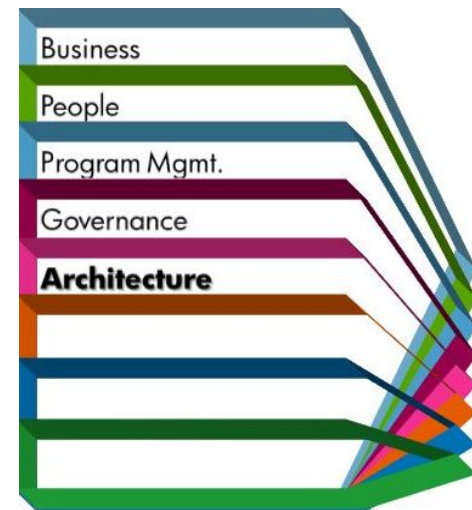
Architecture domain
Solution

HP IT Strategy and Architecture (ITSA)

Stakeholders

Business view

Functional view

Technical view

Implementation view

Building a house analogy: the four views

Business view

Why do I want a new house?

residence
entertainment/image
business

    affordability

    location

Technical view

How will the house be built?

framing, heat/ac,…

    utilities: electric, water, roads

    security systems

    materials

Functional view

What should the new house give me?

uses / room layouts

    garden, woods, security

    garage, children needs

Implementation view

With what will the house be built?

suppliers
financing

    phasing…

Architecture domain
Best practices

- Design adequate infrastructure
  - Proactively select data centers where services reside with high interaction and bandwidth together for optimum performance
  - Right size services

- Adaptive infrastructure requirements
  - IT Shared Services
  - Virtualization

- Be consistent in selecting shared services candidates

- Compliant with management instrumentation (QoS)

Business
People
Program Mgmt.
Governance
Architecture
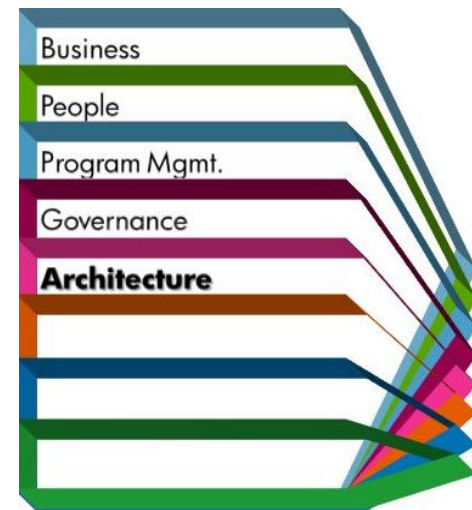
Enabling technologies
Challenges

Traditional Applications	SOA
Designed to last	Designed to change
Tightly coupled	Loosely coupled, agile and adaptive
Integrated silos	Composed of services
Code-oriented	Process-oriented
Long development cycle	Interactive and iterative development
Middleware makes it work	Architecture makes it work
Favors homogeneous technology	Favors heterogeneous technology

Business
People
Program Mgmt.
Governance
Architecture
Enabling technologies
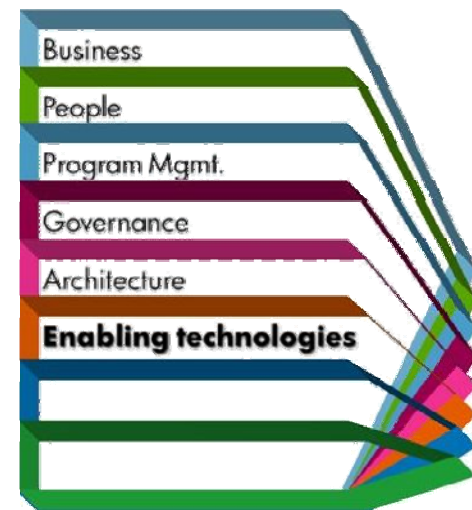
Enabling Technologies
Best practices

- Web services standards proved to provide abstraction from the underlying technology

- Service consumers adoption tools needed
    - Code samples
    - Frameworks providing standard coding, error handling, logging, and metrics conventions

- Don't forget security
    - Federated identity management

- Early availability of web services manageability tools required
    - Increased inter-application dependency increases
    - Monitoring and managing end-to-end performance and service level is key

Business
People
Program Mgmt.
Governance
Architecture
Enabling technologies
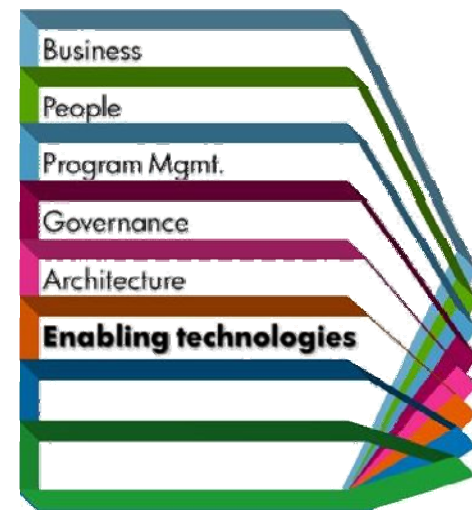
The Operations & Management Domain
Challenges to foster adoption & reuse

Build

SOA CoE

Can I establish a consistent and repeatable imple-mentation process?

