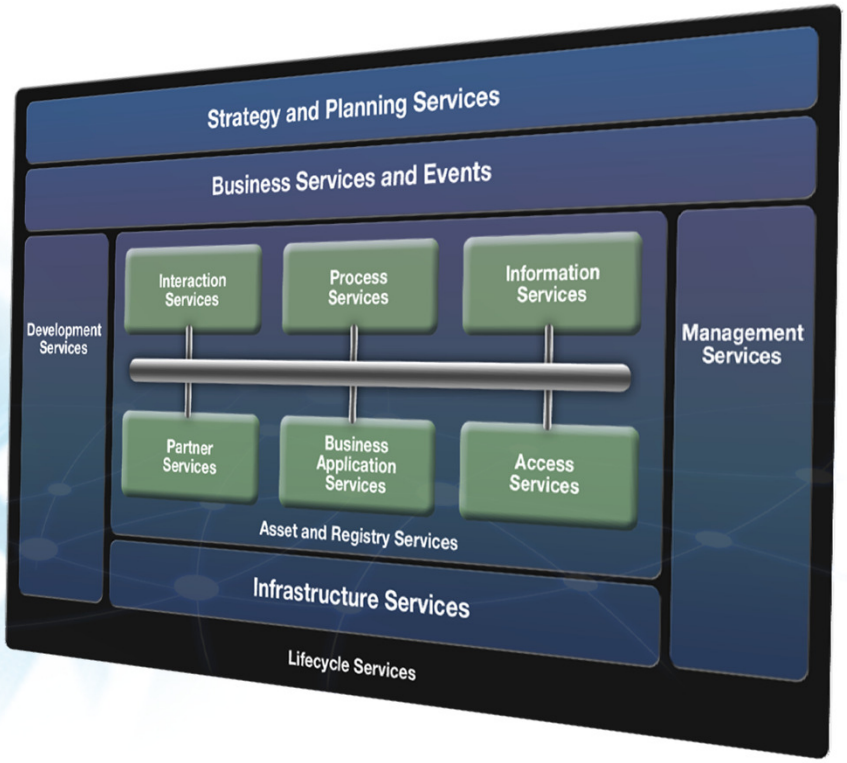
Simply Good Design:
2013 IBM SOA Architect Summit

SOA on Your Terms

And Our Expertise

“SOA is Simply Good Design”

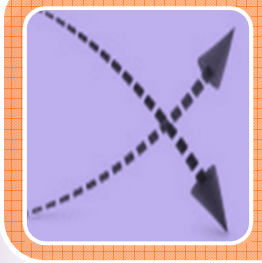
Claus T. Jensen
STSM & Chief Architect
SOA Foundation



The Mega Trends

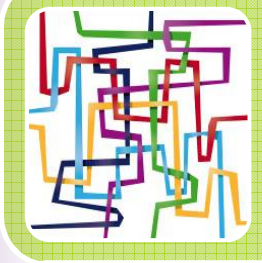
Technology Drivers

Mobile - Social – Cloud – Big Data / Analytics



Growing Scale / Lower Barrier of Entry

- Users
- Transactions
- Computations
- Data



Increasing Complexity / Yet More Consumable

- Data and data management
- Workloads
- Discovering insights
- Interaction

Fast Pace

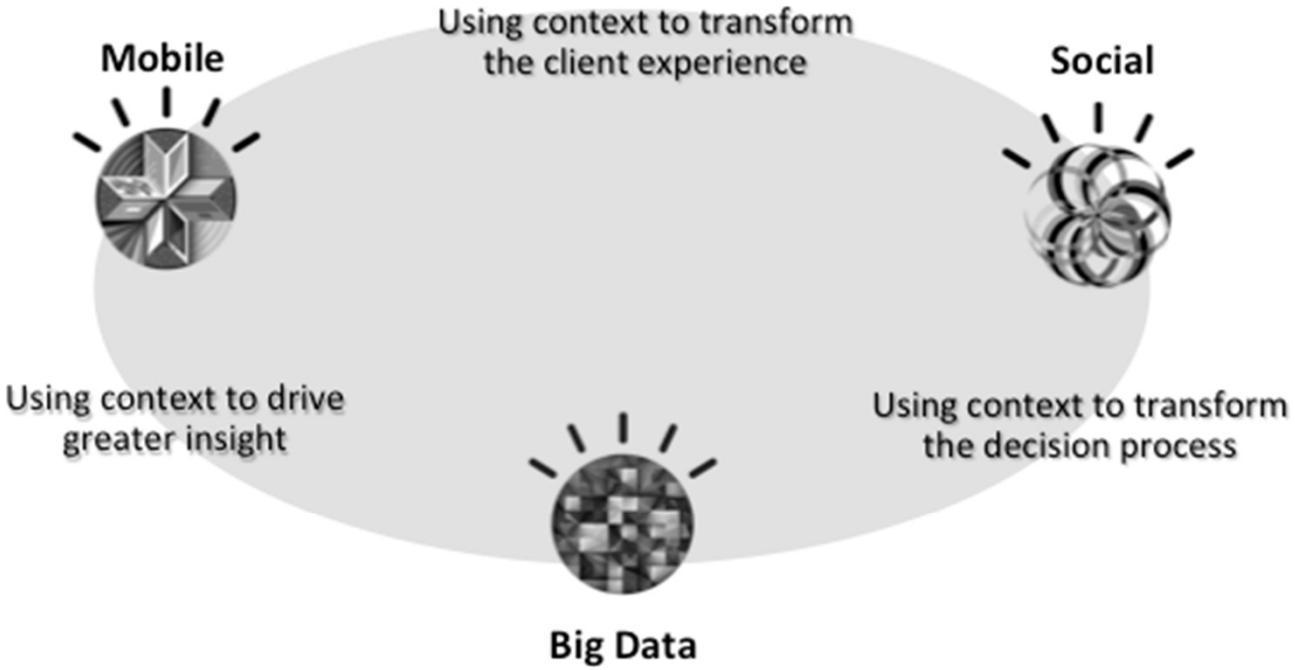
- Evolving business eco-system
- Dynamic scalability
- Minimize time to value
- Keeping pace with technology and globalization

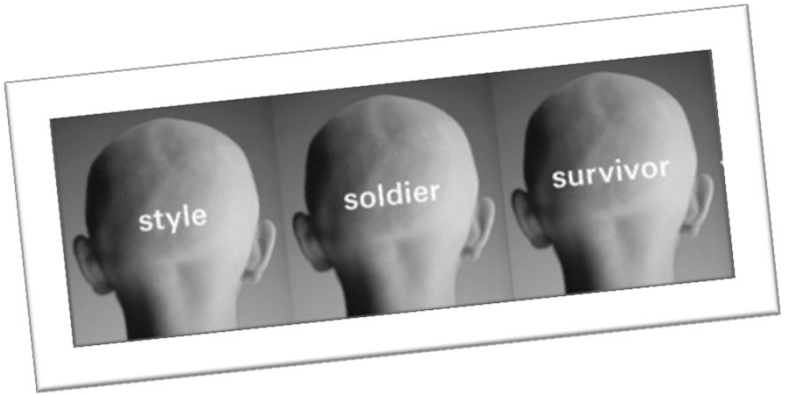
Contextual Overload

- Proliferation of sensors and devices
- Demand for personalization
- Just in time

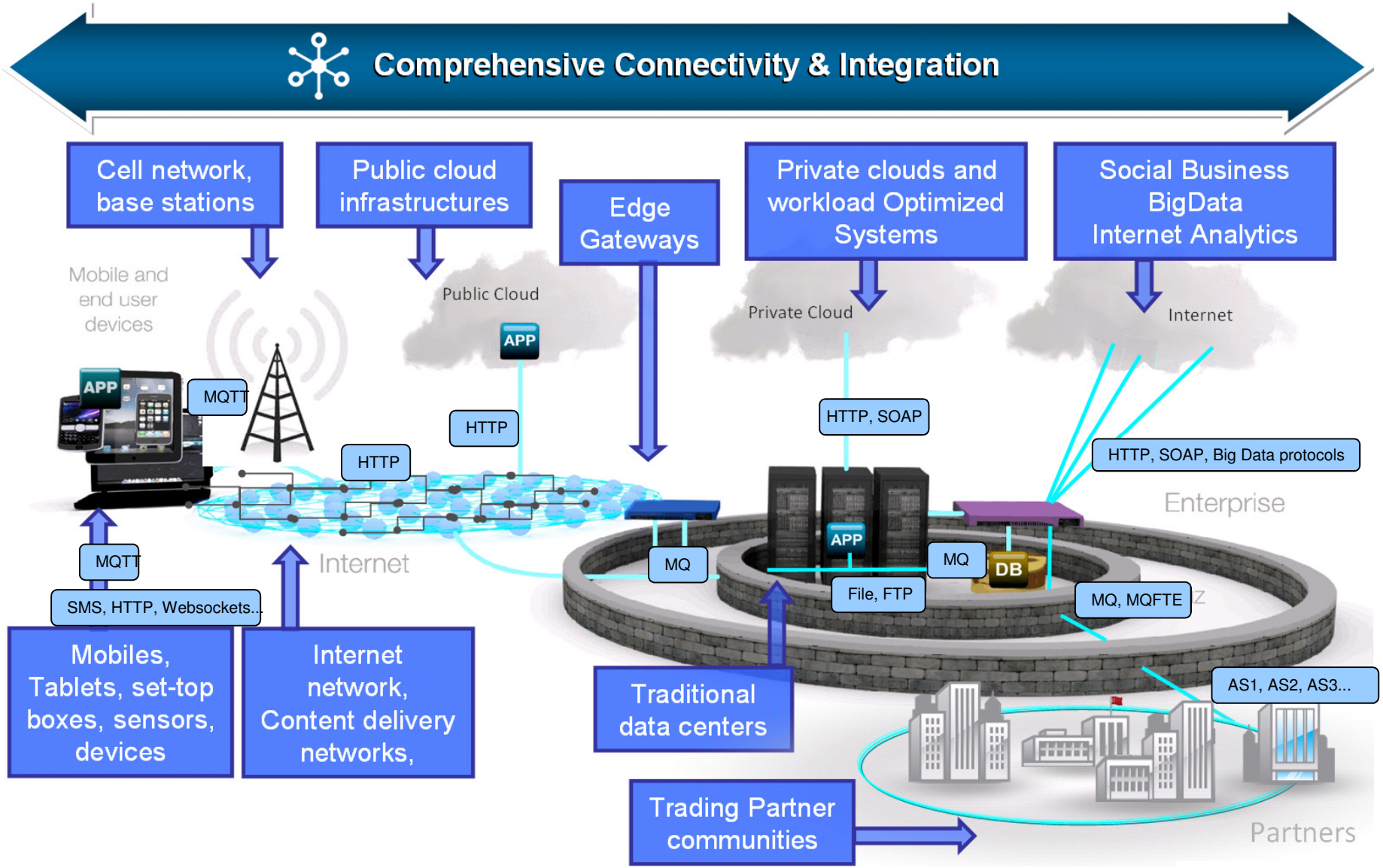
Change, complexity and uncertainty have become opportunities for businesses to innovate, transform and grow in new ways

