EA03

The Role of Architecture in Building Better Enterprise IT Solutions: A Rational Approach to Connecting Business and IT

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IBM Rational Software Development Conference 2008

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Topics

- Today's Challenges Delivering Systems and Solutions
- The Relationship of Enterprise and Solution Architecture
- Rational's Focus on Enterprise Architecture
- Summary

Today's CEOs: change is the norm, innovation is king

Business model innovation drives sustainable competitive advantage

CEOs are:

- Expecting **significant change,** while the **ability to manage change** has not kept pace
- **Adapting their business models** – two-thirds are implementing extensive innovations
- Moving aggressively toward **global business designs**

Implications for CIOs:

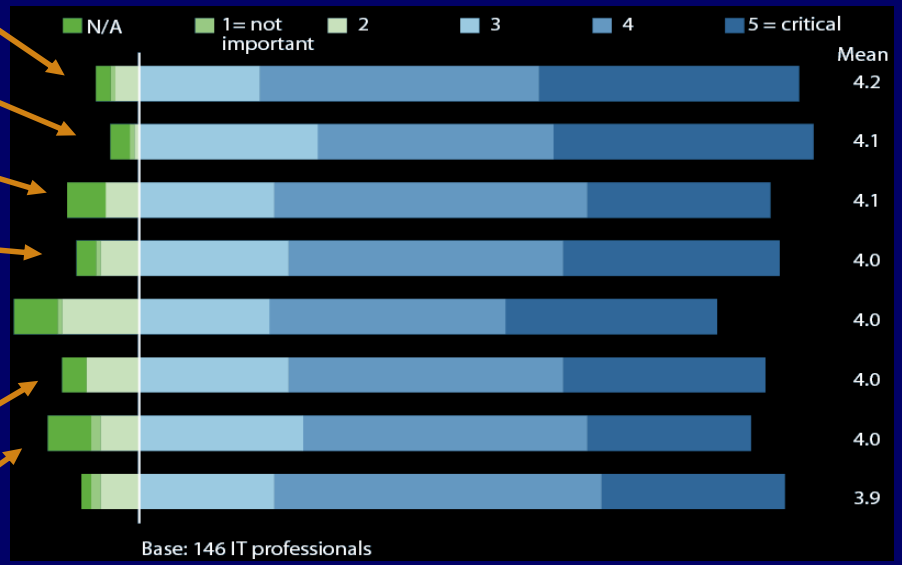
- Deliver solutions that **support the CEO's accelerated change agenda**
- Break down inhibitors to change while helping to **manage the associated risks**
- **Provide consistent, reliable and innovative service delivery**

Challenge: Innovate in today's economic climate

Source: IBM 2008 Global CEO Study

Change and Decisions are focused heavily on Key Corporate Initiatives

- Improve Overall Agility, Thru delivery rate and quality of solutions implemented
- Making and supporting technology decisions
- Advancing the role of collaboration tools
- Shifting from tactical, project level architecture to strategic architecture development
- Adopting BPM
- Determining the role of EA and Architects in improving overall IT Governance
- Pursuing information visualization or information-as-a-service



Source: Forrester October 2007 US And UK Enterprise Architecture And Business Process Management Online Survey

Business realities

The collaboration challenge between Business and IT limits agility

Business Executive:

- "I just can't get IT to deliver something that fully supports our business goals."
- "I dread when one of the projects I am depending on will need IT involvement."
- "I wish I could get IT to stop talking to me about technology and recognize that I want to improve my business performance."

IT Executive:

