Tendances Logicielles
L'architecture pour répondre aux besoins métier

What architecture for the Information System of the innovating enterprise ?

Dominique Delhumeau & Hubert Lalanne

Distinguished Engineers
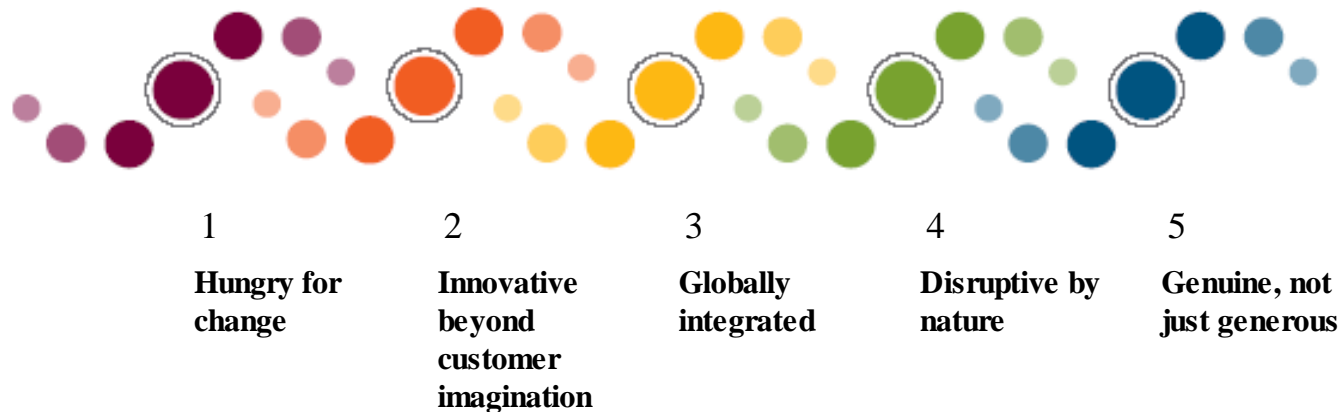**The Open Group Master Certified IT Architects**

Agenda

- **From CEO Study to Enterprise Architecture**

- From EA to Middleware and Infrastructure offerings

A new era: becoming the enterprise of the future

- **Main theme emerging from CEO Study: We are entering an era of "turbulence:"**
  - Change is accelerating
  - Customers are becoming more sophisticated, demanding, and disruptive
  - Globalization is a double-edge sword
  - New business model innovations are essential to differentiation and success
  - Customers expect CEOs to take ethical positions and advance corporate social responsibility (CSR) initiatives

1	2	3	4	5
Hungry for change	**Innovative beyond customer imagination**	**Globally integrated**	**Disruptive by nature**	**Genuine, not just generous**

- **The ability to manage macro-economic and customer "turbulence" will be a key differentiator**

CIO's are uniquely positioned to help enable and drive the required actions

	Hungry for Change	**Become a major business transformation driver for their enterprise** · Enabling change · Managing change · Driving cultural change
	Innovative Beyond Customer Imagination	**Power innovation by turning customer information into business insight and by providing new ways for the enterprise to connect with customers** · Set an information agenda to consolidate data silos · Help turn information into insight · Collaborate with customers and exceed their expectations by offering new ways to transact business · Bring similar innovation to internal customers of IT
	Globally Integrated	**Help shrink the world by breaking down operational, technological and even cultural barriers to global integration** · Employ technology enablers of global integration · Integrate financial organizations to help CFOs arrive at a single financial truth · Enable the globally integrated workforce
	Disruptive by Nature	**Help CEOs transform business models by removing obstacles to change** · Align IT and business strategy · Spearhead the use of new tools to support business process management · Deploy a highly scalable and flexible infrastructure
	Genuine, not just Generous	**Lead by example on green initiatives and reduce enterprise energy consumption** · Reduce the environmental impact of IT and generate major energy savings · Enable alternate work locations for the enterprise workforce via enterprise mobility

New strategies, approaches, tools are required

1 **Align I/T with Business goals**
 Define the architecture models, governance and transition initiatives
· *EA provides the vital linkages between strategy and implementation*

2 **Drive agility into the organization**
 Define an architecture which allows a seamless evolution
· *Service Oriented Architecture*

3 **Enable and manage change**
Deploy a highly scalable and flexible infrastructure, and control cost
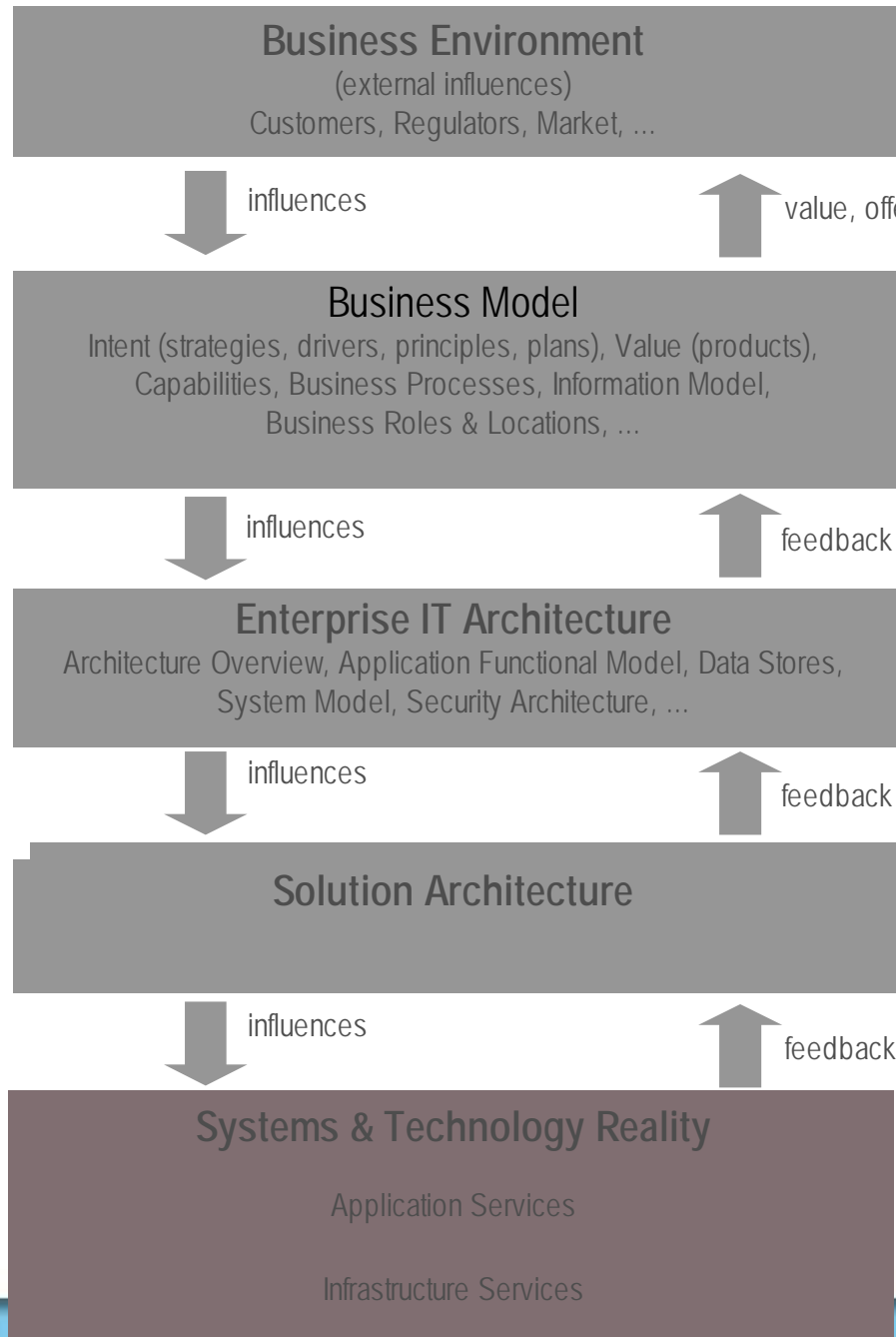· *New Enterprise Data center, Business Service management*