The mega trends drive more engaging applications and processes

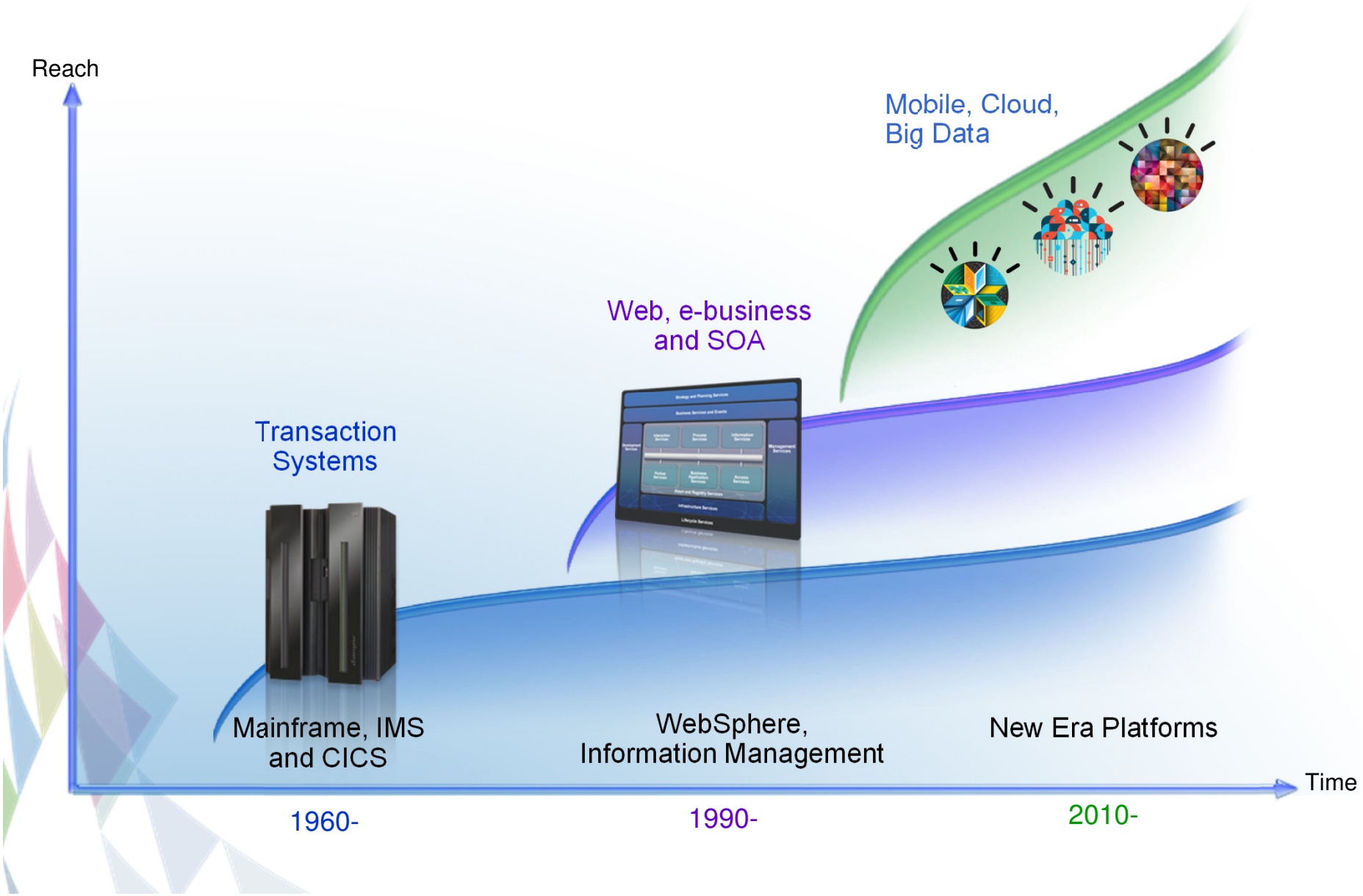




“Engaging the World”…



…requires New Era Platforms, with SOA principles at the core



Great…but what is SOA?

A Service

A **repeatable business task** – e.g., check customer credit; open new account

Service Orientation

A way of thinking about your **business through linked services** and the outcomes that they bring

Service Oriented Architecture (SOA)

An business-centric **architectural approach** based on service oriented principles

Some typical objections

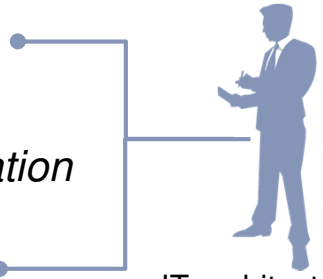
- “I don’t believe in web services”…. SOA is not about web services, SOA is about connecting the enterprise internally as well as externally
- “The security issues are not solved”…. Services have the same need for security as transactions, no more and no less
- “I can’t sell SOA to the Business”…. And you shouldn’t, the value is what the good design principles of SOA enables you to do, look for the projects that deliver tangible business value, then apply SOA to the way the solution is built
- “SOA is not for me”…. Leading enterprises are already leveraging SOA for business differentiation
- “SOA is too difficult for our organization to adopt”…. IBM has successfully aided clients in adopting SOA since 2005, in the small or in the large

“The 360 degree view”

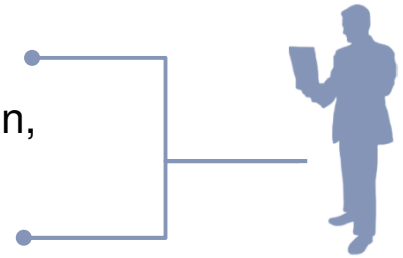
SOA is different things to different people:

- a **set of services** that a business wants to expose to their customers and partners, or other portions of the organization
- an **architectural style** which requires a service provider, requestor and a service description
- a **set of architectural principles, patterns and criteria** which address characteristics such as *modularity, encapsulation, loose coupling, separation of concerns, reuse, composability*
- a **programming model** complete with standards, tools and technologies such as Web Services
- a **middleware solution** optimized for service assembly, orchestration, monitoring, an management

Business executive, analyst



IT architect



Software and system developer

SOA mediates between consumers and providers (ESB pattern)

Partners

APIs

Cloud Services

Suppliers

Customers

Apps

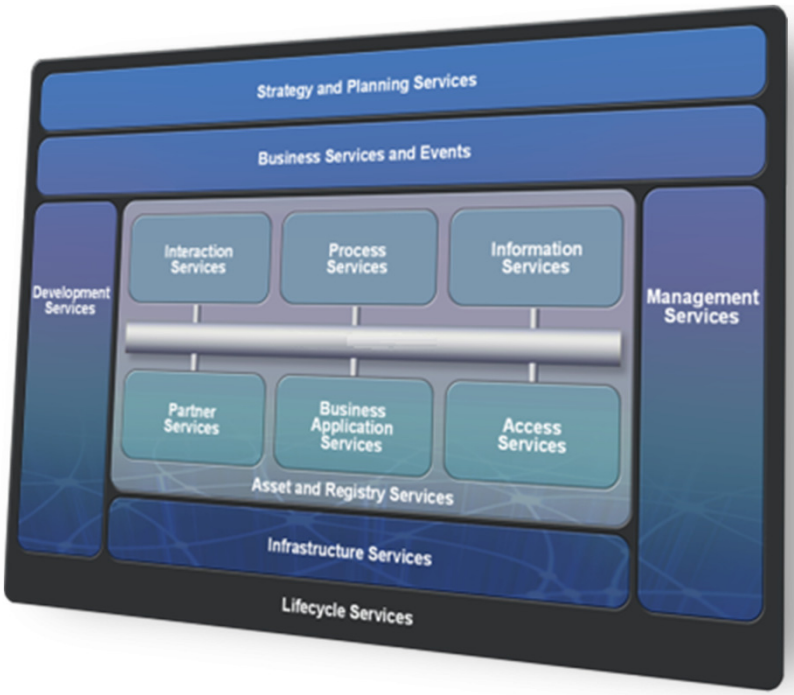
Patterns

Developers

- 2005: Connecting and mediating in an IT transactional context
- 2010: Connecting and mediating e2e processes
- 2015: Connecting and mediating people, devices, Cloud, ….

“Simply good design” principles

- Service orientation at the core
- Process integrity at internet scale
- Integration with enterprise capabilities and back-end systems
- Based on industry standards
- Leveraging and extending open source technologies
- Providing the platform for a growing ecosystem



“The beauty of SOA…is that we can change our components as needed, seamlessly…it might be a business process or a whole new business model.”

-Phil Mumford, CEO, Queensland Motorways

“Make SOA a prerequisite architecture. It's time to breathe new life into your SOA initiative, this time by focusing on architecture instead of technology.”

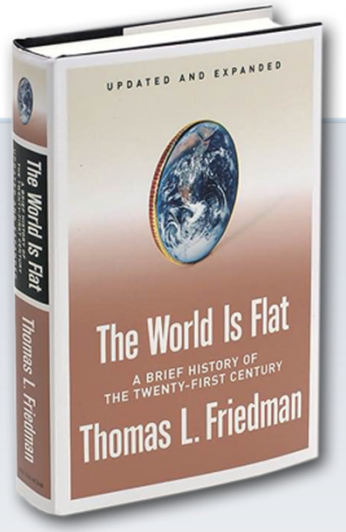
-Gartner Application and Integration Platforms Key Initiative Overview July 22, 2011

Agenda

- Changing the business
- Architecting change
- Managing change
- What is on the horizon?

Innovation Impacts Business Models

Is Your Architecture Ready?



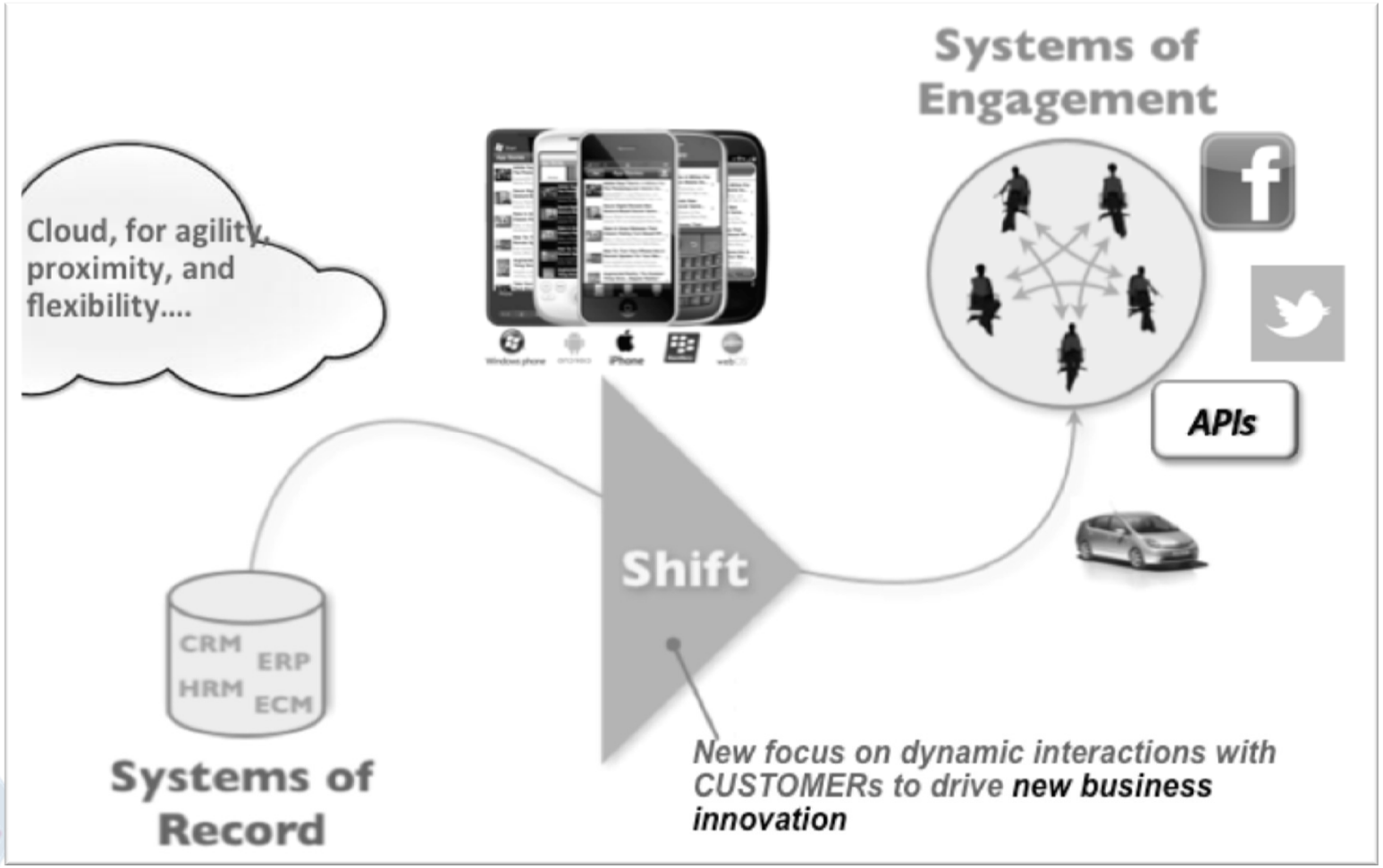
“ On a flat earth, the most important attribute is creative imagination – the ability to be the first to figure out how all **these enabling tools can be put together in new and exciting ways to create products, communities, opportunities, and profits**.”