Providers

Can other groups develop against my services?

Consumers

How do I develop and test against services out of my control?

- Manage Lifecycle Quality Mgmt Standards
  - Which services should be tested and how
  - Functional validation
  - Regression
  - Performance validation
  - Compliance
  - Holistic coverage of all service aspects
  - GUI-less testing
  - Complex service orchestrations
  - Multiple transports & protocols support
  - Allow Testing incomplete environments
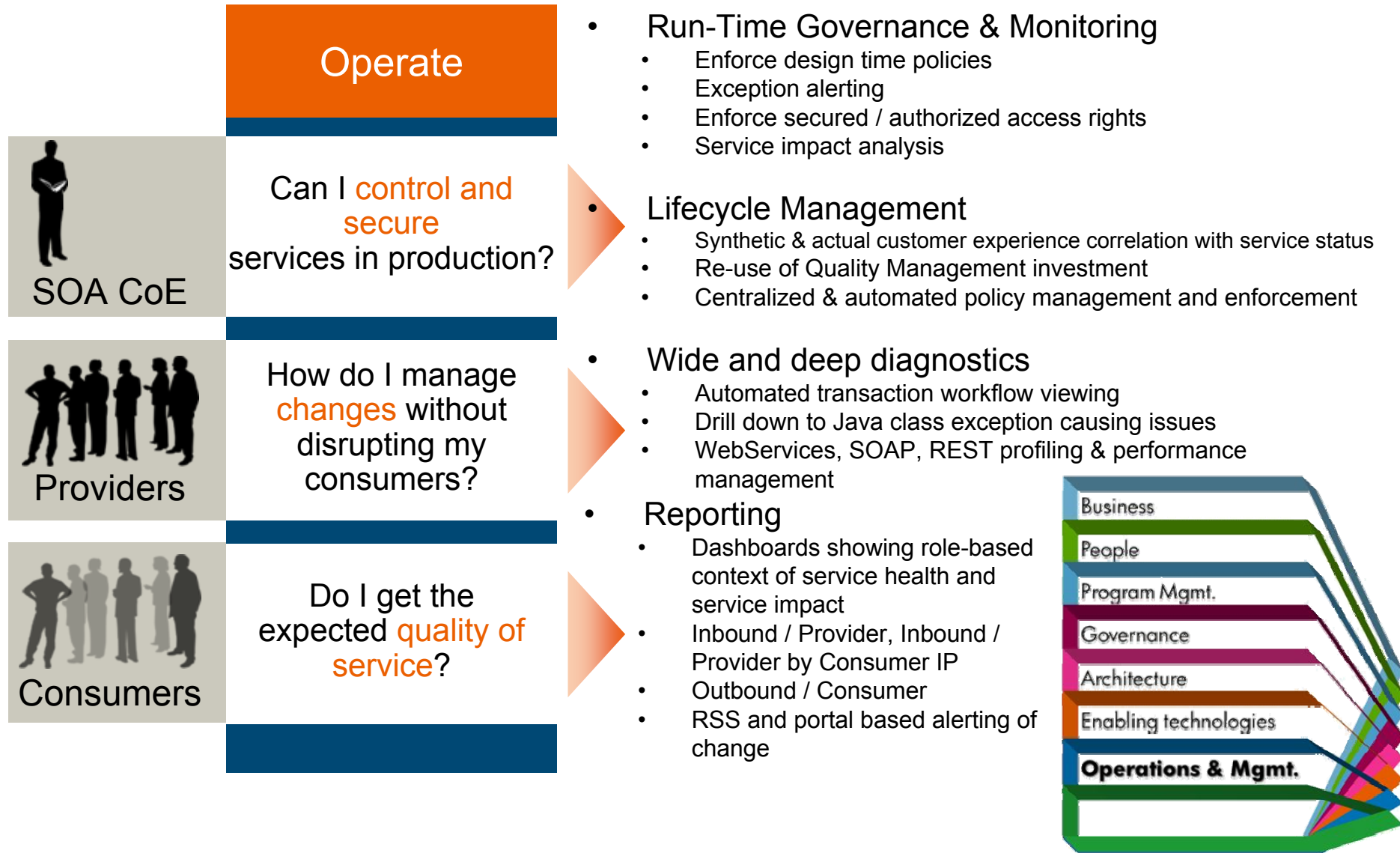 - Constantly emerging technologies