EA Context

Assets

Model
Centric Assets

Documentation
Centric Assets

Reusable Services

Reusable ABB's
And components

Update

Reuse

Business Environment
(external influences)
Customers, Regulators, Market, ...

influences → value, offerings ↑

Business Model
Intent (strategies, drivers, principles, plans), Value (products),
Capabilities, Business Processes, Information Model,
Business Roles & Locations, ...

influences → feedback ↑

Enterprise IT Architecture
Architecture Overview, Application Functional Model, Data Stores,
System Model, Security Architecture, ...

influences → feedback ↑

Solution Architecture

influences → feedback ↑

Systems & Technology Reality

Application Services

Infrastructure Services

**Governance
Quality
&
Measurement**
Architecture
Management
Framework

Enterprise Architecture aligns both Business and IT Architectures, and provides the vital linkages between "strategy" and "implementation"
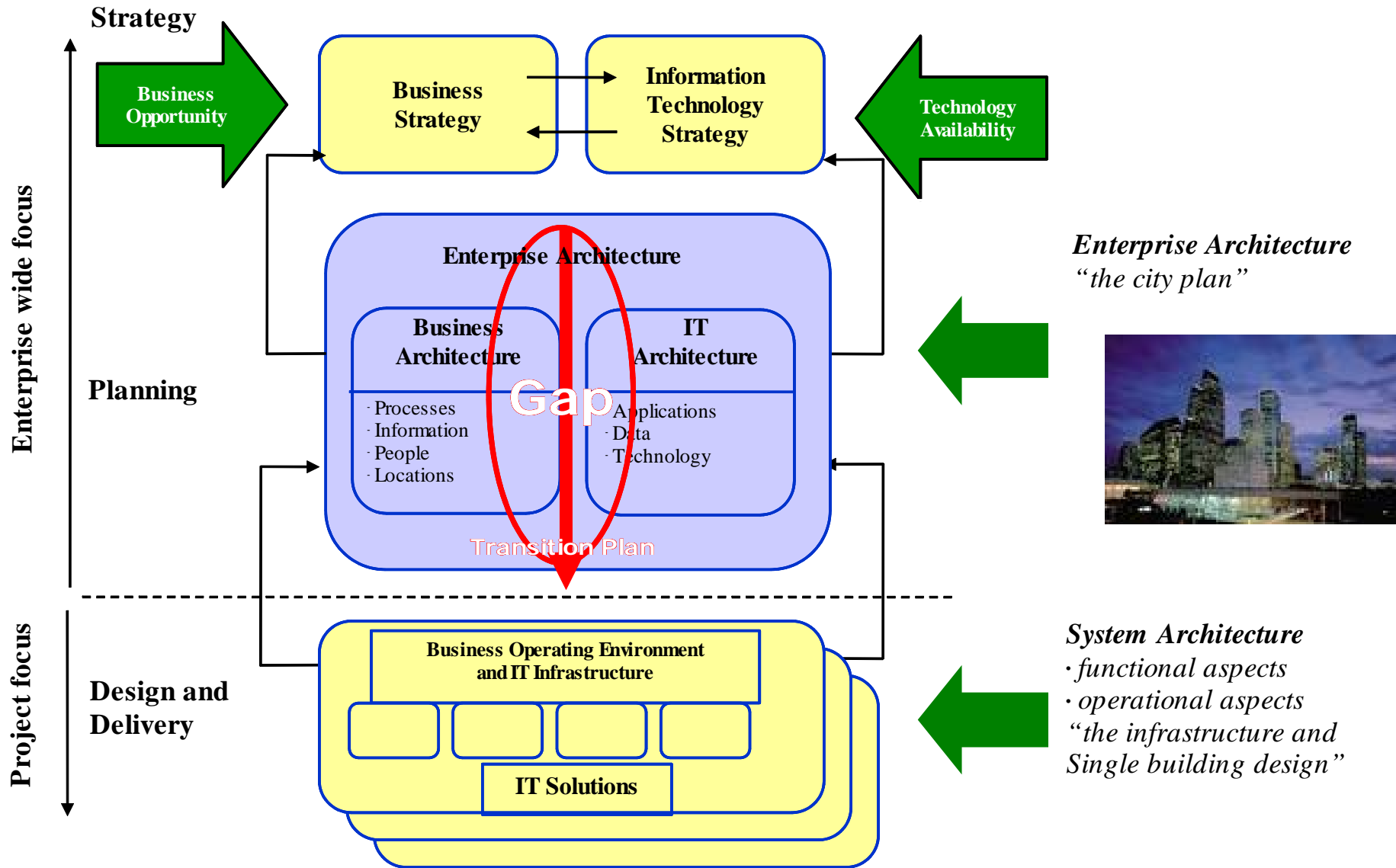
Strategy

Enterprise wide focus

Planning

Project focus

Design and Delivery

Business Opportunity

Technology Availability

Business Strategy → **Information Technology Strategy**

Enterprise Architecture

Business Architecture
- Processes
- Information
- People
- Locations

IT Architecture
- Applications
- Data
- Technology

Gap

Transition Plan

Business Operating Environment and IT Infrastructure

IT Solutions

Enterprise Architecture
"the city plan"

System Architecture
· *functional aspects*
· *operational aspects*
"the infrastructure and Single building design"

Busines Transformation
Strategies are enabled by tshe elements managed in Enterprise Architectures