Thomas Friedman, The World is Flat

“ Service orientation does not begin with technology; **it begins with the mind-set of thinking about your business and the world around you** in terms of functional components.”

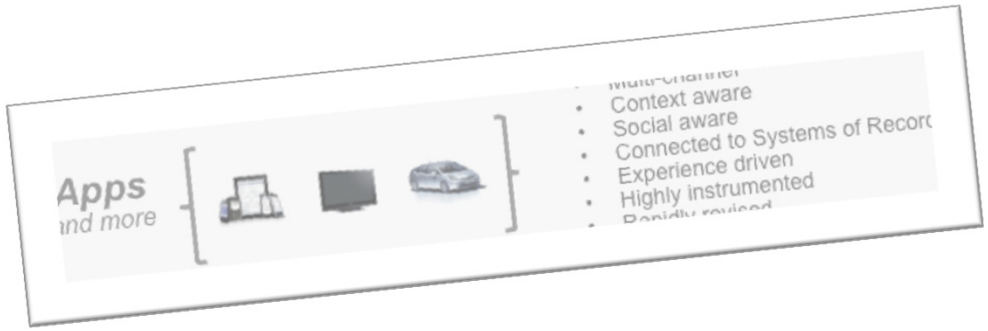
Steve Mills, *SVP and Group Executive, IBM Software Group*
The Future of Business *June 2007*

Mobile, cloud, social, analytics yield - ***Systems of Interaction***



* Systems of Interaction encompasses both SoR and SoE

Interaction driving business process innovation



Detect — opportunities to engage customers (and employees)

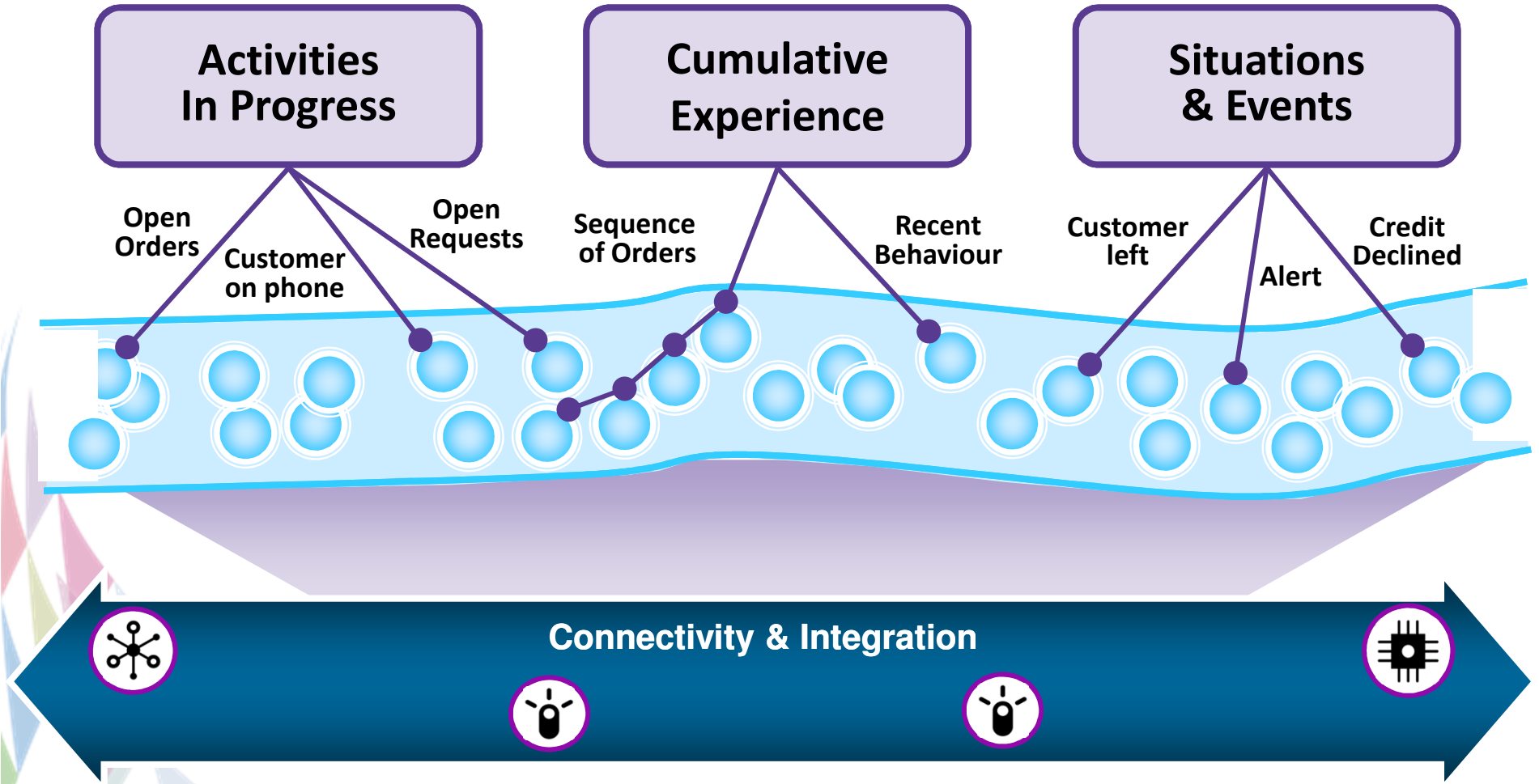
Enrich — interaction context with historical data and trends

Perceive — “in-the-now” dynamic interaction context from location, time, social media and other events

Act — on the insight gained through enrichment and perception to enable positive business outcomes

Tap into data already flowing through the business

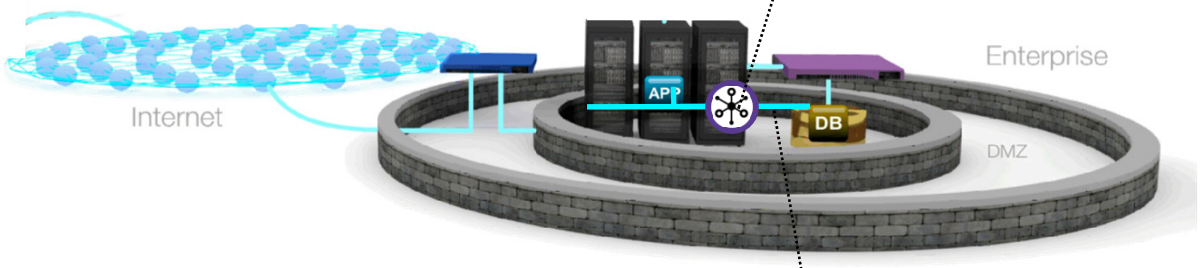
Applying intelligence to flow of real-time data to enable insight



~~Integration~~ Interaction and the Changing World

IBM Integration Bus (Message Broker)

Enterprise Service Bus integrates apps/data/services and partners while controlling and optimizing transactions



Messaging backbone in the data center

MQ

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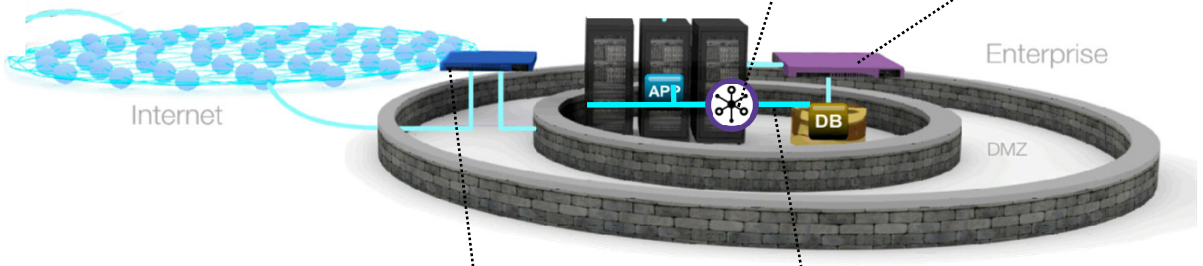
WXS, DataPower XC10

Cache grids improve scale and performance of applications and services



Secure appliances enable controlled access to Enterprise resources

DataPower XG45

Messaging backbone in the data center

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Cast Iron, DataPower XH40

Connectivity to applications in the public cloud enables Enterprises to leverage a new cloud economy

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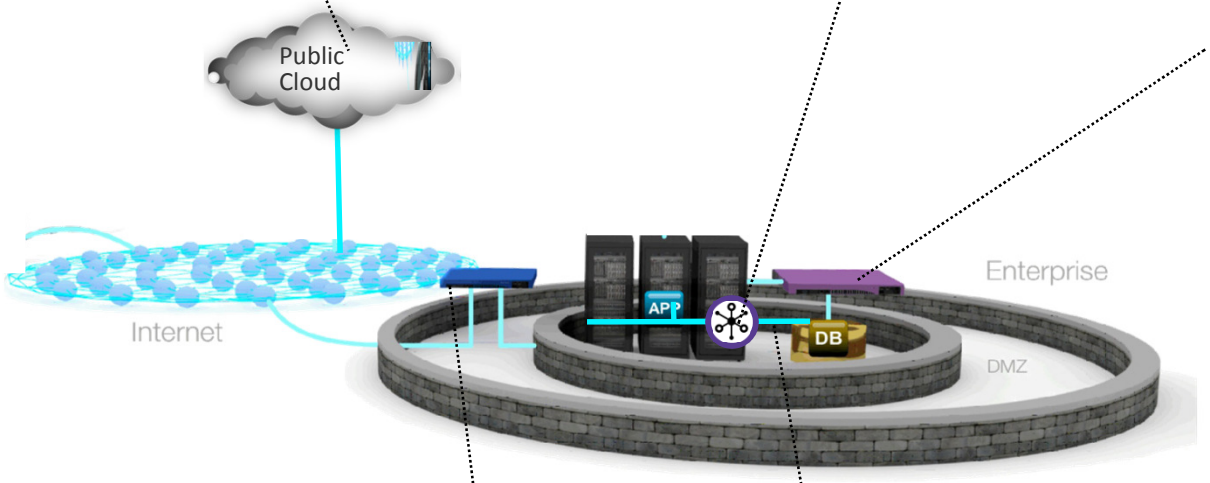

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IWD, PureApp System

Enterprises looking to achieve “more with less” by better managing IT resources as collectives

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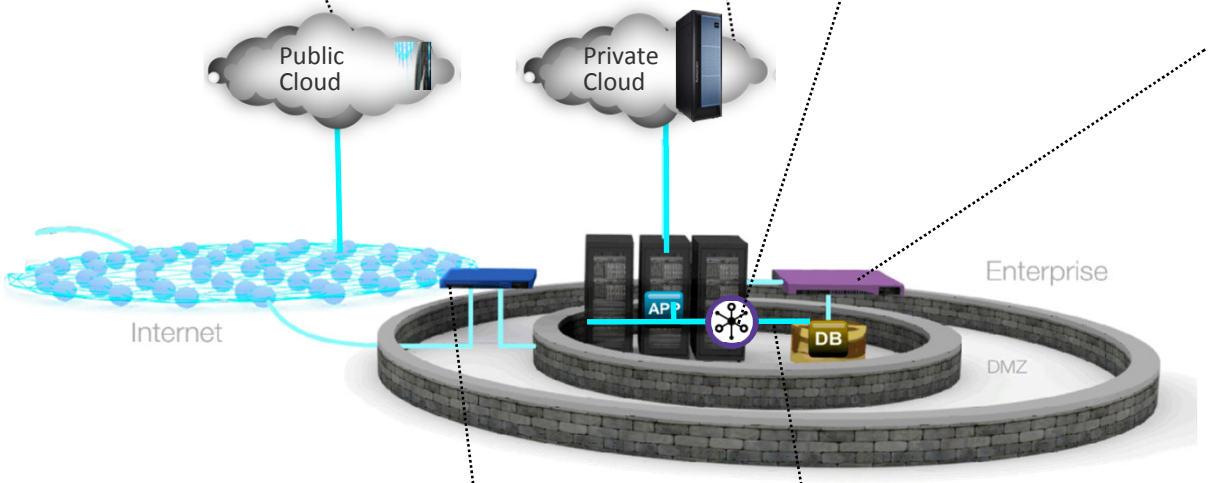