- Build Automated test beds
  - Reduce test cycles
  - Facilitate applications <-> operator rendez-vous
  - Leverage operations management experience
  - Include all quality and testing results system of record
  - Enforce compliance certifications
  - Communication methods to alert consumers & providers of changes

Business
People
Program Mgmt.
Governance
Architecture
Enabling technologies
Operations & Mgmt.

The Operations & Management Domain
Ensuring the SOA is agile not fragile

Operate

SOA CoE

Can I control and secure services in production?

Providers

How do I manage changes without disrupting my consumers?

Consumers

Do I get the expected quality of service?

- Run-Time Governance & Monitoring
  - Enforce design time policies
  - Exception alerting
  - Enforce secured / authorized access rights
  - Service impact analysis

- Lifecycle Management
  - Synthetic & actual customer experience correlation with service status
  - Re-use of Quality Management investment
  - Centralized & automated policy management and enforcement

- Wide and deep diagnostics
  - Automated transaction workflow viewing
  - Drill down to Java class exception causing issues
  - WebServices, SOAP, REST profiling & performance management

- Reporting
  - Dashboards showing role-based context of service health and service impact
  - Inbound / Provider, Inbound / Provider by Consumer IP
  - Outbound / Consumer
  - RSS and portal based alerting of change

Business
People
Program Mgmt.
Governance
Architecture
Enabling technologies
Operations & Mgmt.

The Operation & Management Domain
Operations Management Solution – HP Software

HP SOA Manager Centre

HP Business Availability

Performance Monitoring	Service performance, alerting, and auditing
Policy Enforcement	payload inspection, message routing and transformation
Problem Isolation	Service model used to determine problem areas of composite applications
Governance Interoperability Framework (GIF)	interoperate with the SOA environment and traditional systems management tools

End User Management	m s
Service Level Management	a
System Availability Management	Agentless SOA system and infrastructure monitoring
Application Mapping	Automated and dynamic SOA discovery, mapping and change impact
Diagnostics	monitoring, problem isolation with tracing, and

The Supply & Demand Domain
Challenges

- How do I decide which business targets I can best deliver to using SOA ?

- Build or Buy ?
  - Sourcing strategies: onboarding/outsourcing
  - Use external or develop internal in service design

- How to manage the business services supply chain

- Can we match supply and demand of service capabilities

- Innovative prediction of IT service requirements

The Supply & Demand Domain
Best practices

- Control the risk of changes to the implementation of services

- Manage service levels from an end user perspective and understand business impact of outages

- Service Level Management
  - Lifecycle Management of Design usage definitions in run time monitoring
  - Service and Composite Application Contract management
  - Business and IT metric based KPI measurement
  - Trend and KPI measurement and alerting

- Asset Management
  - Full lifecycle service provisioning and resource allocation
  - Financial tracking through service lifecycle

- Chargeback
  - Measurement for management
  - Management of provisioning
  - Cost models more easily justified through actual business services delivery measurement and service lifecycle management

HP SOA Maturity Model

SOA Maturity Levels				
Level 1 Ad-hoc	Level 2 Basic	Level 3 Standardized	Level 4 Managed	Level 5 Adaptive
Business Minimal business interest in SOA	Business is aware of SOA	Business generally complies with SOA	Business proactively supports SOA	SOA is fundamental to business operations
Program Mgmt. SOA is project focused	SOA efforts are business unit based	SOA is federated, but not integrated	SOA is integrated at corporate level	SLA is enterprise-wide and extends to partners
Governance Some acknowledgement of governance issues	Some governance processes, individual responsibility	Governance guidelines defined and integrated into process	The value of governance is fully understood	Advanced understanding of IT governance
Architecture Limited or ineffective architecture	Architecture program exists, and architecture is defined	All IT initiatives comply with the architecture	Architecture is business driven and is auditably linked	Architecture and business are executed as integrated
Operations & Mgmt. No management of services, infrastructure elements only	Management of applications and infrastructure in terms of SLAs	Management of business services	Proactive management of business services linked to component services	Management of business services integrated into business operations
Supply and demand Business needs are all met using technology components	All services are provided internally	Value based sourcing decisions	Services sourced from multiple providers	Dynamic service sourcing from multiple sources
People Staff have little or no knowledge of SOA	Understanding of SOA is limited to IT management & architects	SOA education is required for all IT staff	Ongoing SOA education is attended by all staff	SOA is embraced by all staff and actively promoted
Enabling technologies There is no service infrastructure in place	SOA infrastructure is limited to exposing functionality as services	Standardised enterprise-wide SOA infrastructure	Large-scale managed SOA infrastructure	Integrated, dynamic SOA infrastructure