Strategic Imperatives

instruments

requires

Business Capabilities

Current Capabilities

Required Capabilities

Capability gaps

implies

Transformation Initiatives

enables

provides

transforms

Enterprise Architectures

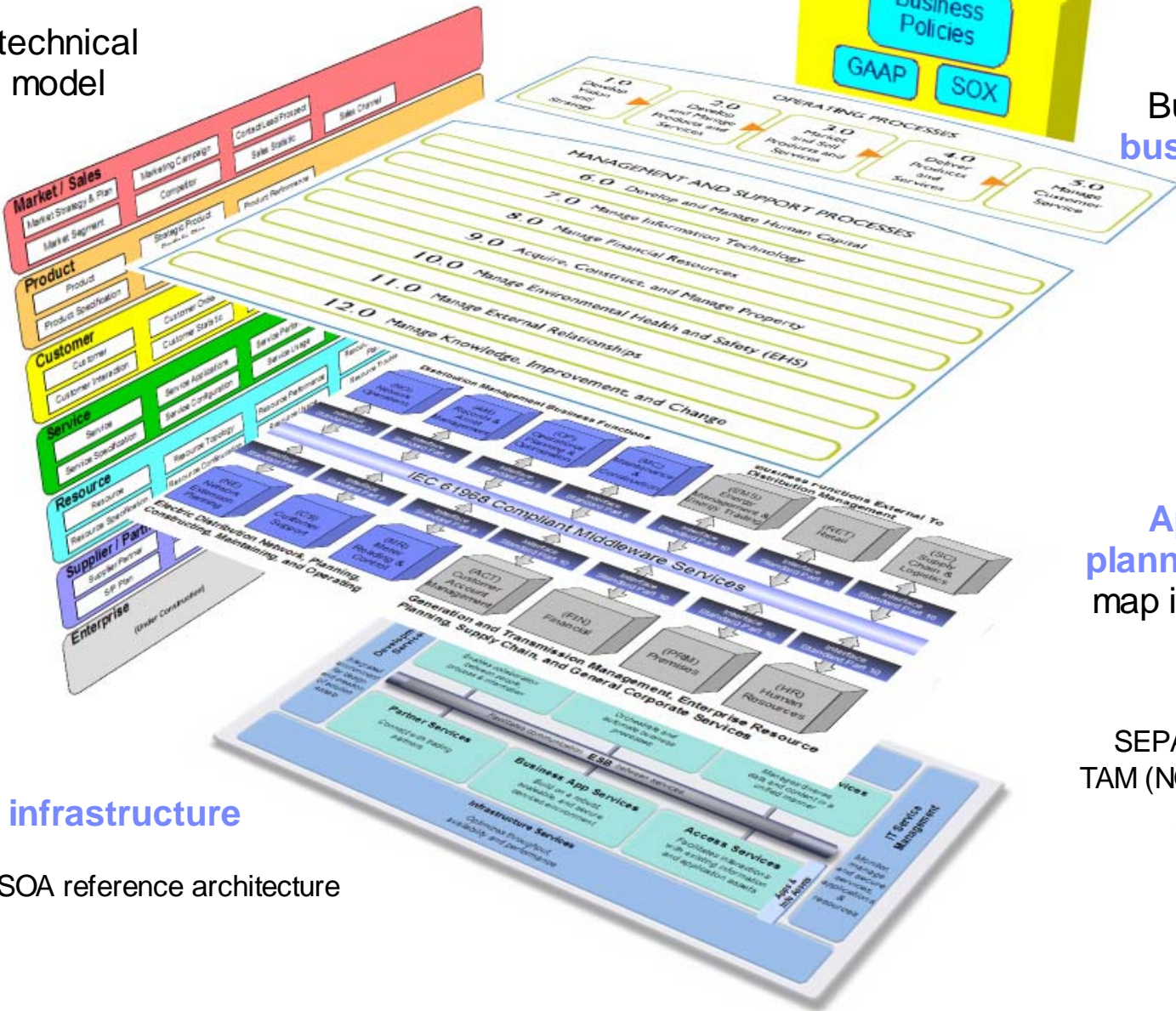Organization

Process

Info / Data

Application

Technology
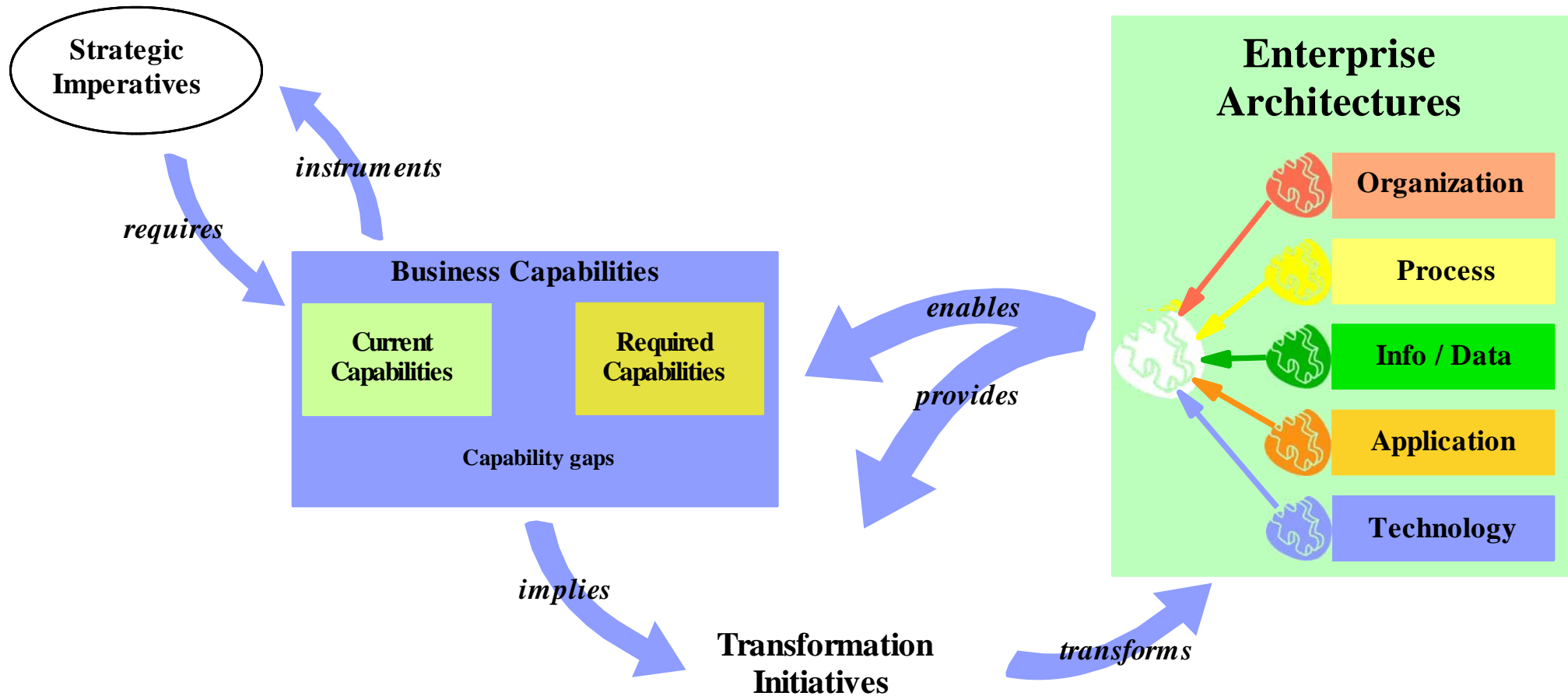
Rationalization of the enterprise core entities and processes and policies is critical to Enterprise architecture