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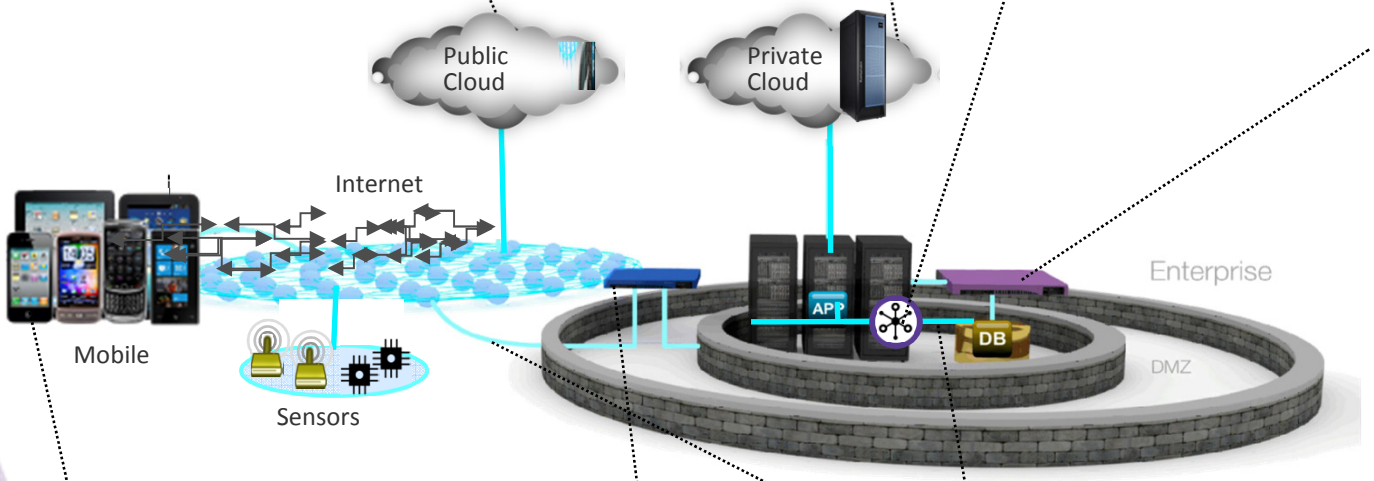

Scale and ubiquity of mobile and sensor-rich environments has changed requirements of the enterprise

IBM Mobile Foundation (Worklight)

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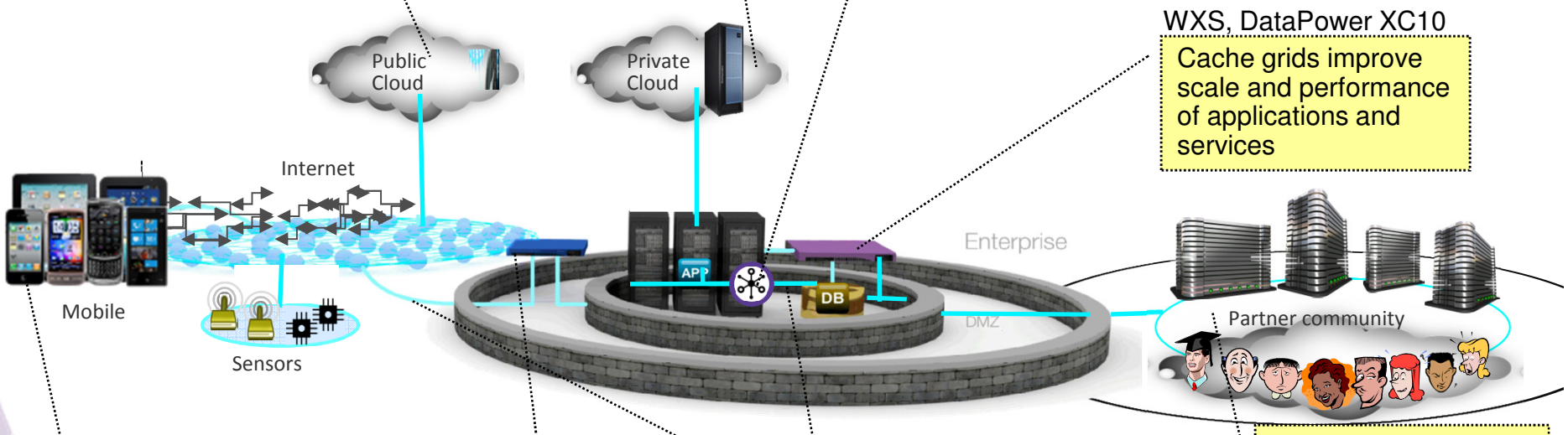

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B2B partners opened channels and collaboration while a new genre "App Developer partner" is emerging

Sterling Commerce
DataPower XB62
Cast Iron Live

Agenda

- Changing the business
- Architecting change
- Managing change
- What is on the horizon?

Finding the proper balance

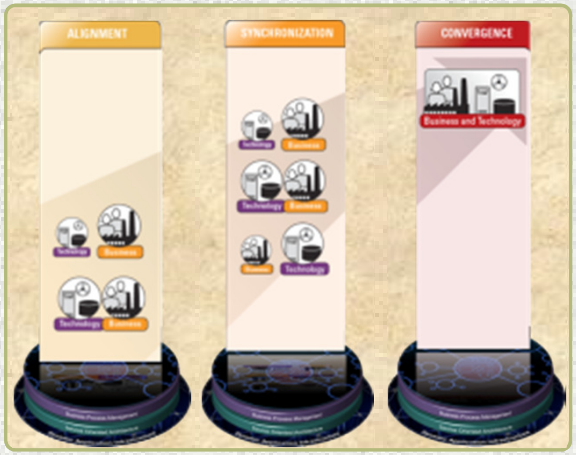
Move beyond alignment and synchronization to the convergence of business & IT

The Smart Enterprise

- *Transition from focusing only on efficiency to holistically balancing effectiveness and efficiency*
- *Evolve from an IT solution focus to an enterprise value perspective*

Business Engineering

- *The science of business transformation*
- *Digitize Business Engineering*
- *Overcome the communication chasm between business and IT*



Operational Optimization

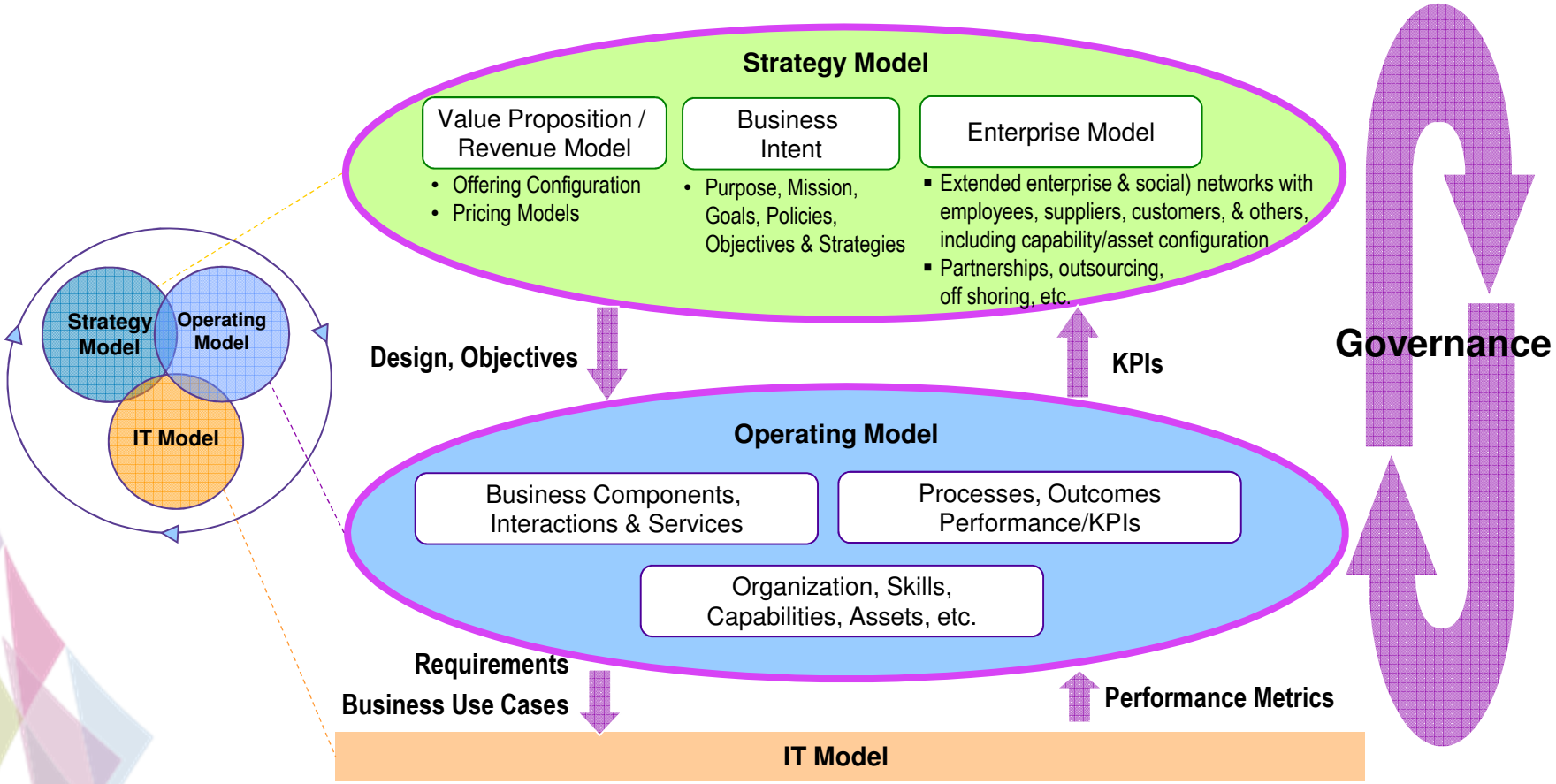
- *Continuous operational optimization (business processes as well as business services)*
- *Rooted in enterprise models and analytics*

Enabled By SOA & BPM

Build on the business/IT alignment and robust architecture provided by SOA and BPM together

TEAM 1

Every company has a business model and the question is, does it help close the gap between business challenges & capabilities?



Actionable or not?