SOA Domains

HP SOA maturity model

Ad-hoc   Basic   Standardized   Managed   Adaptive

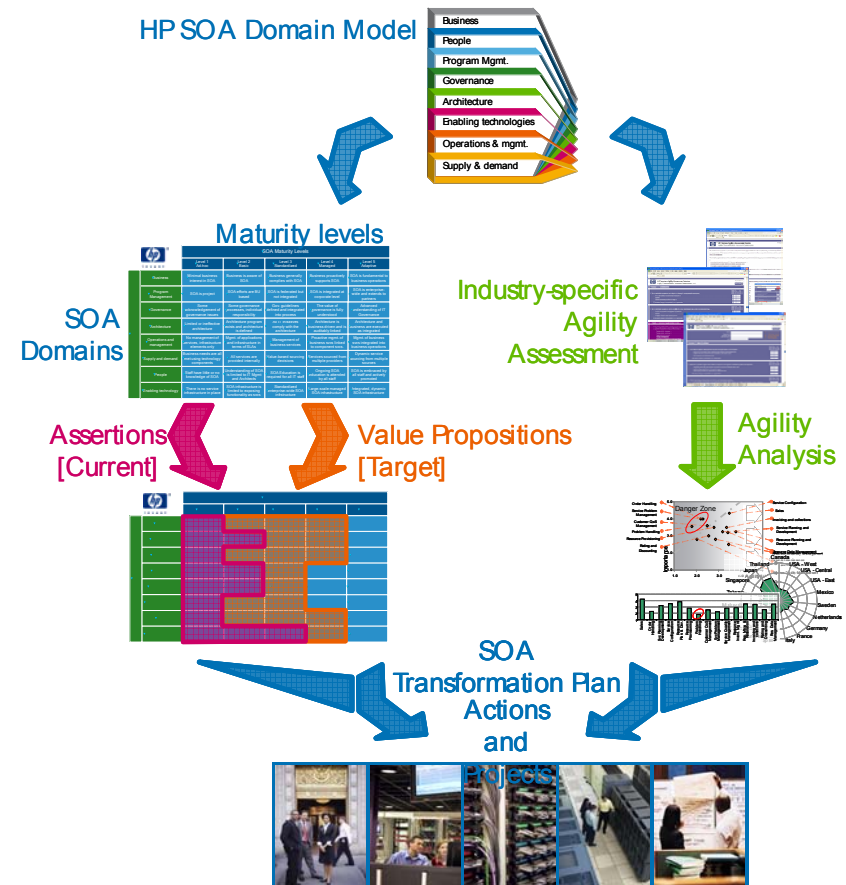| SOA Maturity Levels					
	Level 1 Ad-hoc	Level 2 Basic	Level 3 Standardized	Level 4 Managed	Level 5 Adaptive
Business	Business is independent of SOA	Business is aware of SOA	Business needs are supported by SOA	Business proactively supports SOA	SOA is fundamental to business operations
People	Staff have little or no knowledge of SOA	Understanding of SOA is limited to IT management and architects	SOA education is required for all IT staff	Ongoing SOA education is attended by all staff	SOA is embraced by all staff and actively promoted
Program Management	SOA is project focused	SOA efforts are business unit based	SOA is federated, but not integrated	SOA is integrated at corporate level	SLA is enterprise-wide and extends to partners
Governance	Some acknowledgement of governance issues	Some governance processes, individual responsibility	Governance guidelines defined and integrated into process	The value of governance is fully understood	Advanced understanding of IT governance
Architecture	Limited or ineffective architecture	Architecture program exists, initiative-based architecture definition	IT initiatives comply with an enterprise architecture	Business strategy linked to IT architecture	Agile enterprise-wide architecture
Enabling technologies	There is no service infrastructure in place	SOA infrastructure is limited to exposing functionality as services	Standardized enterprise-wide SOA infrastructure	Large-scale managed SOA infrastructure	Integrated, dynamic SOA infrastructure
Operations and management	No management of services, infrastructure elements only	Management of applications and infrastructure in terms of SLAs	Management of business services	Proactive management of business services linked to component services	Management of business services integrated into business operations
Supply and demand	Business needs are all meant using technology components	All services are provided internally	Value based sourcing decisions	Services sourced from multiple providers	Dynamic service sourcing from multiple sources