Business and technical **information** model

ACORD, eEG7
ISO20022,SEPA,
NGOSS SID,
HLP7 RIM, HIPAA

Business map and **business processes**

ACORD, IAA
ISO20022,IFW
eTOM
HL7

Application "city planning" implementation map including **interfaces** and **services**
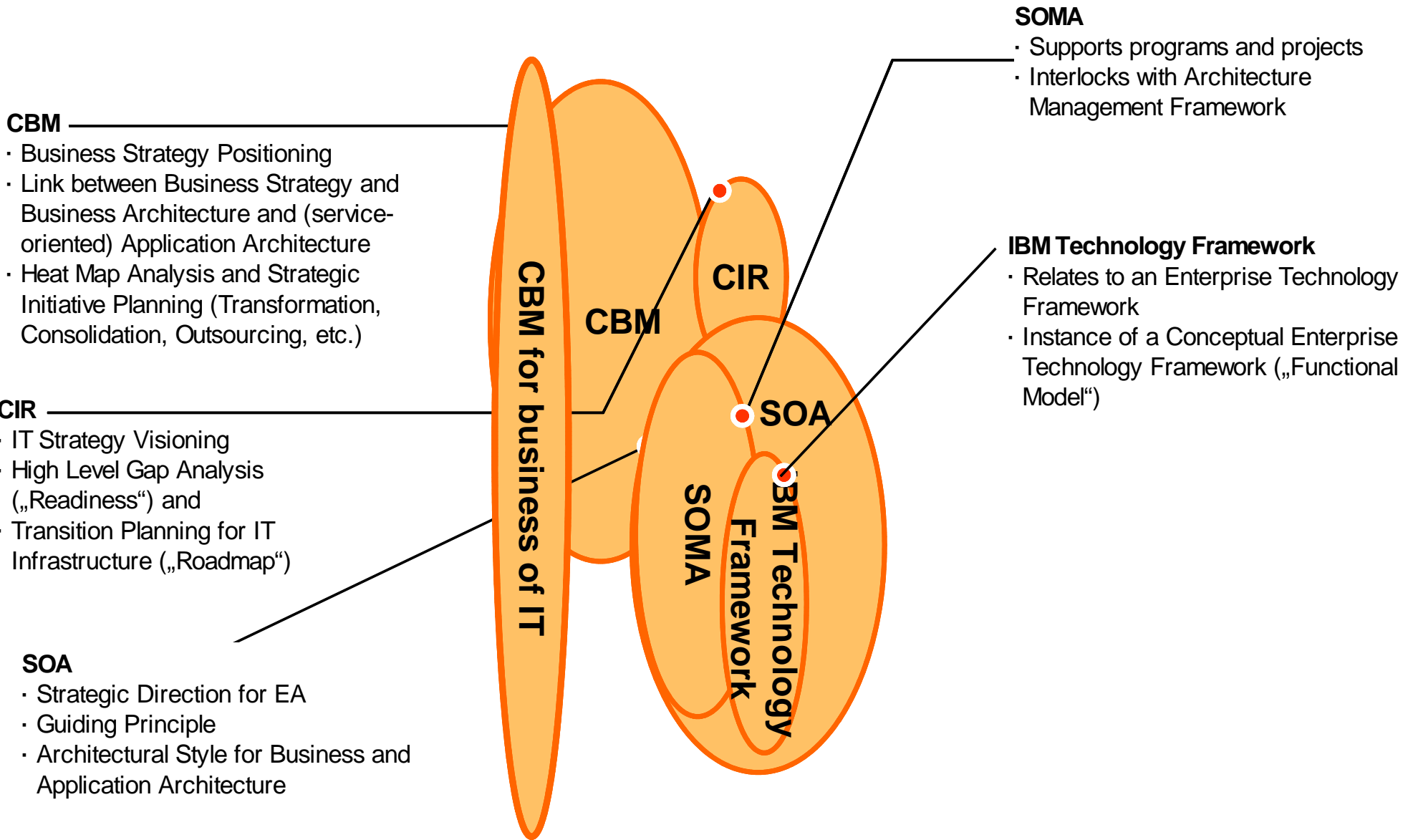
ACORD,IAA,
SEPA, NACHA EDI, IFW
TAM (NGOSS), MTOSI, OSS/J
ASC X12, HL7

Technical infrastructure

OSGi, WS-I, SOA reference architecture

Tendances Logicielles
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IBM assets to address the full scope of Enterprise Architecture

SOMA
· Supports programs and projects
· Interlocks with Architecture
  Management Framework

CBM
· Business Strategy Positioning
· Link between Business Strategy and
  Business Architecture and (service-
  oriented) Application Architecture
· Heat Map Analysis and Strategic
  Initiative Planning (Transformation,
  Consolidation, Outsourcing, etc.)

IBM Technology Framework
· Relates to an Enterprise Technology
  Framework
· Instance of a Conceptual Enterprise
  Technology Framework („Functional
  Model")

CIR
· IT Strategy Visioning
· High Level Gap Analysis
  („Readiness") and
· Transition Planning for IT
  Infrastructure („Roadmap")

SOA
· Strategic Direction for EA
· Guiding Principle
· Architectural Style for Business and
  Application Architecture

CBM for business of IT

CBM

CIR

SOA

SOMA

IBM Technology Framework

SWG helps clients build the technology flexibility to deliver the Enterprise of the Future

HUNGRY FOR CHANGE	**Enterprise Agility**	· **Service Management** · **SOA (Smart SOA)** · **Security & Compliance**
INNOVATIVE BEYOND CUSTOMER IMAGINATION	**Information Agenda and Effective Collaboration**	· **Information Agenda** · **IBM PLM Solutions** · **Lotus Collaboration Solutions** · **Web 2.0**
GLOBALLY INTEGRATED	**Global Enterprise Innovation**	· **Enterprise Asset Management** · **Software Subscription & Support** · **System z software – Virtualization** · **Enterprise Adaptability** · **Globally Distributed Development**
DISRUPTIVE BY NATURE	**Business Process Transformation**	· **Content-based Business Transformation** · **BPM enabled by SOA** · **IBM Dashboard Accelerators**
GENUINE, NOT JUST GENEROUS	**Green Software Solutions**	· **Green Data management** · **Green Solutions – System P & Linux**