- To be actionable, architecture (and requirements) must be
  - Contextual
    - Purpose, motivation, priority, scope, time horizon etc.
  - Collaborative
    - Available to and accessible by all stakeholders to get participation and commitment
    - … often even collaboratively evolved
  - Connected
    - Traceably linked across purposes, domains etc.
    - … including appropriate levels of change and configuration management
  - Consumable
    - Can be understood from (different) stakeholder perspectives and viewpoints as required for their understanding and buy-in

Smart Process Design is more than BPMN 2.0

Events

Detect changing business situations by capturing and correlating events from multiple sources

Rules

Adapt and respond dynamically by automating decisions

Analytics

Solve complex business problems and predict outcomes for strategic decisions and actions

Content

Seamlessly integrating active content with automated business activities

Collaboration

Improve business performance by enabling your internal and external business network to work together

Monitoring

Identify performance gaps and improvement opportunities by monitoring business activities in real-time

Information

Collect new information required to take advantage of new business opportunities

Process

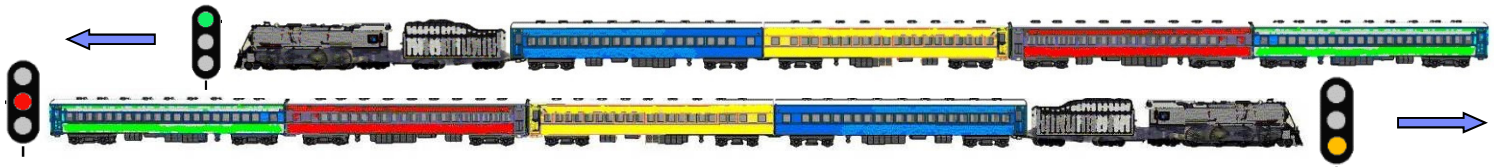
Dynamically modify business processes as business needs change

Different Kinds of Interaction (and Logic) in the Enterprise

Example: Modularity from BPMN categories

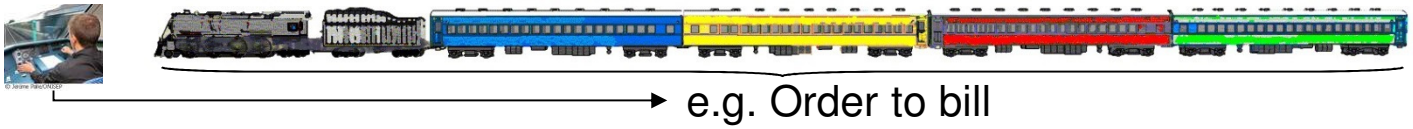
There are three basic types of sub-models within an end-to-end BPMN model:

1. Collaboration Processes: exchanges between 2 independent business entities.



e.g. Supplier/Partner Interactions

2. Abstract (public) processes: End to end view from a participant point of view.



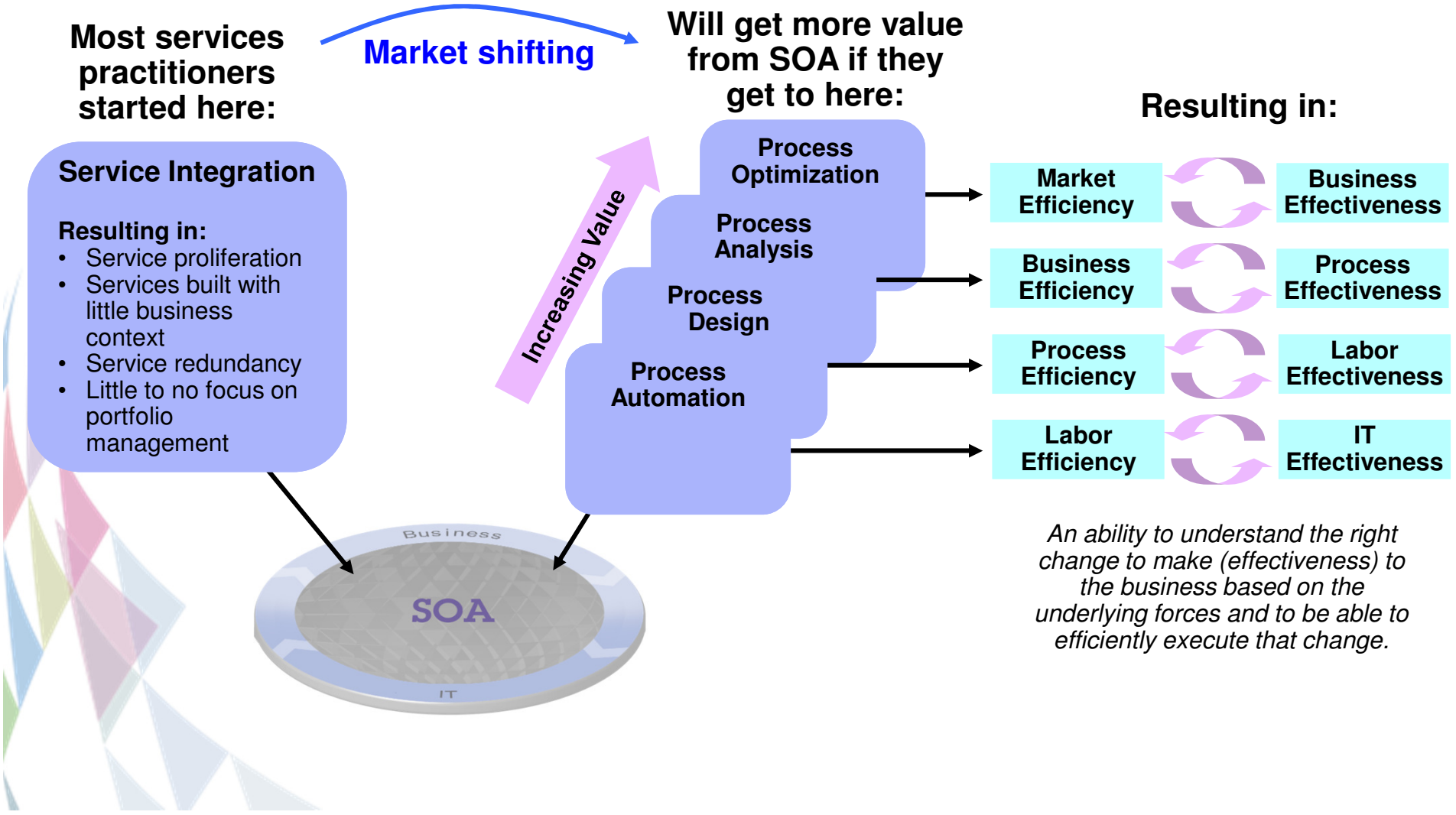
e.g. Order to bill

3. Private (internal) processes: single business owner and a main core entity

e.g. Customer Service | e.g. Manufacturing | e.g. Supply Chain | e.g. Accounting | e.g. Billing

Generally: Proper modularization of coherent (with purpose) building blocks will lead to loose(r) coupling and high(er) cohesion (tolerance of change)

SOA and BPM “value chain”



Smarter food tracking => New business outcomes

Remember this chart? It impacts the way we collaborate!

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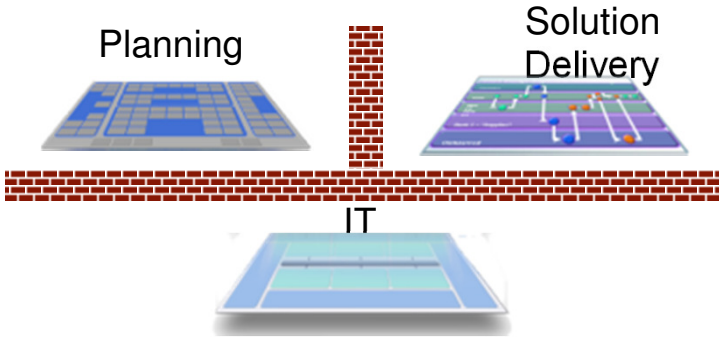
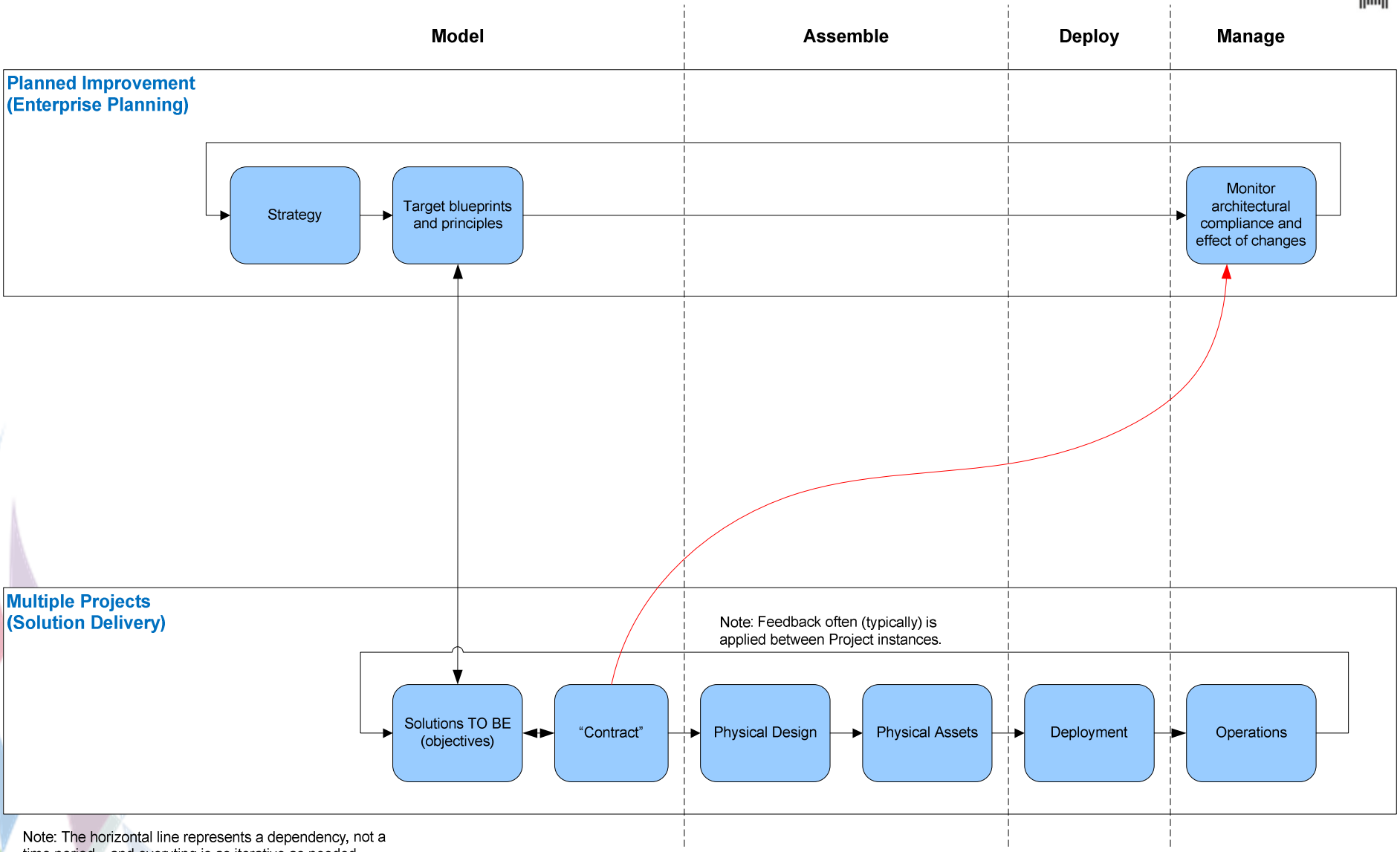
“The great divide” between business and IT – a symptom



Business		IT
“I can’t tell if my day-to-day operations support my business strategy”	**Traceability**	“I can’t get business people to articulate requirements I can execute”
“It takes me too long to get the right information at the right time to optimize my decision making”	**Visibility**	“How do I demonstrate the value of my IT project to the business?”
“It takes too long, and costs too much to respond to changes in my market”	**Flexibility**	“By the time I deliver a solution, the business requirements have changed all over again” “Every business unit thinks their requirements are unique”

#1 Source of change – The Urban Planner tribe

The great divide between planners and do'ers



Note: The horizontal line represents a dependency, not a time period – and everyting is as iterative as needed.