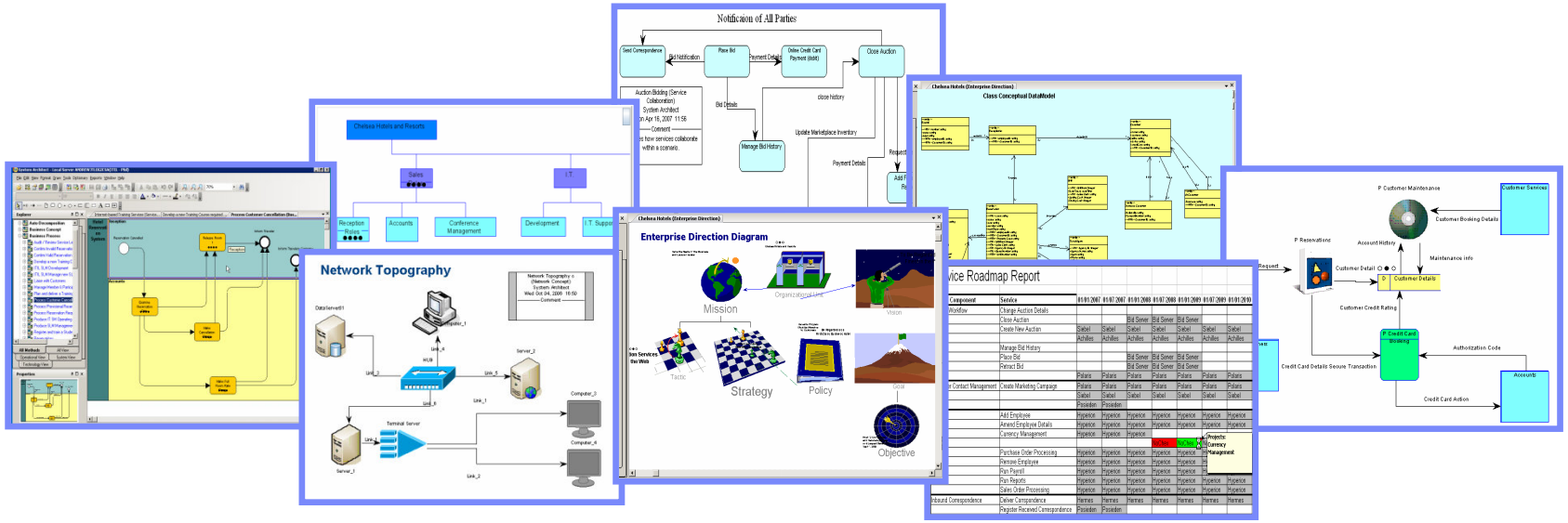
- "How do I get meaningful information from the Business so that I can deliver services they actually need"
- "I am frustrated by the lack of communication between IT and business"
- "I wish I could get the business to recognize the importance of technology

The Result

- 50% of organizations haven't achieved simplification of technology and application portfolio
  - Multitude of stakeholders demands, not clear whether they are doing the right thing
    - Communication gaps across complex organizations
      - Lack common language to describe IT risks

An enterprise blueprint is required to develop a common vocabulary

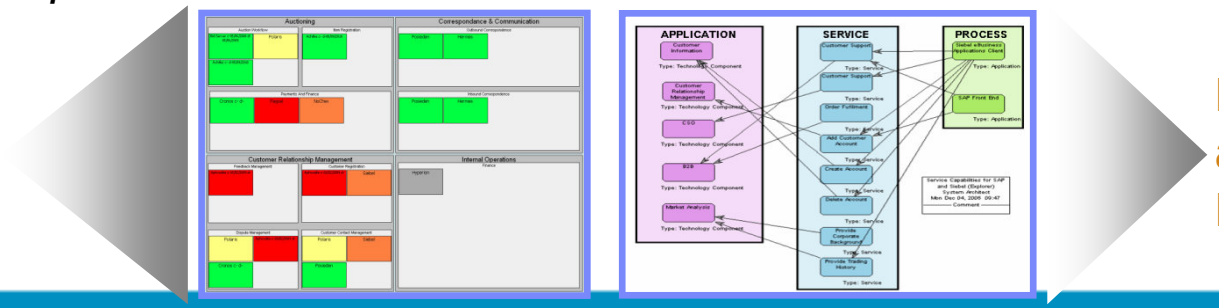
Agility is built on insight into Business and IT domains



- ✓ *Organizational Composition*
- ✓ *Existing Applications*
- ✓ *Data and Information*
- ✓ *Service Composition*

- ✓ *Business Process*
- ✓ *Strategy*
- ✓ *Service Environments*
- ✓ *Network Infrastructure*

Enterprise Analysis Platform



Impact Analysis and Dependency Exploration

Enterprise IT understands the problems….but….