Agenda

Ÿ **From CEO Study to Enterprise Architecture**

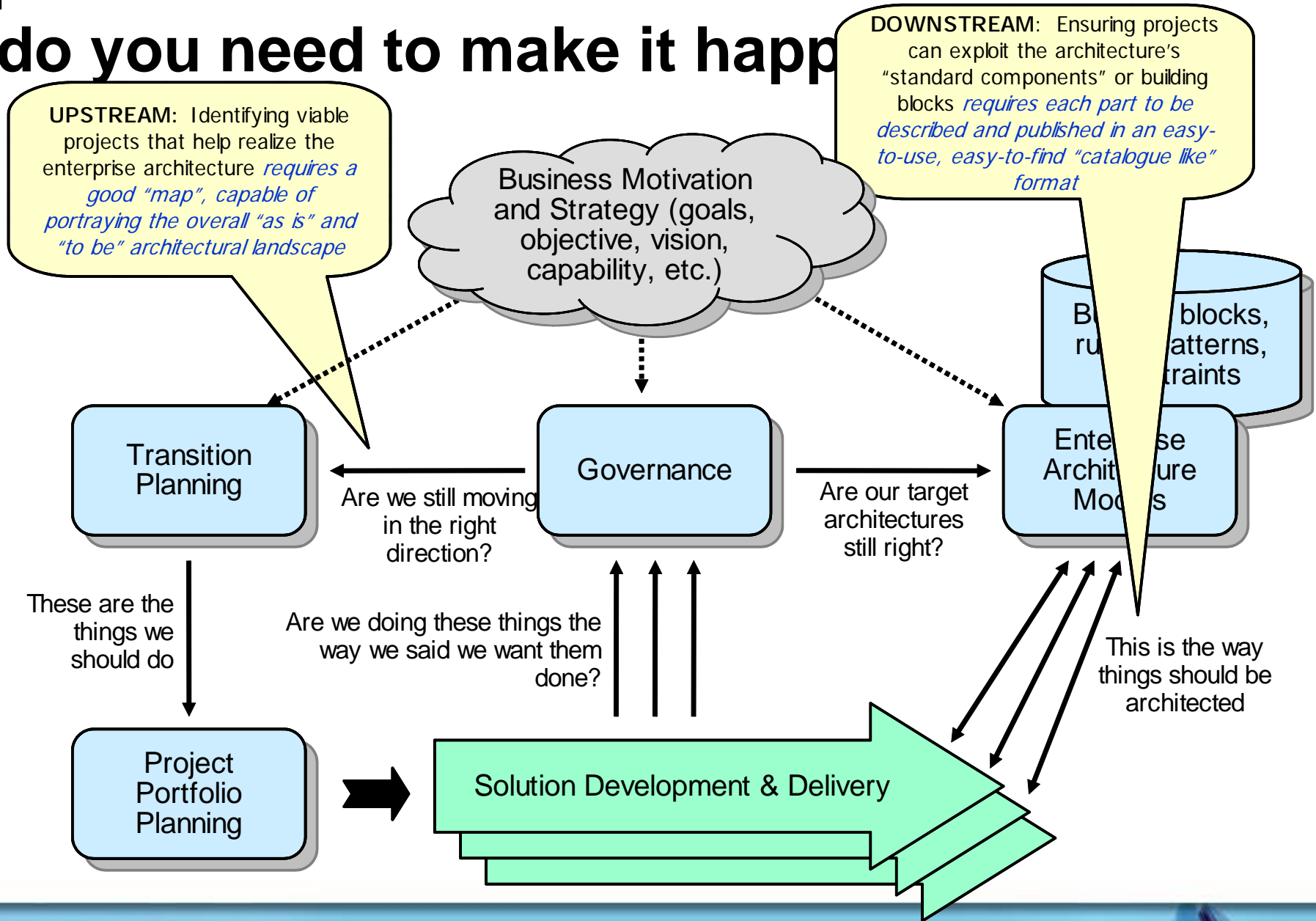Ÿ **From EA to Middleware and Infrastructure offerings**

Tools
Methods and Models
Technology trends

Enterprise Architecture:
What do you need to make it happ

UPSTREAM: Identifying viable projects that help realize the enterprise architecture *requires a good "map", capable of portraying the overall "as is" and "to be" architectural landscape*

DOWNSTREAM: Ensuring projects can exploit the architecture's "standard components" or building blocks *requires each part to be described and published in an easy-to-use, easy-to-find "catalogue like" format*

Business Motivation and Strategy (goals, objective, vision, capability, etc.)

B blocks,
ru atterns,
traints

Transition Planning

Governance

Ente se
Archit ure
Mod s

Are we still moving in the right direction?

Are our target architectures still right?

These are the things we should do

Are we doing these things the way we said we want them done?

This is the way things should be architected

Project Portfolio Planning

Solution Development & Delivery

Telelogic/Rational tools to enable actionable EA

Solution Development & Delivery

Enterprise Architecture

Business Process Management
WebSphere Business Modeler

Application Design & Construction
Rational Software Architect
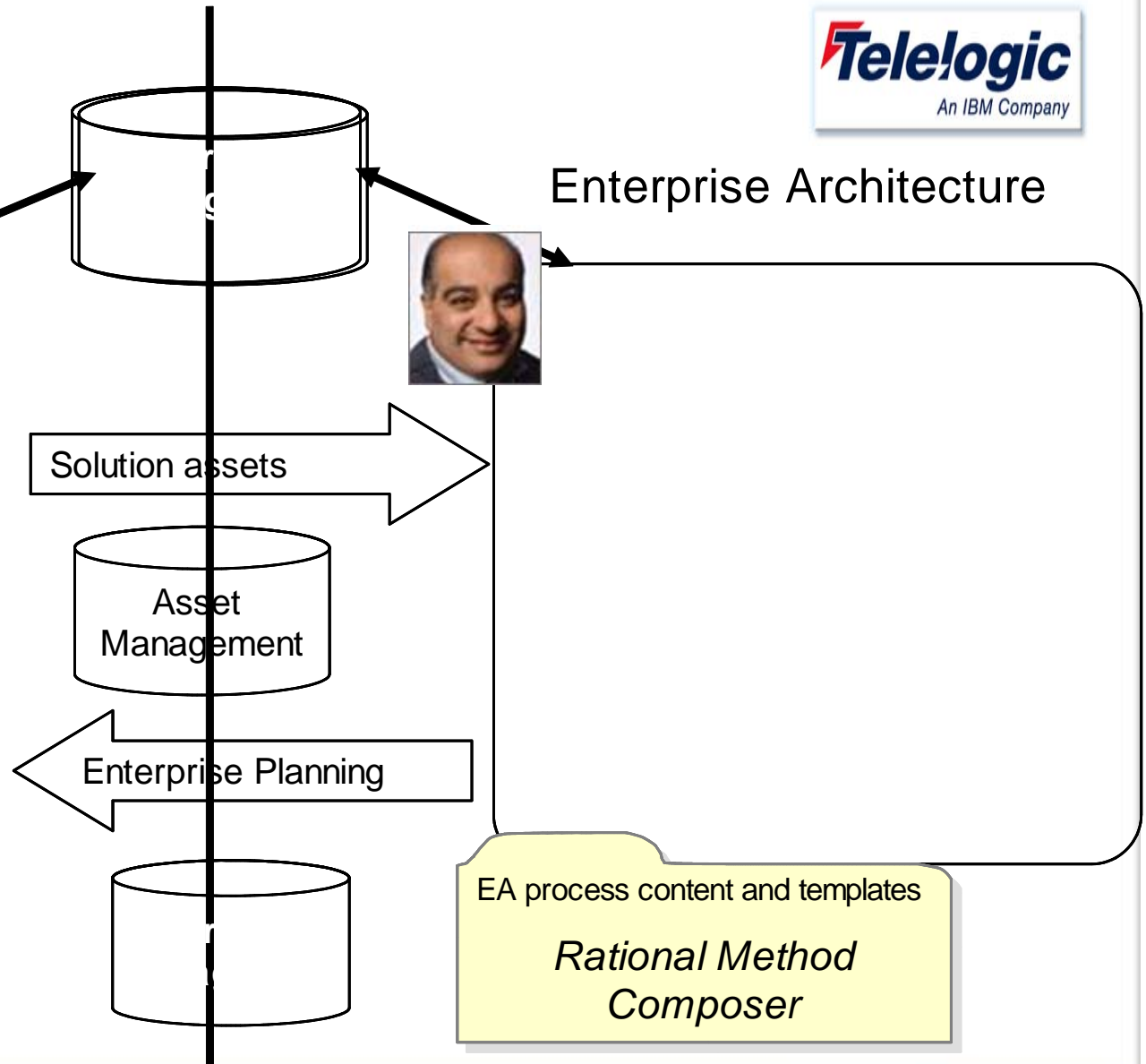
Enterprise Modernization
Rational Asset Analyzer