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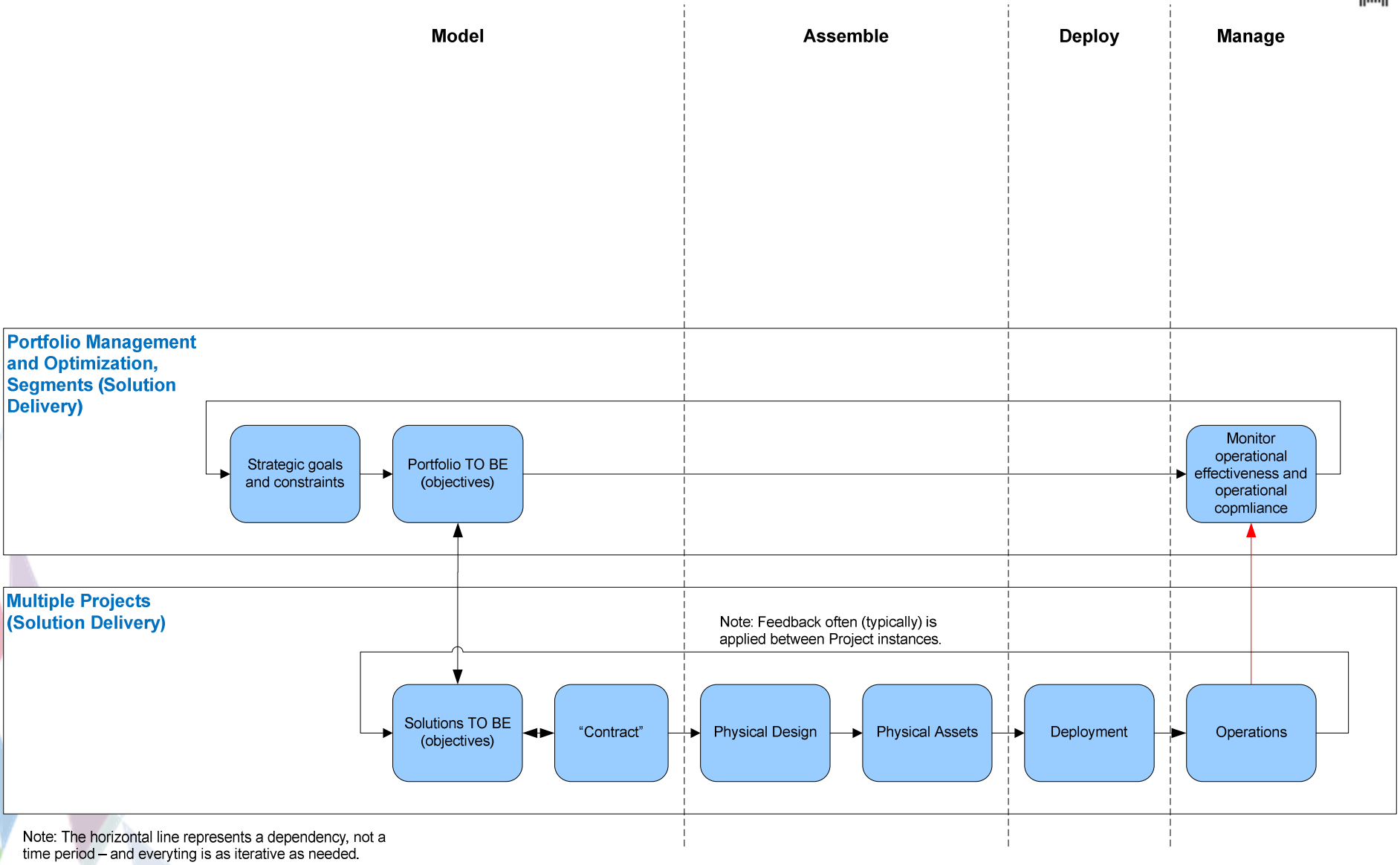
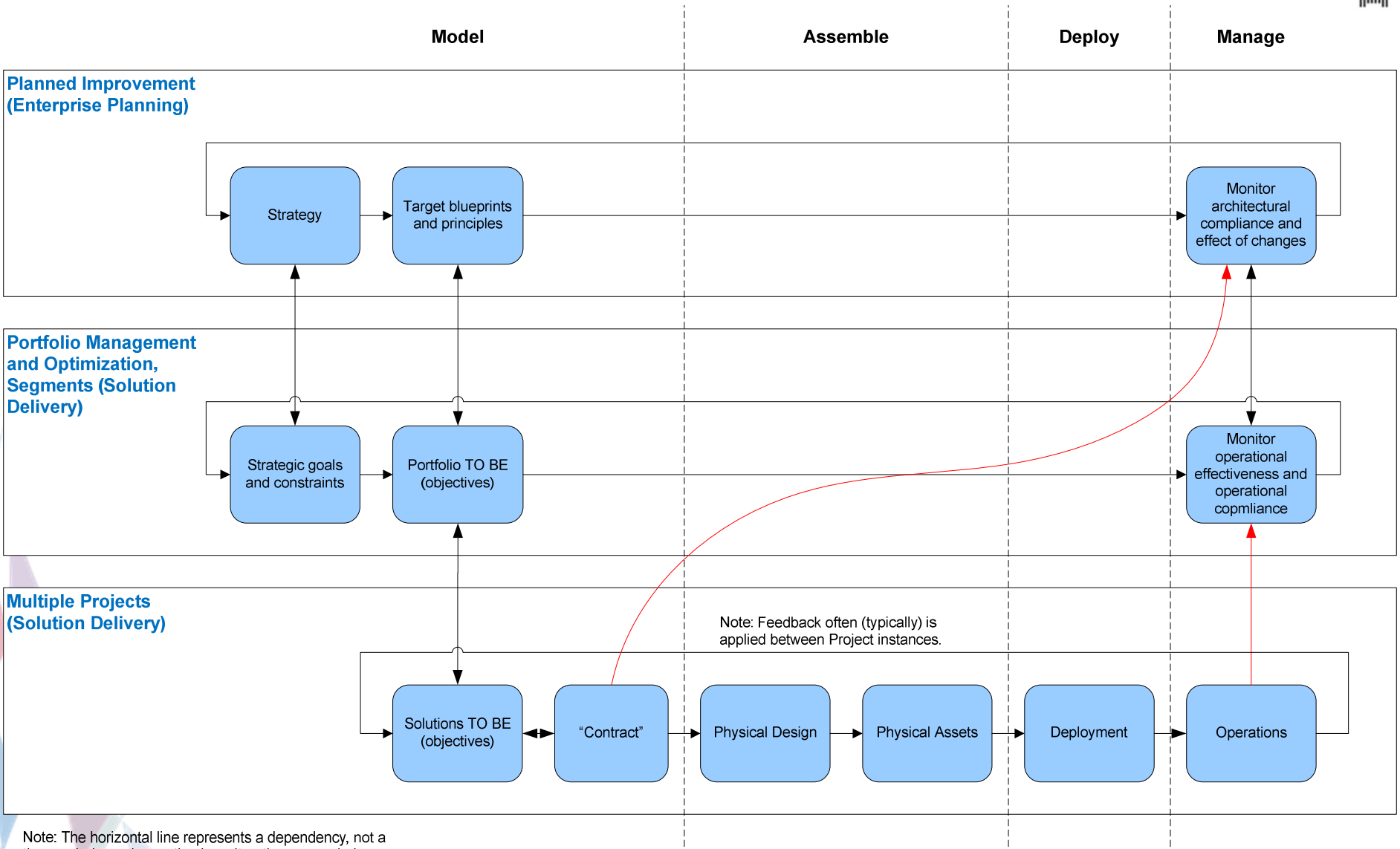


The great divide between planners and do'ers - eliminated



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Harnessing change – separate enterprise planning concerns from solution delivery concerns

Enterprise Planning

Understand strategy and motivation

Analyze and prioritize

Enterprise Architecture

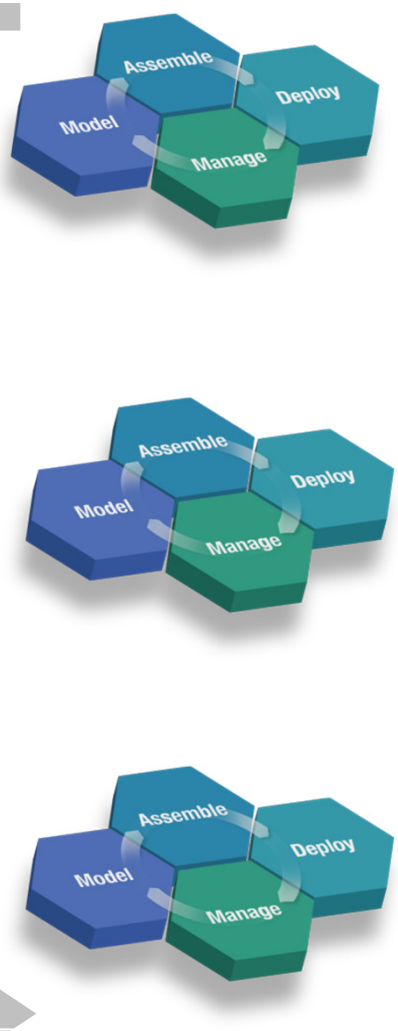
= "the city plan"

Transition Planning | Architecture Governance

Report and adjust

Are we on track?

Manage transformation

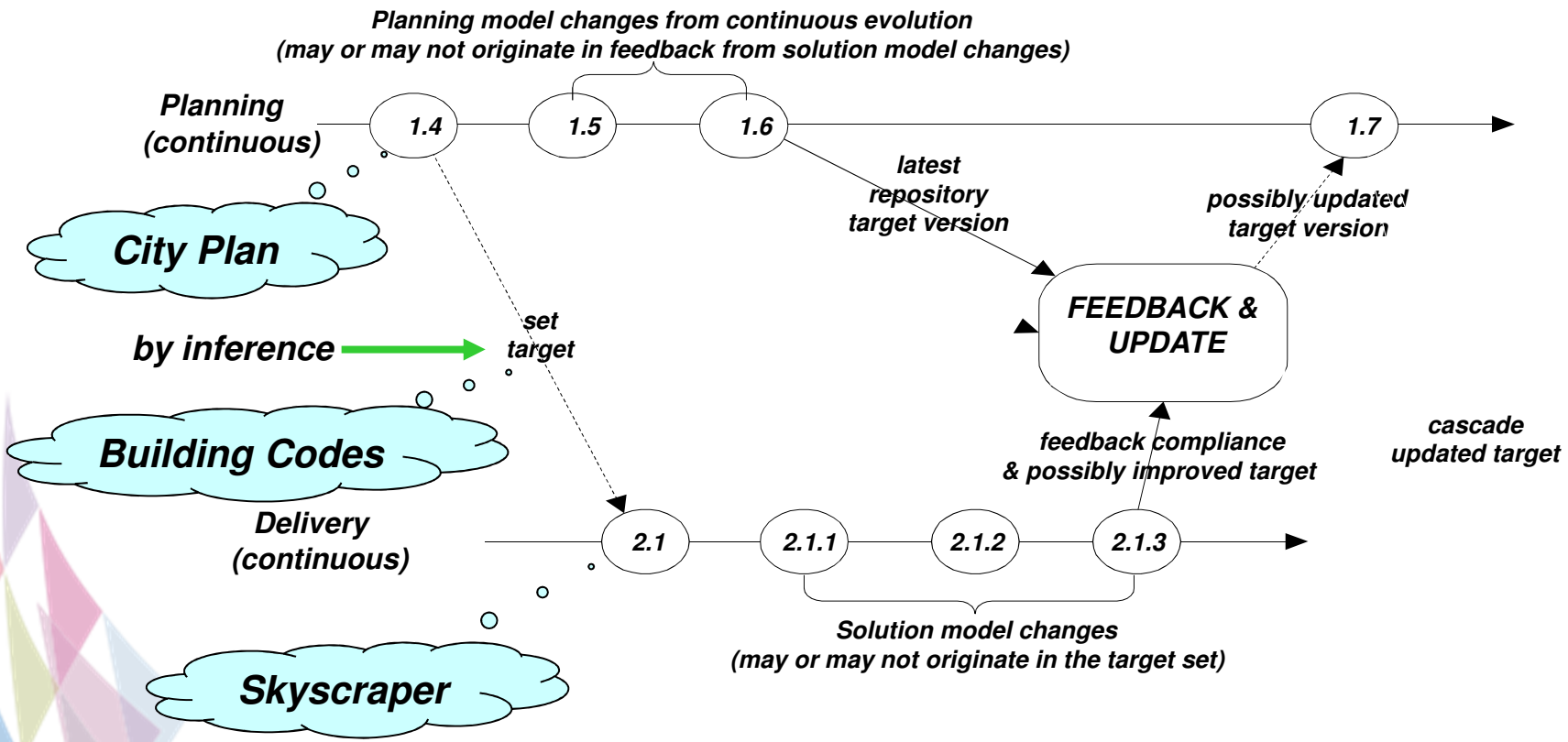


Targets to meet

Solution Delivery

Target & Feedback – Architecture Governance Pattern

"Stop copying, start linking"