SOA Domains

"SOA Domains"

HP SOA Maturity Self-Assessment Tool

- FREE, Painless SOA starting point

- Opportunity to dialog in our terms, our SOA approach

- Low risk

  - Simple process

  - Automated

  - Complementary
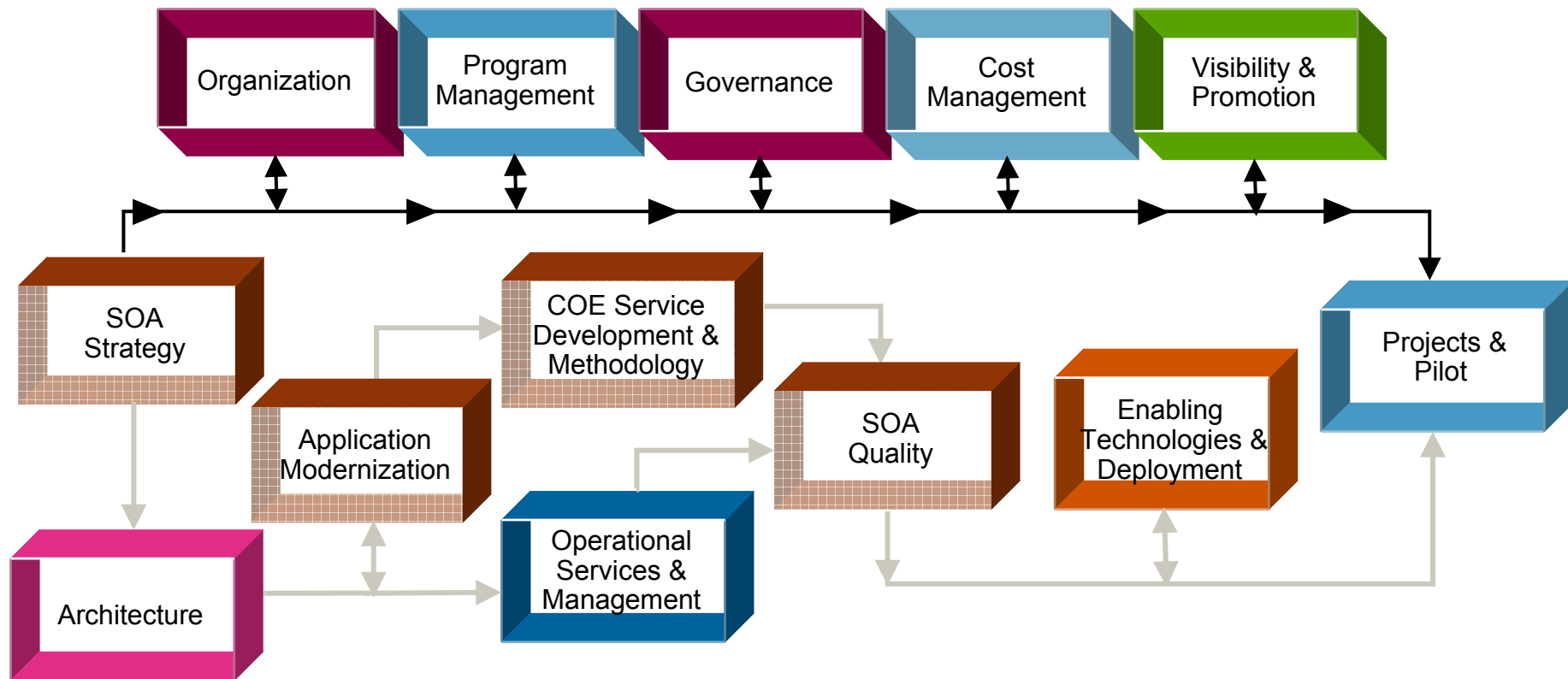
- Uses the Domain model to express your maturity