Database and Information Mgmt
Rational Data Architect

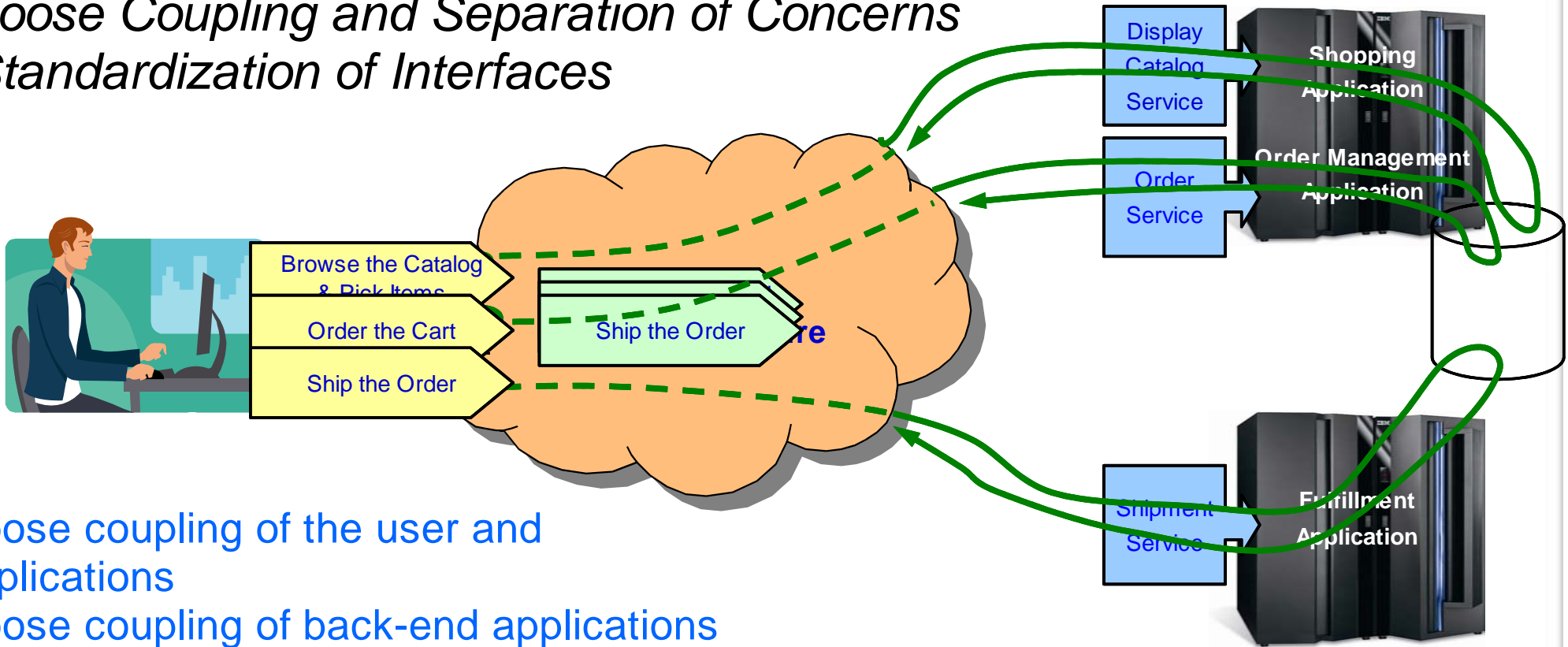Operational Topology Modeling
Rational Software Architect

Embedded Systems & Software
Rhapsody

Solution assets

Asset Management

Enterprise Planning

EA process content and templates

Rational Method Composer

SOA Basic Principles

Loose Coupling and Separation of Concerns
Standardization of Interfaces

Display Catalog Service

Shopping Application

Order Management Application

Order Service

Browse the Catalog & Pick Items

Order the Cart

Ship the Order

Ship the Order

Shipment Service

Fulfillment Application

·Loose coupling of the user and applications
·Loose coupling of back-end applications
·Loose coupling between organizations
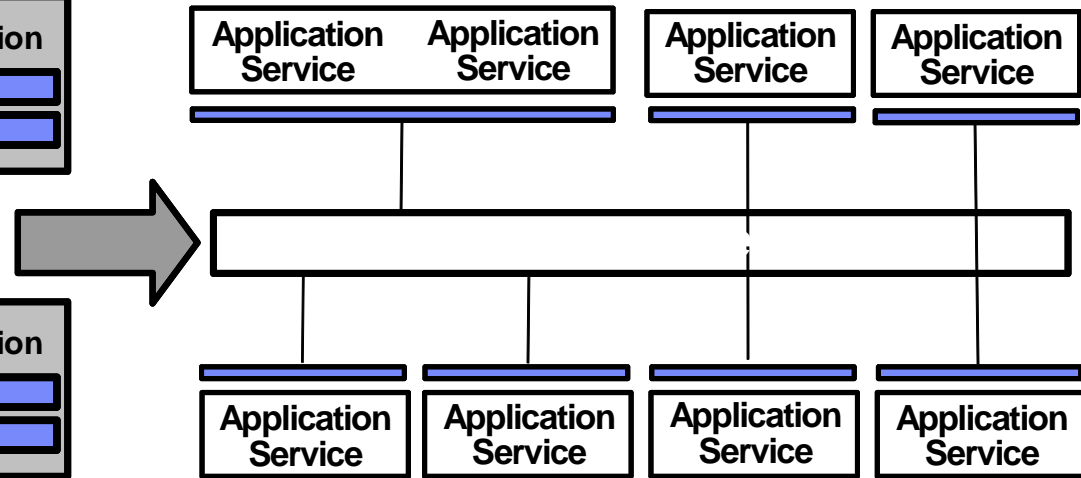·Distinct services
·De-coupling of application and infrastructure

SOA is the right approach to provide *Enterprise Agility*, to allow *Business Process Transformation* and to facilitate *Global Enterprise Innovation*