Silos: Leading to Complexity

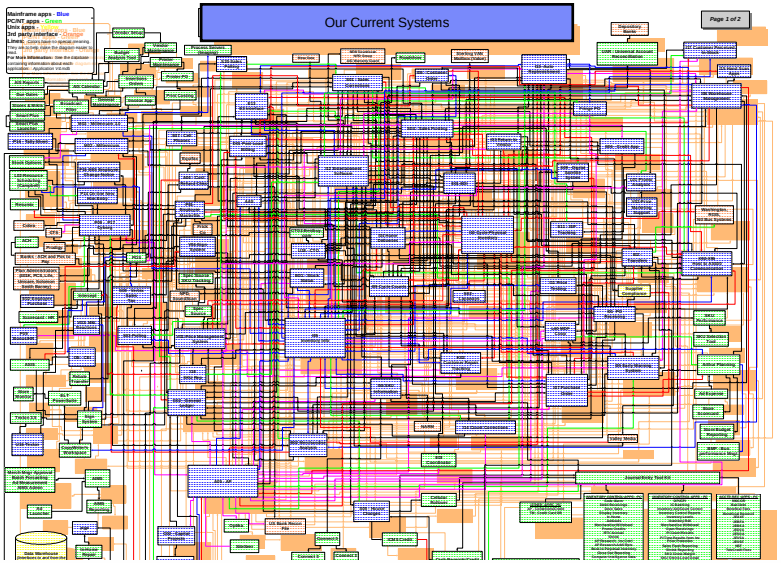
- Disparate Business Applications have been managed by disparate business teams
- Business Applications and Partner trading systems often managed separately
- Operational controls implemented separate from the business teams defining the requirements

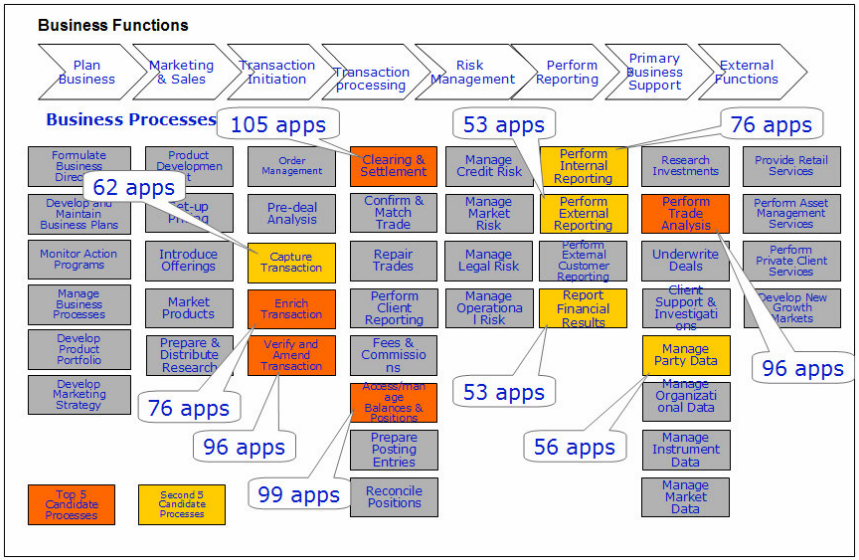
Lack of Governance & Change Control

- Where standards exist they are complex, poorly governed, and still require per-partner customization
- New technology frequently added without thought to existing infrastructure and information assets, adding to the complexity and not easing it
- Outsourcing has cut labor costs, but highlighted the poor practices in communication, process definition, governance, and business/IT alignment