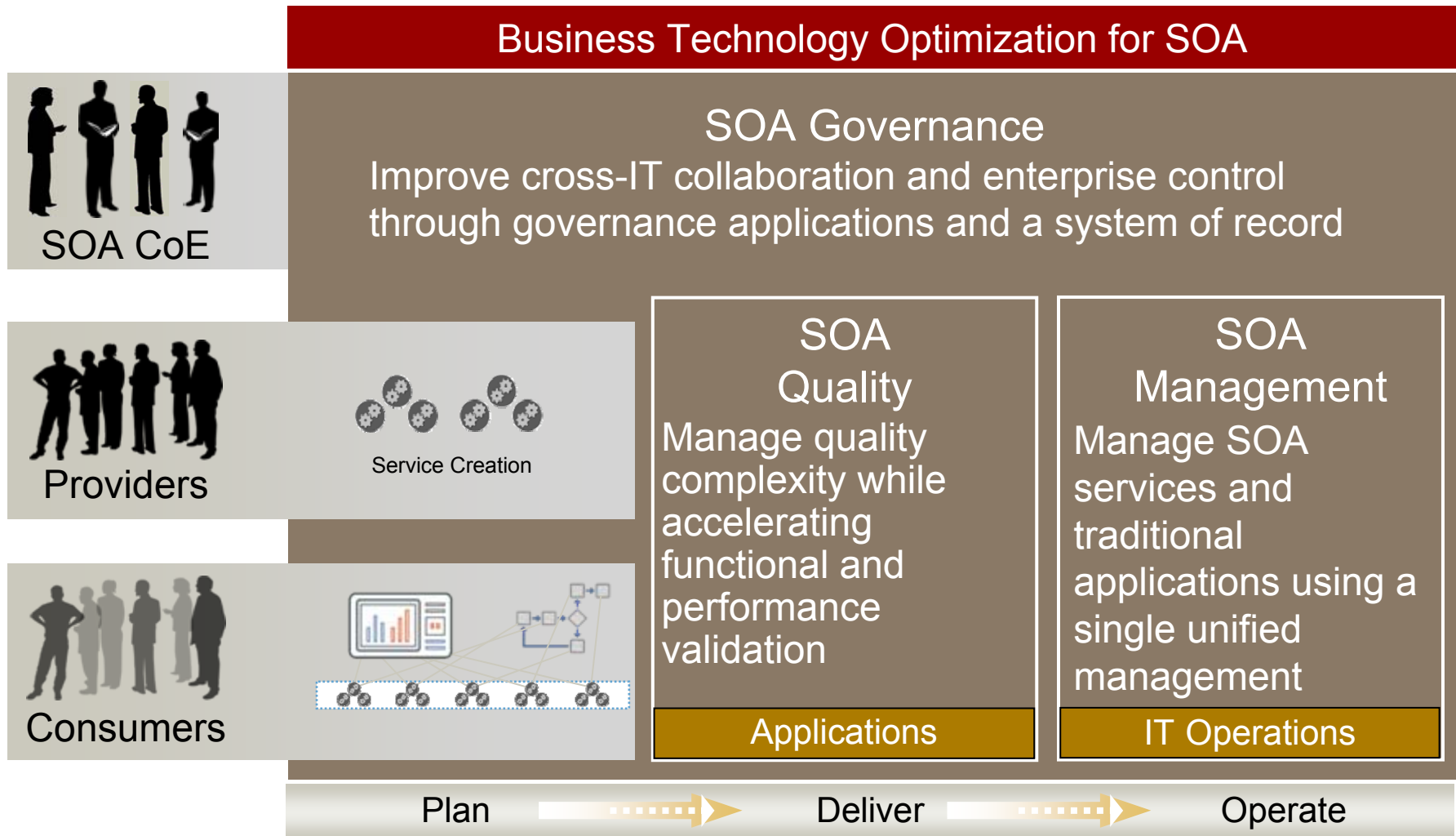- https://roianalyst.alinean.com/HPSOA/

Define a transformation Roadmap

- Examine capabilities and assets
- Measure the organization in terms of dynamics
- Answers key questions
  - Where are we now?
  - Where do we need to be?
  - What do we need to do to get there?
- Delivers a detailed SOA transformation roadmap
- Based on the HP SOA domain model

Managing your transformation roadmap with SOA Center of Excellence

Organization | Program Management | Governance | Cost Management | Visibility & Promotion

SOA Strategy

COE Service Development & Methodology

Application Modernization

SOA Quality

Enabling Technologies & Deployment

Projects & Pilot

Architecture

Operational Services & Management

Management track

Technical track

Address the lifecycle of challenges across SOA Governance, Quality and Management

Business Technology Optimization for SOA

SOA Governance
Improve cross-IT collaboration and enterprise control through governance applications and a system of record

SOA CoE

Providers

Service Creation

Consumers

SOA Quality
Manage quality complexity while accelerating functional and performance validation

Applications

SOA Management
Manage SOA services and traditional applications using a single unified management

IT Operations

Plan ➡ Deliver ➡ Operate

HP SOA Consulting Services

SOA Envisioning

- Understand SOA
- Identify target benefits
- Determine potential impacts

SOA Assessment

- Utilize the HP SOA Agility Assessment approach
- Assess all 8 aspects of readiness
- Create roadmap for SOA adoption