How does SOA relates to Enterprise Architecture?
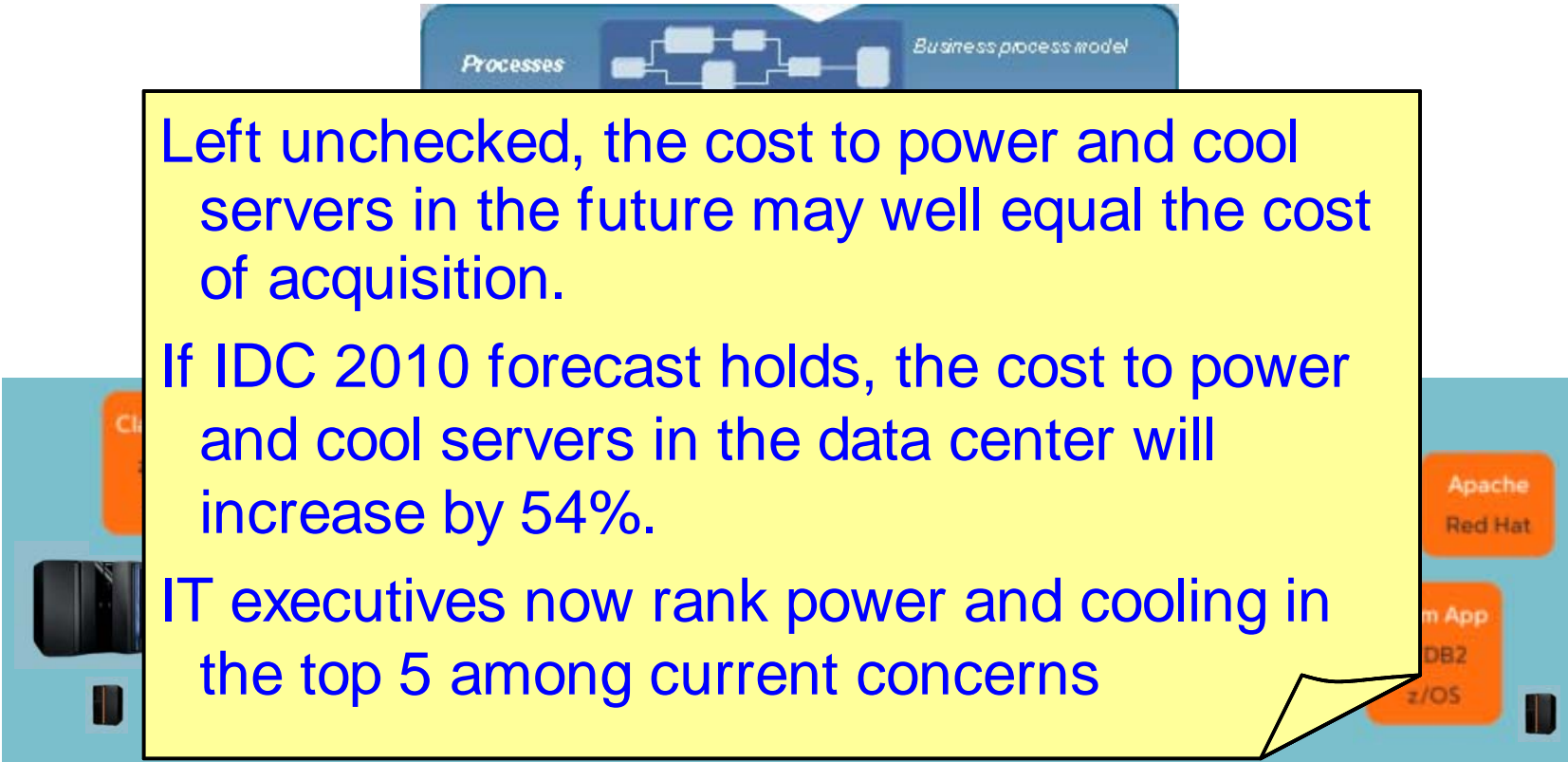
Turn this.......
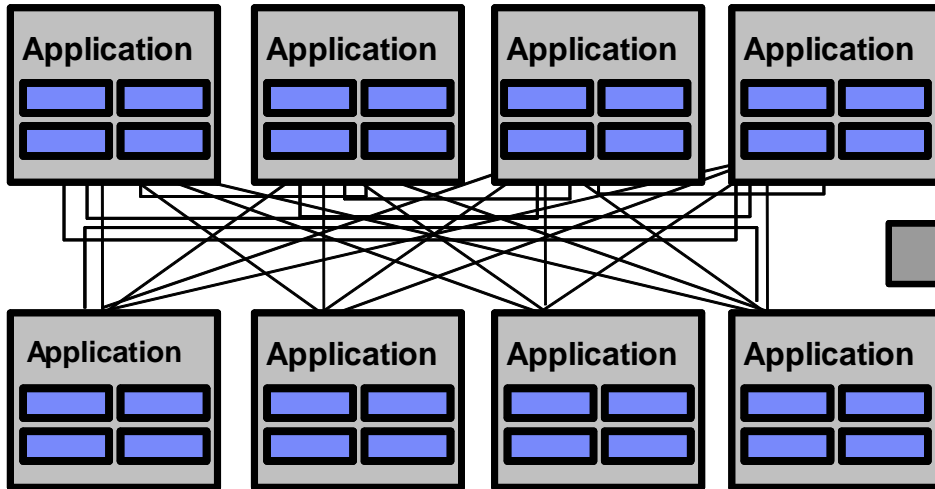
...into this

Service Oriented Architecture provides a consistent IS/IT Architecture model to implement the Enterprise Architecture directions

EA and SOA are closely correlated: SOA cannot be considered without a minimal investment in EA, and should refer to EA recommendations

Enterprise Agility and Adaptability cannot be provided ...

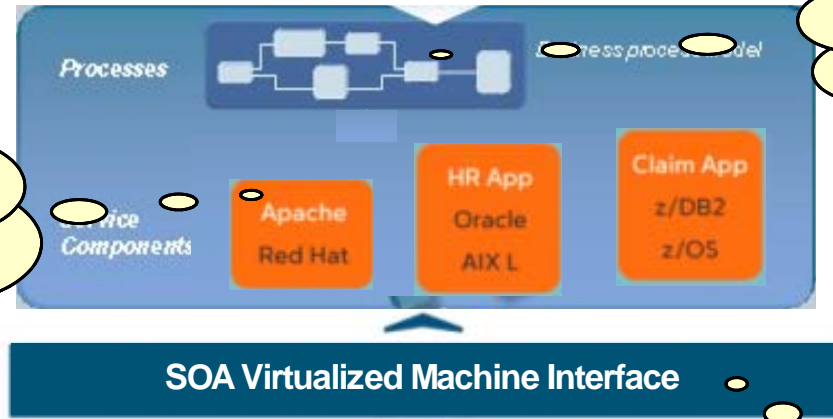Left unchecked, the cost to power and cool servers in the future may well equal the cost of acquisition.

If IDC 2010 forecast holds, the cost to power and cool servers in the data center will increase by 54%.

IT executives now rank power and cooling in the top 5 among current concerns

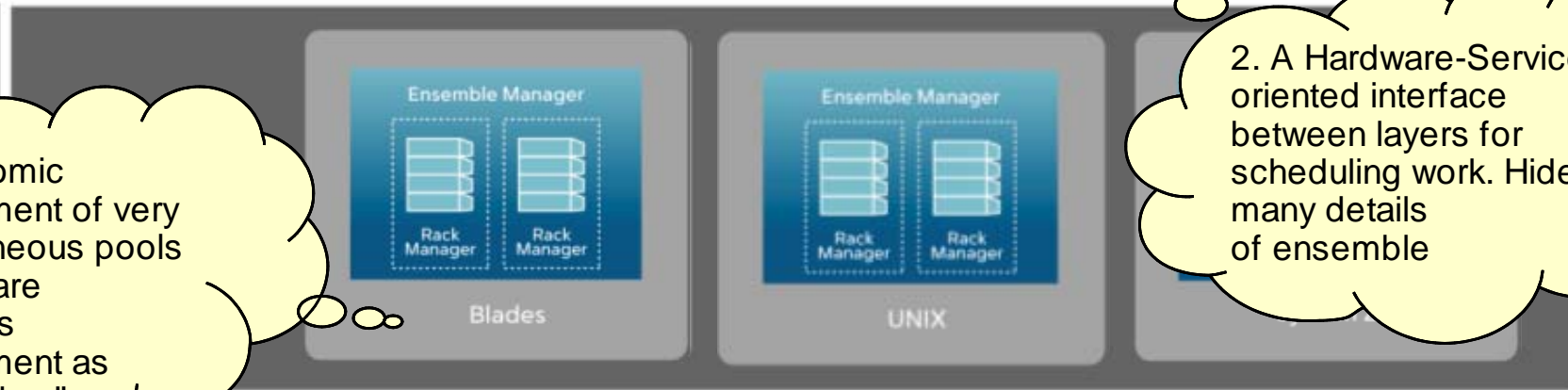… without reducing the complexity, cost and environmental impact of IT Infrastructures