Difficult to leverage existing assets

- Difficulties leveraging heritage of existing systems, people, and skills



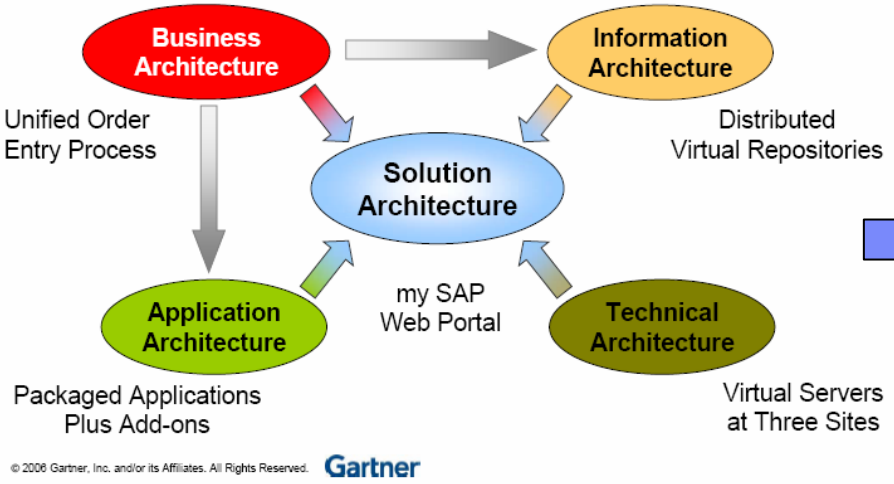


Current challenges delivering quality systems

- My organization is more diverse, and feel like I'm losing control!
  - How do I control a project where I'm not building all of the pieces?
  - How do I unify the business people, IT people, Deployment teams, etc.?
  - How do I ensure alignment with architecture, standards and business goals?
- I have little insight or control into the architectural integrity of my systems!
  - How do I manage the architecture of what we deliver? Who defines that, and who enforces that?
  - What about all the stuff I've already deployed? How do I understand what it does, how it does it, and whether it's a valuable asset to me?
  - How do I prescribe and enforce the use of certain architectural standards?
- We build and rebuild the same solutions multiple times!
  - How do I reuse more and build less? What cost savings are there?
  - How can I make sure reused assets are high quality, accessible, and managed?
- I must deliver more with less people to IBM's complex runtimes!
  - How do I exploit IBM's runtimes as productively as possible?
- Open source SW is good enough for much of my team, but…
  - How to gain training & support? How to control risks w/o vendor accountability?
  - How to manage a mix of open source, commercial, and custom tools (compliance issues)
  - Open source has good point tools, but no one is tying it all together for me (esp. for EA)

Systematic approaches help to address the challenges

Business Need: Easy Customer Access



Perspective	System Description		Principles
	Current State	Future State	Guidelines
Conceptual	▪ BU-driven ▪ Direct sales ▪ Build to order	▪ Shared services ▪ Online and direct ▪ Pre-configured	▪ End-to-end design ▪ Universal tasks ▪ Configuration models
Logical	▪ Local efficiency ▪ Local autonomy ▪ Descriptive model	▪ Shared logic ▪ Near real time ▪ Common portal	▪ Central control ▪ Process library ▪ Business process outsourcing
Implementation	▪ SAP-driven options ▪ Links to add-ons ▪ Customized to BU	▪ RFID-based ▪ Amazon linked ▪ Net-weaver use	▪ APQC standards ▪ BPEL ▪ Testing cutover
	"As Is" Option	Sphere of Architecture Governance	

Gartner

Role	Desired Outcome
Business Decision makers	Maximise the overall ROI by aligning all change programs with each other and with the enterprise's strategic direction
Business and Technical	Minimise project risk and integration challenges, maximise value of available IT skills and resource. (i.e. maximise chance of success)
IT operations	Minimise systems management challenges and product support issues, maximise value gained from IT infrastructure through shared and flexible deployment.

How do you ensure the alignment of all activities within the strategy?

What is Enterprise Architecture?

IBM:

> *"The **Enterprise Architecture** discipline defines and maintains the architecture models, governance, and transition initiatives needed to effectively co-ordinate semi-autonomous groups towards common business and/or IT goals"* [1]

Gartner:

> *"**Enterprise architecture** is the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key principles and models that describe the enterprise's future state and enable its evolution."* [2]