Agenda

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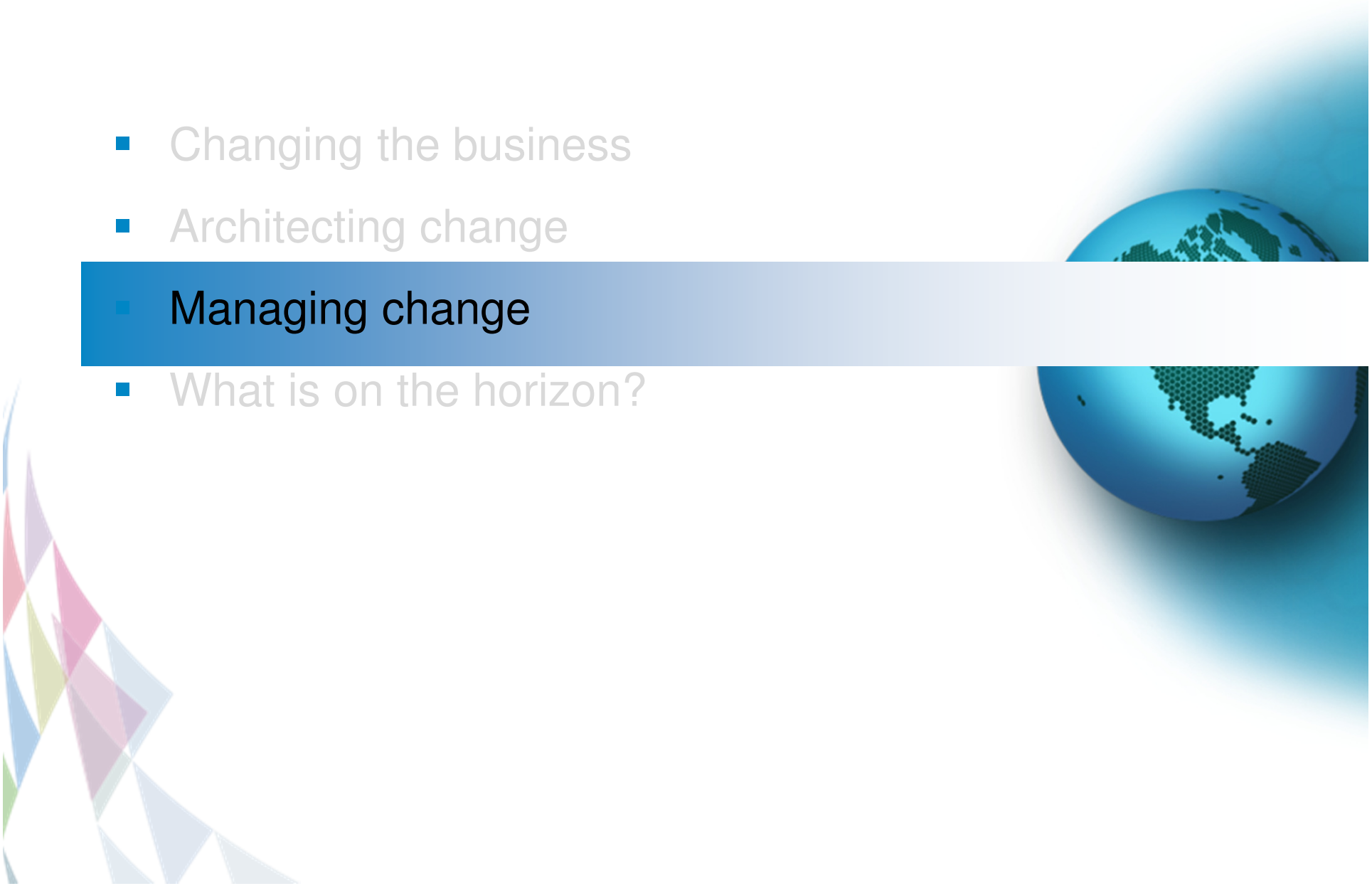
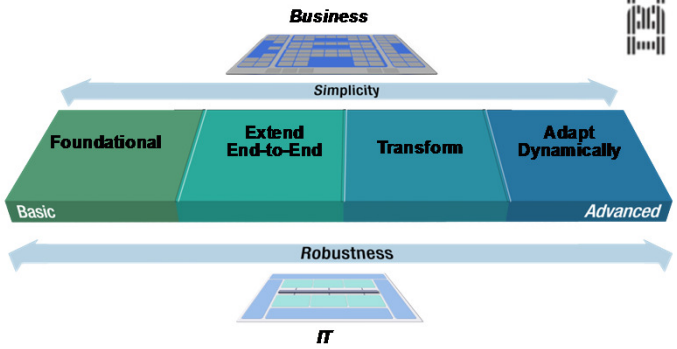
- Architecting change
- **Managing change**
- What is on the horizon?



The road towards strategic change

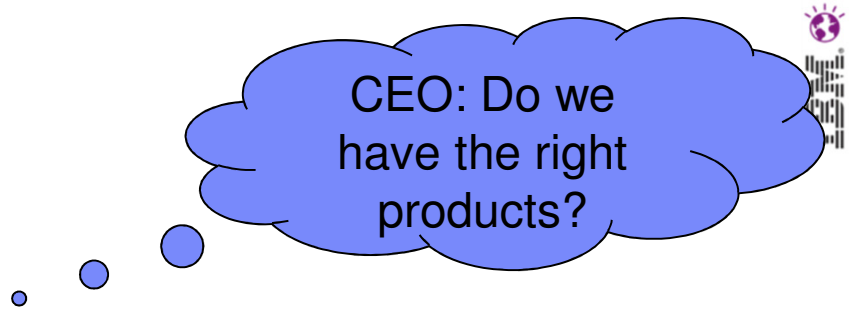


- Have a vision
  - In enough detail
  - Sometimes you just **know** what needs to be changed
- Understand the existing portfolio of solutions and how the vision impacts it
  - In enough detail and scope for what you are trying to do right now
  - Remember to not mess up ongoing business and IT operations
- Define scope and organization of a change project
  - Just enough to implement the change
  - Understand how this project relates to everything else that goes on

- Different levels of maturity lead to different ways of doing these three things
  - Yet they are always present in one form or another, explicitly or implicitly
  - The key question is how to get to the **science** of executing strategic change!?

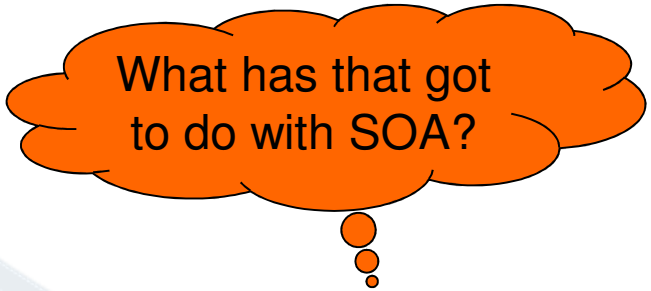
Portfolio Management

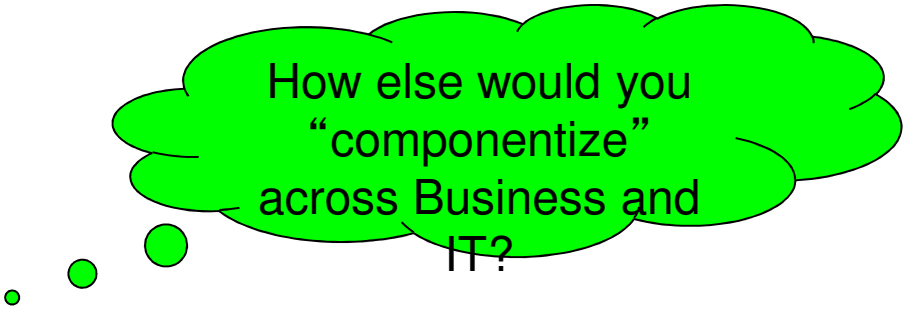
Managing change at the enterprise level



- A portfolio is a collection of "stuff" of the same kind or type
  - Somebody owns the "stuff"
  - The "stuff" represents a consistent subset of the system under consideration
    - Typically representing a certain "tribe view" of the system
  - The purpose of portfolio management is to optimize the collection of "stuff" according to criteria specific
    - Typically "tribe specific" criteria
    - Requires governance and collaboration

- The scope may be different for different portfolios
  - We can use the term "enterprise" to generically denote the totality of the domain/system for which we are considering portfolio management
  - Examples of "enterprises" are a company, a LoB, a department, an IT system etc.



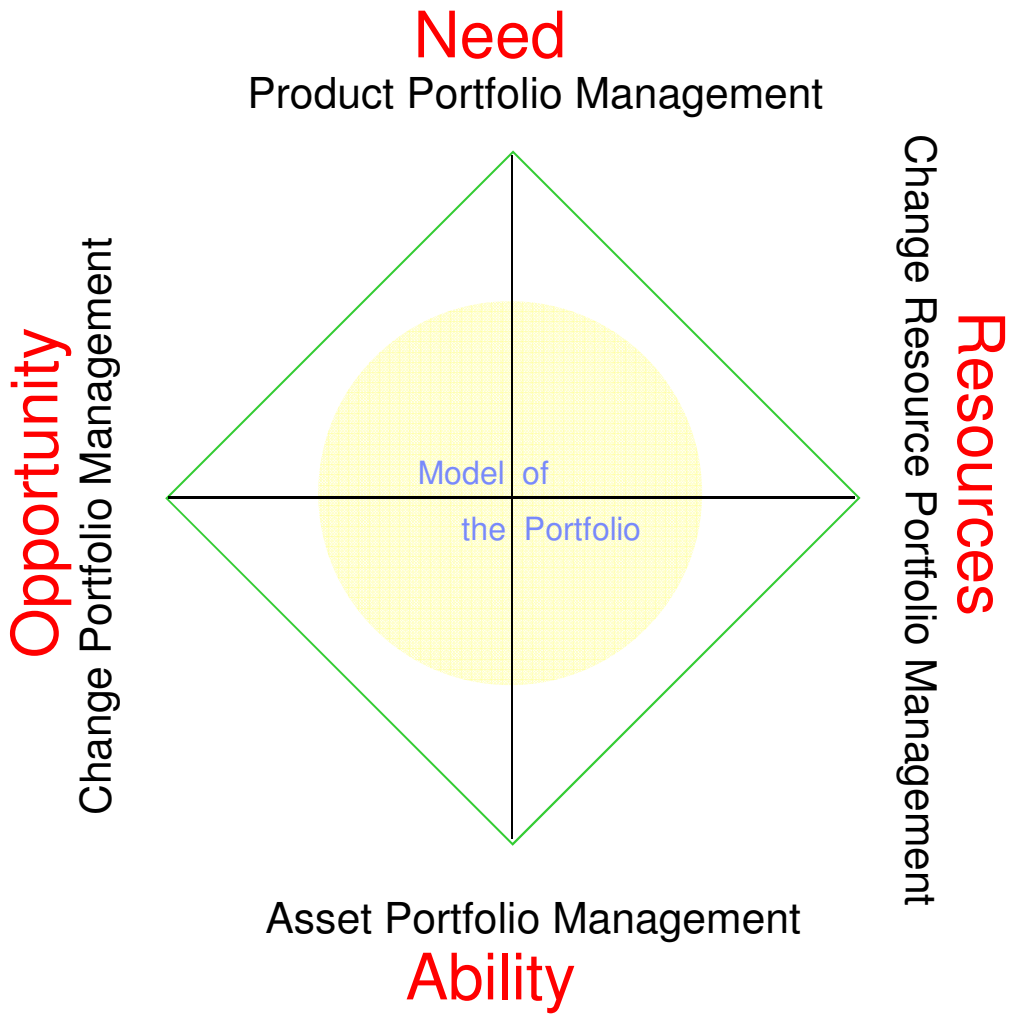


Four generic kinds of portfolio management

- Product portfolio management: Managing the set of products of the enterprise
  - Typically economically based KPI's
- Change portfolio management: Managing the set of potential and ongoing changes of the enterprise
  - Typically criteria for compliance and net impact of change
- Change Resource portfolio management: Managing the set resources available for changes
  - Typically criteria for resource allocation and metering
- Asset portfolio management
  - Typically criteria for consistency, configuration management (CMMI style) and reuse