SOA Governance and Architecture

- Establish SOA Architecture Program Office and CoE
- Customize and adopt SOA governance model

SOA Enablement

- Prepare infrastructure for SOA implementation

SOA Service Development

- Define, develop and deploy SOA services
- Business and technical
- Enterprise, line-of-business, or project

SOA Software Development

- Develop and deliver high volume of SOA services
- Optimize customer productivity through global software development capability

SOA Management

- Operation of SOA environment
- Service lifecycle management
- Monitoring and service level agreements
- Policy enforcement

hp invent

HP SOA Services Portfolio
HP Services for SOA cross the entire BTO for SOA model

SOA CoE

Providers

Consumers

Business Technology Optimization for SOA

Maturity Self-Assessment

Envisioning

Comprehensive Assessment

Governance & Architecture Center of Excellence

Service Development

Software Development

Management

Enablement
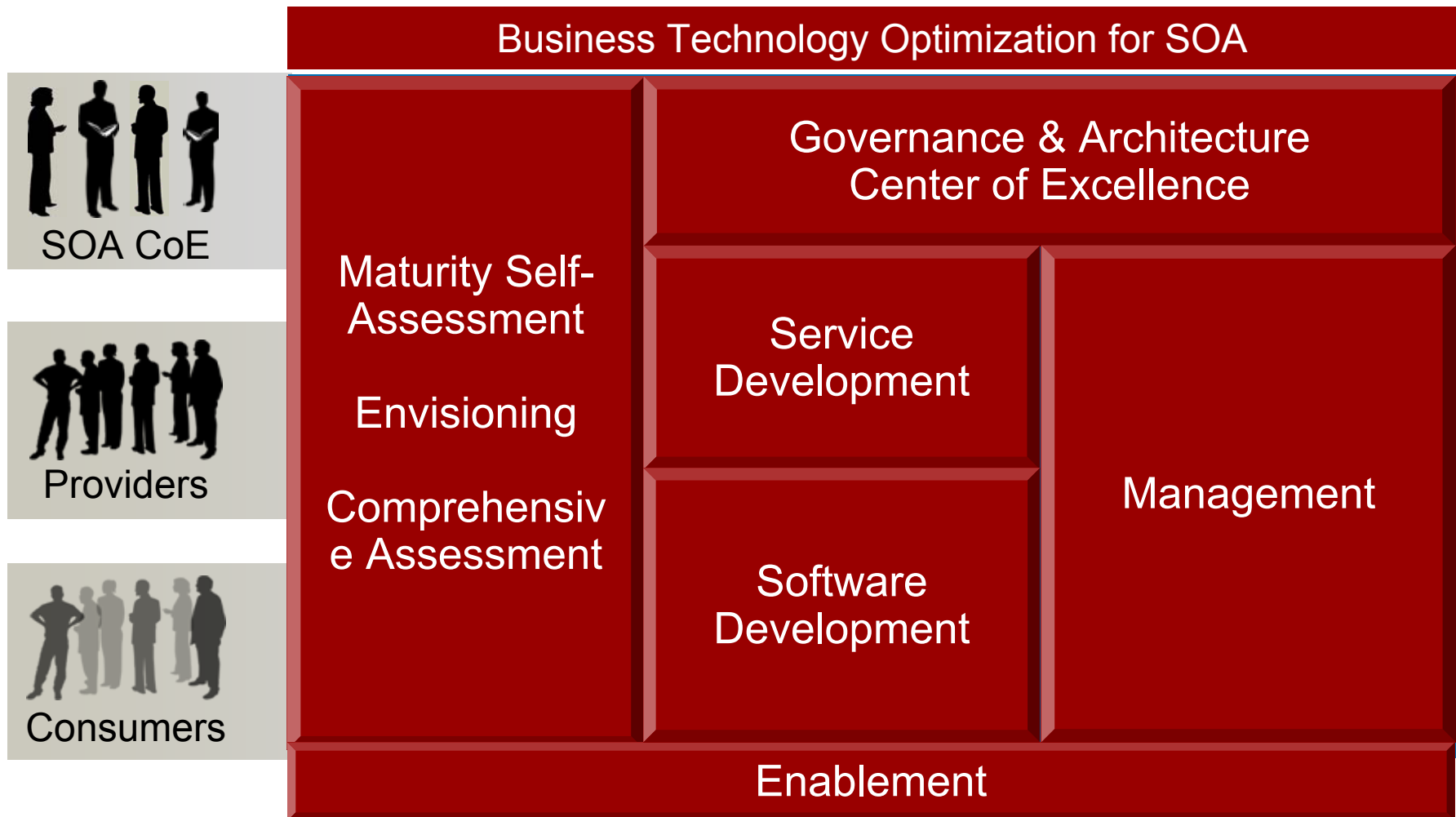
Inlichtingenbureau
Industry: Public sector