Similar definitions, consistent intent

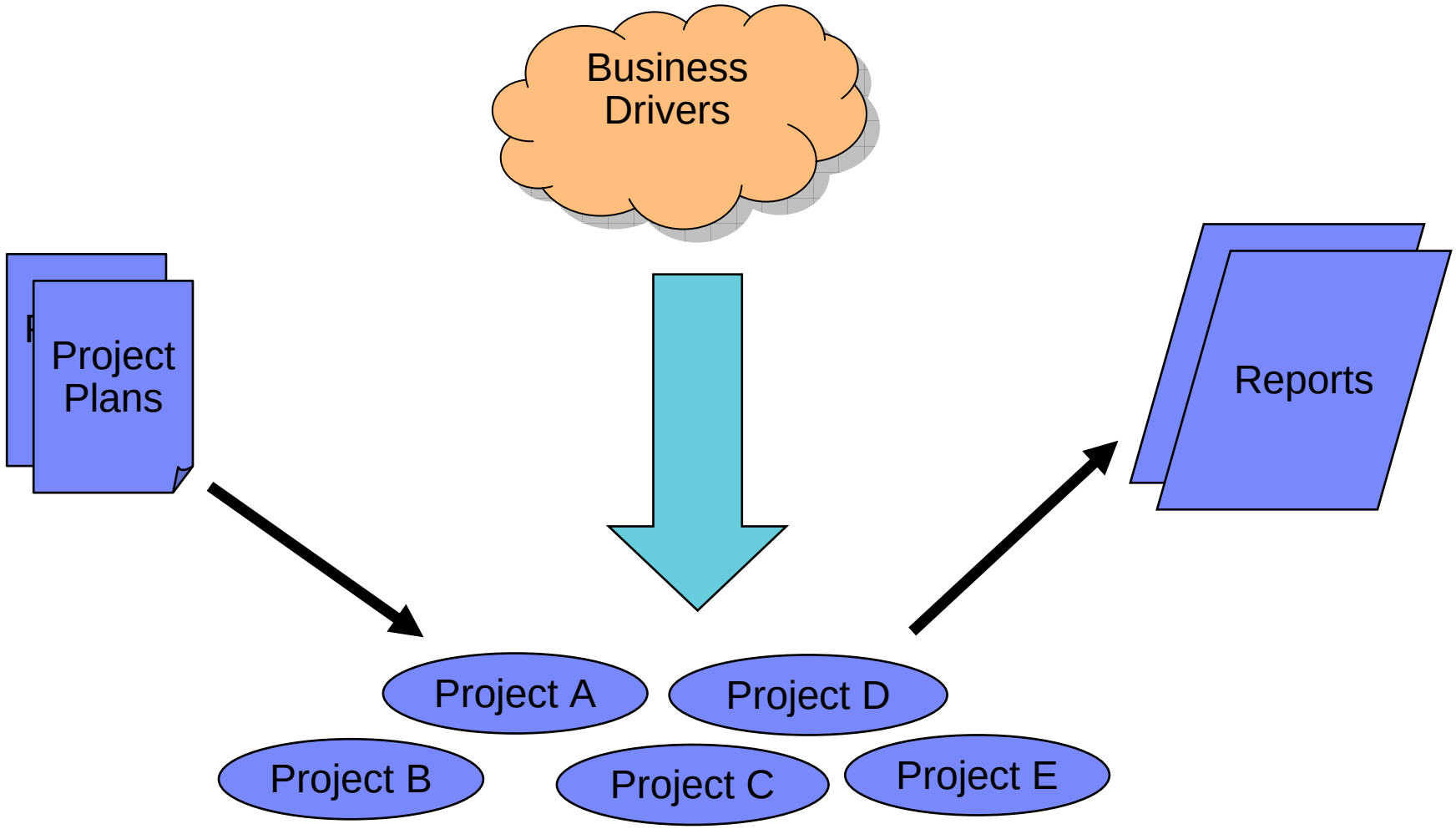
1. *Enterprise Architecture in the era of On-Demand*, IBM Academy of Technology Study, October 2004
2. Short form, *Gartner Defines the term 'Enterprise Architecture',* Anne Lapkin, Gartner, July 12, 2006

In practice, EA is driven by key needs…

EA is a broad area, and the drivers are diverse….