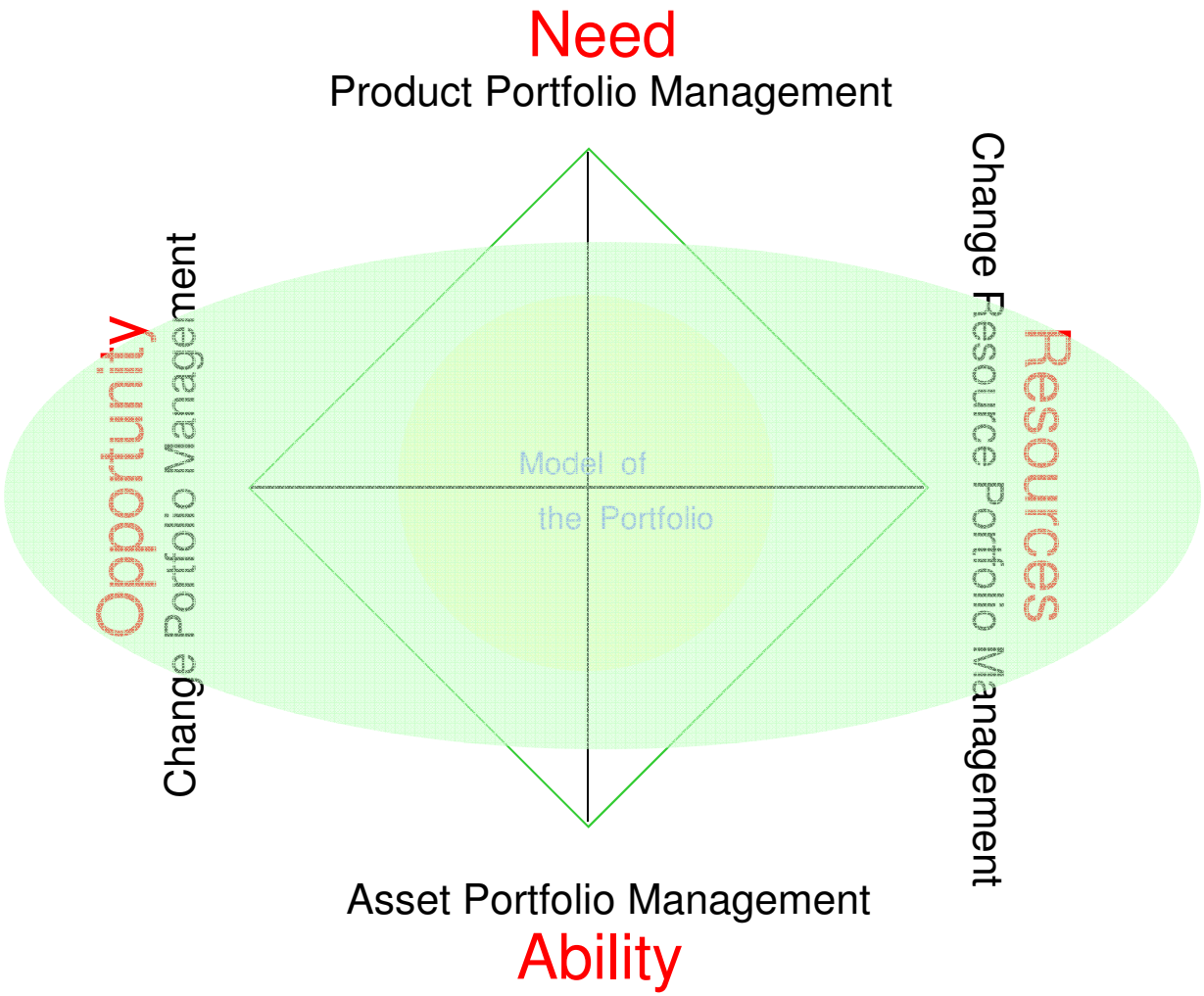
- It is critical to ensure that these four basic kinds of portfolio management act in a synergistic fashion (making 2+2=5 and not 2+2=3 with local sub-optimization)

Four related portfolio views on the enterprise



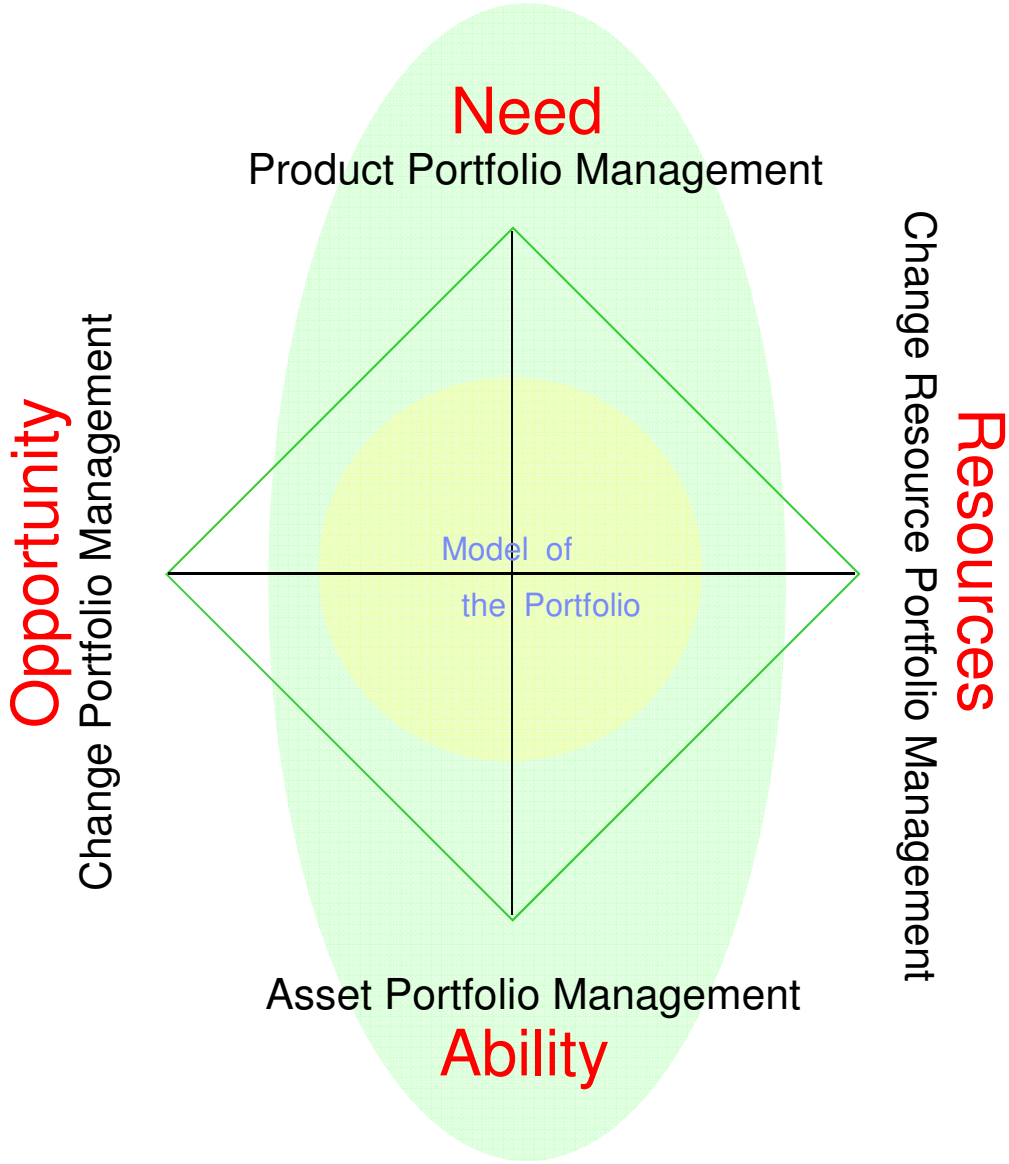
“Project management”

Governing opportunities: optimizing resource utilization



Configuration Management

Governing assets: optimizing changes to product composition



Agenda

- Changing the business
- Architecting change
- Managing change
- What is on the horizon?

Keys: Planned changes – standards & principles – governance & collaboration

Strengths

- Focused SOA resources (SOA CoE)
- Consistent SOA approach with well established practices
- Established relationships and collaboration between business and IT
- Defined enterprise wide asset catalogue structure
- Established enterprise glossary
- Holistic Governance

Weaknesses

- Tension between functional decomposition model and SOA environment
- Static testing procedures not yet established
- Consistent optimization on portfolio level not present
- Lack of support for Enterprise Planning
- Tool support for collaboration patterns not explicitly considered
- Lack of defined domain topology
- Enterprise information model not yet established

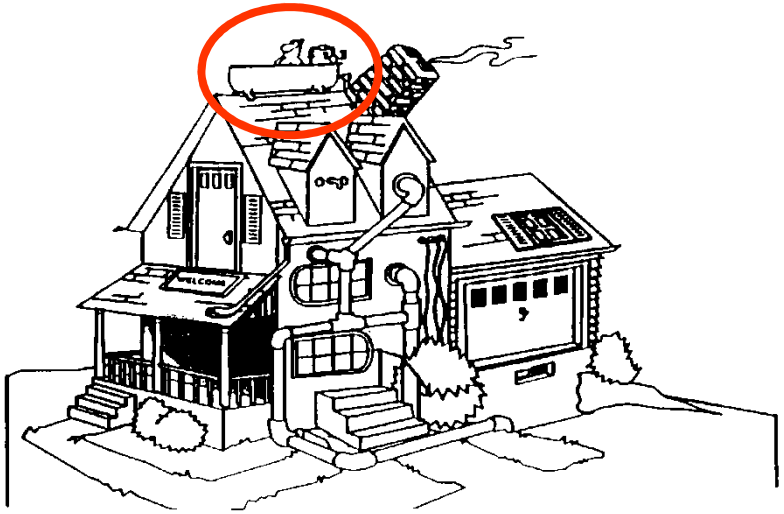
Opportunities

- Take SOA into the Business Architecture
- More clearly defined governance and feedback loops
- Actively delineate Enterprise Planning from solution oriented architecture
- More firmly establish portfolio level responsibilities
- Enhance project level, cross business and IT, Solution Architect role
- Leverage emerging technologies (Cloud, Hybrid servers, Industry Model Accelerators, …)

Threats

- Enterprise Planning end products not easily consumable from a solution delivery perspective
- Low maturity in cross LoB process ownership
- Lack of relationship with LoB process consultants
- Lack of holistic model management lifecycles across the portfolio and project levels (across all domains)
- No cross-organizational model registry and repository strategy
- A certain level of “resistance to change” within both Business and IT

Without the power of architecture, even with the best of intentions, we are more likely to descend into chaos…



… and even if an individual house is well architected, if each house is different (e.g. different electricity voltage, water pressure) then the city will not work…

I really prefer the projects that do not matter… they are impossible to fail!

… plus, if the purpose of the building is not clear…

धन्यवाद

Hindi

多謝

Traditional Chinese

Teşekkür ederim

Turkish

Спасибо

Russian

Gracias

Spanish

شكرا

Arabic

Thank You

English

Obrigado

Portuguese

Grazie

Italian

Danke

German

Merci

French

Multumesc

Romanian

多谢

Simplified Chinese

감사합니다

Korean

ありがとうございました

Japanese