Objective	Approach	Results
• Ensure that files from autonomous organizations in the SUWI chain can be interfaced in a simple manner. • Create an extendable and safe architecture Communication and exchange, secured and standardized with SOAP and XML. • Supply a total solution delivered turnkey.	• HP Services developed a new Service-Oriented Architecture Solution based on enterprise application integration. • Web Architecture with standard building blocks and open source components. • HP ProLiant with RedHat Linux as operating system.	• Smooth transition of Convergence Applications that conformed to the Information Bureau's specifications • A total solution developed by HP that responds to the current and future requirements of the Information Bureau and its customers. • Increased stability and performance • No longer a need for a second database server to obtain the required performance level from the system. • Improved user friendliness for

Helvetia Patria
Industry: Insurance

Objective	Approach	Results
• Enable multi-channel distribution of products and services • Optimize sales and distribution processes • Deconstruct value chain and facilitate partner integration • Protect investments in pre-existing business functions • Create competitive advantage, enable new partnerships, and address new markets with e-business capability • Streamline communications technology and processes	• Collaboration between HPV and HP—using a modular, SOA-based solution—allowing a step-by-step approach • Design/build the business Center with state of the art technology and open architecture: HP Nimbus, J2EE, XML, XSL, SOAP, and more • Operate through HP Managed Services, for maximum availability, support, performance, and stability	• Easy integration of new and existing systems • Data consistency enables collaboration • Multi-channel platform eases distribution expansion • SOA approach facilitates fast application rollout and reduced time to market • Initial small investment and pay-as-you-go terms • Reduced time spent on low-value activities • Measured results: 201% ROI—26% IRR payback in 36 months

SNS Bank

Opportunity	Approach	Results
• Refresh technology • Exploit proven but brittle logic on mainframes as re-usable services • Loosely integrate • Develop multiple channel access to online retail banking services	• WebServices enable Mainframe existing logic • Develop newer business logic using SOA • Establish collaboration between business and IT teams	• Gap between business and iT narrowed • New multiple channels provided faster than previously possible • Dynamic IT environment provides business teams flexibility

Danish Customs and Tax Office

Opportunity	Approach	Results
• Allow seamless access to all government agencies • Declare re-usable business & IT services • Integrate faster and easier with 3rd parties • Develop and enforce compliance • Control unauthorised access	• New solution—SOA and web services • Normalised semantics and data model • Business process model driven approach to service definitions • SOA governance integrated with Master Data Model	• Lowered total cost of ownership (reduced staff and license costs) • Multiple re-usable business services deployed • Hierarchical model of all resources and services exposed • Consistent compliance enforced

Carphone Warehouse

New business channels through retail business services

Challenge	Solution	Results
• Increasingly complex distributed application webServices environment • Business services crucial to business dynamics • Ensuring availability and performance of all services for outlet business performance targets • Enabling change management of the service with minimum point of sale disruption to consumers • Business teams need faster and more innovative means to develop new business channels	• SOA Governance with • HP SOA Centre with Systinet 2.5.1 multiple registries • HP SOA professional services for requirements assessment • Enterprise Service Bus software	• ~70 services managed in 5 mins versus 45 previously. • Visibility of services means faster development of new business channels • Trust fosters adoption of existing application services & quality, reducing time & cost to develop new business channels & connect to partners securely • Control for quality of service provided & predictability of business performance at the point of sale

Hewlett-Packard Company

Opportunity	Approach	Results
• HP Partner Direct: customer-facing, event-driven integrated enterprise • Web-based & wireless customer interaction • Real-time applied data mining • Develop direct sell supply chain • Reduce time needed to connect retail partners	• New solution—SOA and web services • Service consumer SDKs • Web services consumed by all resellers (no 1-1 modifications required) • Live verification of order coherence, order confirmation, price and delivery guarantees synchronized with	• Lowered total cost of ownership (reduced staff and license costs) • Recovered $1M in license fees • Responded to change 2 to 5x faster • Multiplied business unit's revenues 3x in 6 months

Come and see the magic with Eva, Patricia, Ana, Alan, Vedran, and Ian
We are waiting for you at the HP Stand. Have fun !!

Thank You

Alan BOJANIC DUJMOVIC, hp SW TC

alan.bojanic-dujmovic@hp.com

+385 91 6064 160

Vedran IVANIS, hp SW Sales

vedran.ivanis@hp.com

+385 91 6060 226

Q&A
Thanks