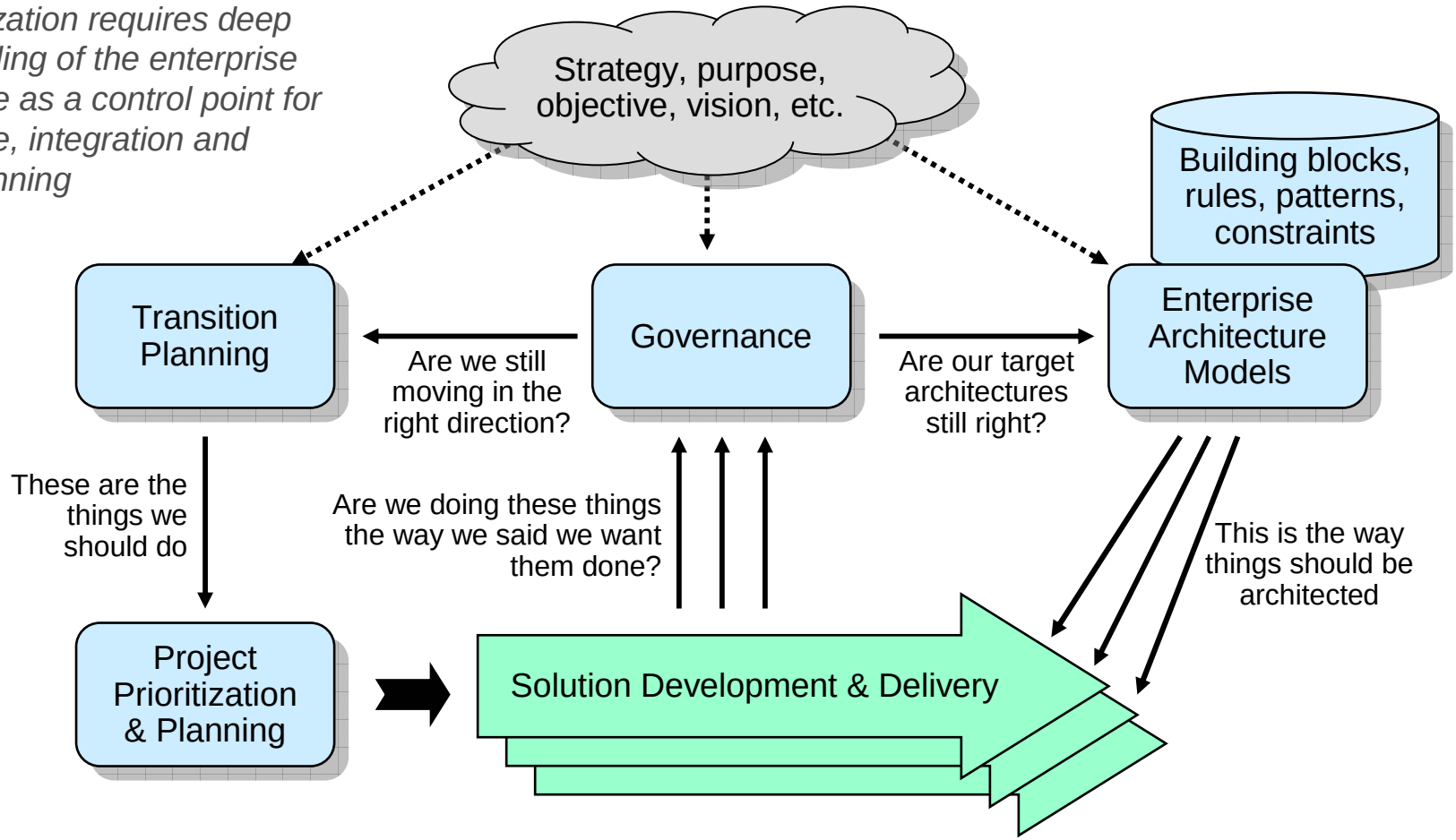
- One source of the truth via an integrated view of the enterprise, across all lines of business
- Assessing current and future states of the enterprise, along with the programs and controls to achieve desired capabilities
- Architecture framework governance and reporting (e.g. Zachman, TOGAF, EA³, FEAF, DoDAF)
- Portfolio planning for resources, projects and initiatives
- "Uber-architecture" for development teams
- Architectural conformance
- Model-Driven Architecture
- Alignment of strategy, business, information, applications and technical infrastructure in support of a consistent enterprise strategy