Consumer's behavior is drastically shifting

Decision-Making Initiative Taken

Low (Traditional Consumer)

High (Active Consumer)

Media Consumers	Energy Consumers
Passive: Traditional IT	
Informed: Initial Web	
Proactive: Web 2.0	

Time – Industry evolution

SHARE

Ideas — How To's — Inspiration — Thoughts — Techniques — POV's — Skills — Knowledge
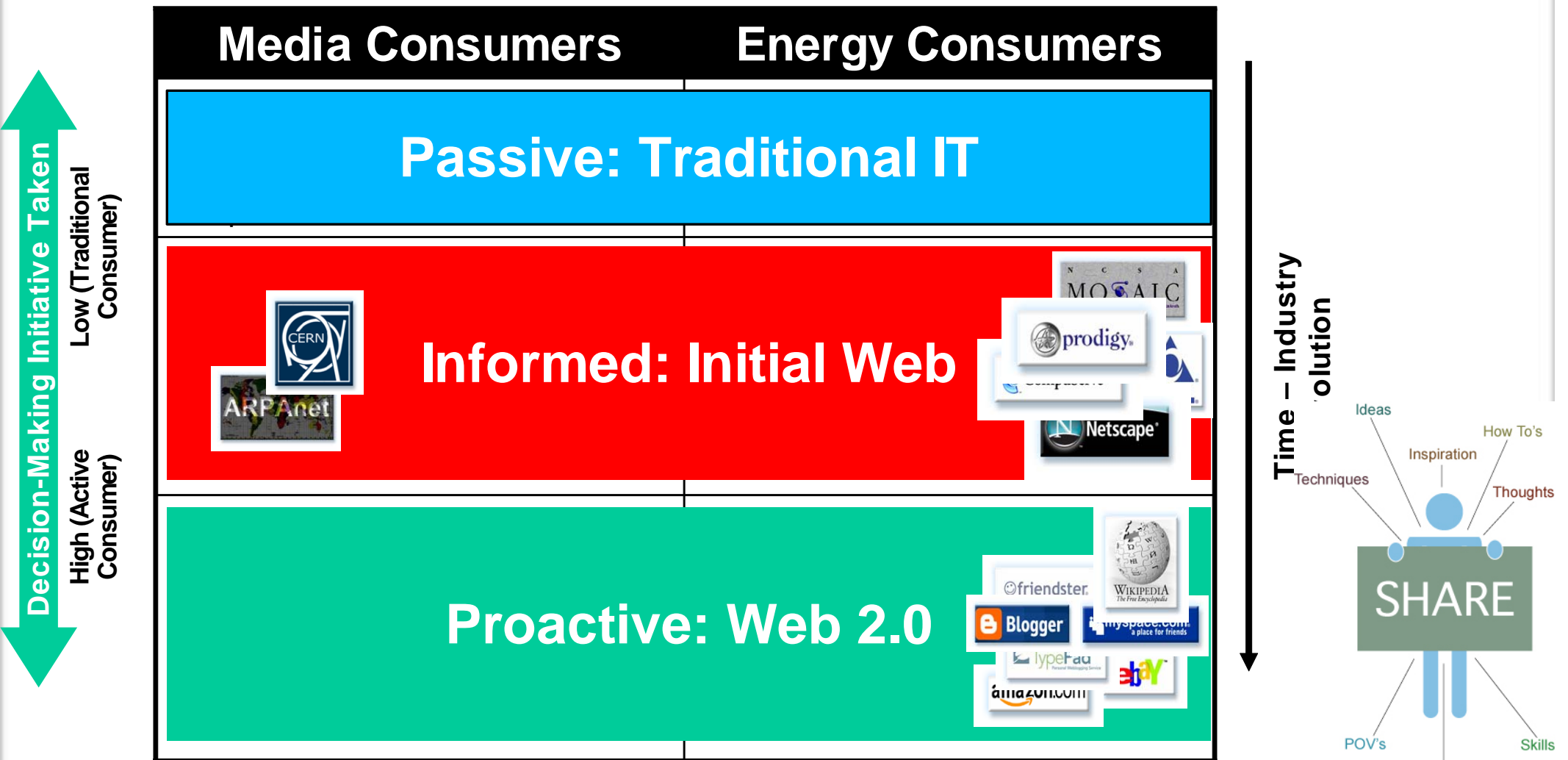
Social revolution meets Technology evolution

Why Web 2.0 is critical ?

Inside Enterprise

Outside Enterprise

Scope of Enterprise SOA

2 communities of interest circle of confidence

3 Collaborative intelligence

1 Value/risk optimization framework for opening enterprise data

Web 2.0 Platform A

App | App

Composition Services

Information Management Services

Infrastructure Services

Information flow

5 Hybrid model information-collaboration-transaction

4 In vivo development (Mash-up)

Web 2.0 Platform inisde Enterprise

Enterprise On-Premise/Legacy

App | App | App

Middleware

Enterprise firewall

Database

Web 2.0 Platform B

App | App

Composition Services

Information Management Services

Infrastructure Services

Service flow

6 Massive multi-tenancy

Scope of Web 2.0

Leveraging Corporate Information is key

Information as a Strategic Asset

Business Value

Adaptive Business Performance

Information as a Competitive Differentiator

Real-time Single View of the Truth

Information to Enable Innovation

Information in Context

Basic Information Interaction

Information Manage the Business

Focus on Data And Reporting

Data to Run the Business

Agenda

Maturity of Information Use

… to evolve from Business Automation to Business Optimization

IBM's Initiative to help companies establish their Information Agenda

Information Agenda Guides

Workbooks & Roadmap Templates

Open Standards Flexible Architecture

Information On Demand

IOD Workshops & Reference Architecture

Industry Specific Business Optimization Maps

Data Governance Best Practices & Workshops

Provides workbooks to help assess business value, dependencies and prioritization of projects

Conclusion:

The New World will Increasingly Rely on IT for Performance

- Telco operators have made transformed over years their networks in Global Information System, where each customer is a direct end user, and any device can be a terminal

- The preferred interface for bank customers is now Web-based or phone-based rather than a clerk in a branch office

- Aircraft manufacturers are considering that a key value proposition of their products is its capacity to behave as e node in the Information System of the Airlines, to optimize fleet management processes

- New business models are considered in the Automotive industry such as evolving from a car ownership model to an energy subscription model

- ….

Conclusion:
The New World will Increasingly Rely on IT for Performance

it's a matter of

Architecture