Current enterprise planning and control



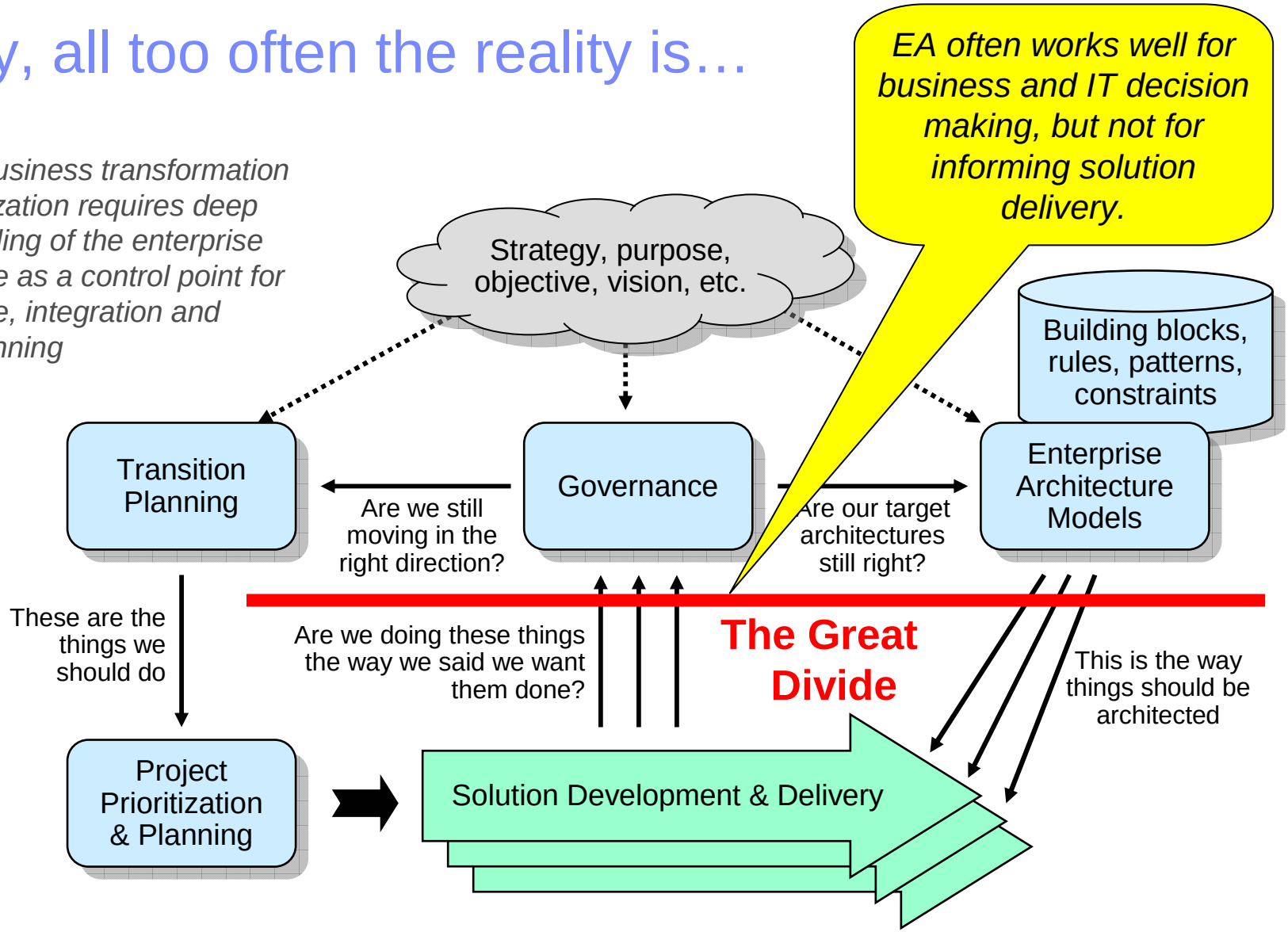
There's more to an EA than "just an architecture"

Effective business transformation and optimization requires deep understanding of the enterprise architecture as a control point for governance, integration and project planning



Today, all too often the reality is…

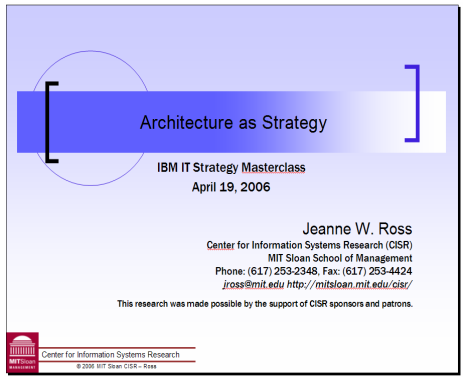
Effective business transformation and optimization requires deep understanding of the enterprise architecture as a control point for governance, integration and project planning



In a nutshell…

- **…EA helps ensure your IT Strategies are robust ("*upstream EA*"), and then guides you towards successful delivery ("*downstream EA*")**

- **Upstream EA***
  - Viable IT strategies underpinned by sound architecture thinking
  - Sound architecture thinking inspires viable IT strategies
  - *This is a well proven domain of Enterprise Architecture*



http://mitsloan.mit.edu/cisr

- **But success is only achieved when strategic intent turns into delivery, so…**

- **Downstream EA***
  - Successful portfolio delivery underpinned by sound architecture thinking
  - *This is a less well established, but equally valuable domain of Enterprise Architecture*

**Note Upstream and Downstream EA colour coding for later slides*

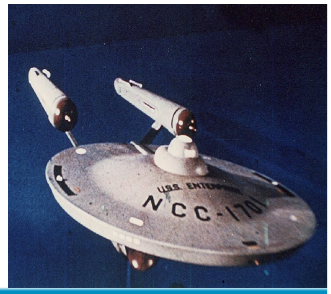
Only when we ensure architecture works “upstream” (doing the right things) and “downstream” (doing things right) will we satisfy ourselves

- Upstream: Doing the right things

  - Identifying, funding & resourcing the most important programmes, in line with the business strategy and within the investment budget, in the right sequence, and with effective programme management and control.

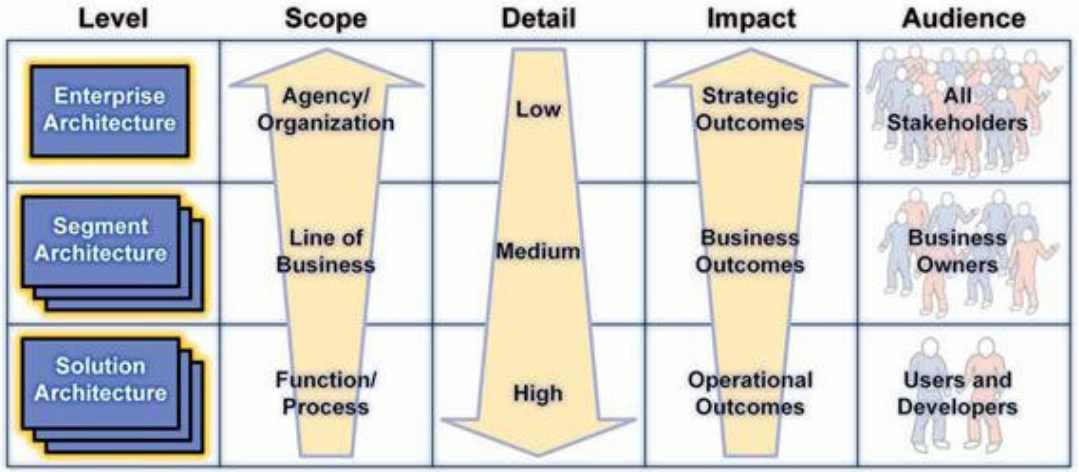
- Downstream: Doing things right

  - Ensuring the solutions delivered by these programmes meet the needs of the business, work within the existing IT environment and contribute towards the realisation of the enterprise’s IT strategy.
    - Unless active and agreed decisions are taken to the contrary (tactical design)



Enterprise Architecture vs. Solution Architecture

Enterprise Architecture is the formal organization (design or layout) of the components, structures and processes required or relevant to the attainment of the goals and visions invested or envisioned in an enterprise



From US OMB 2006 FEA Practice Guidance

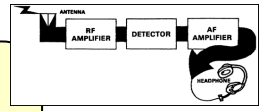
Solution architecture aims to address specific problems and requirements, usually through the design of specific information systems or applications

We need to define architecture models (of how something works, or how something will meet a specific set of requirements) to be something different from architecture building blocks (standard parts, together with "best practice" on their use)

The things which describe the way something specific is going to be thought about or done – usually has some sense of requirements, and can in some way be tested as meeting those requirements.

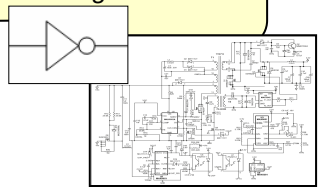
	Constructions Systems Models	**Building Blocks** Guidance for Systems
Planning Enterprise scale, or "things which help plan and organise work"	Enterprise Models	Architecture building blocks, Usage principles, Reference models (e.g. P4EB, ESS), and other guidance.
Doing Project sc…, or thos…ings focuse…n building or …lementing things	Programme and Project Models	

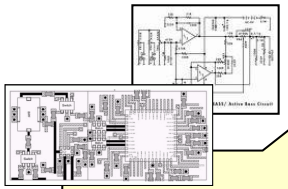
The things that capture "best practice" and provide knowledge on the standard approaches and mechanisms which are to be used.



Enterprise scale = course grained guidan…

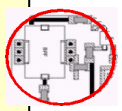
Project scale = fine grained guidance

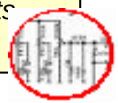


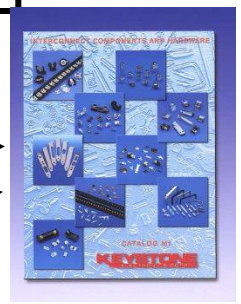


showing how the enterprise wishes to structure itself to meet specific business goals

showing how a program or project intends to structure the solutions it's creating to solve specific sets of requirements

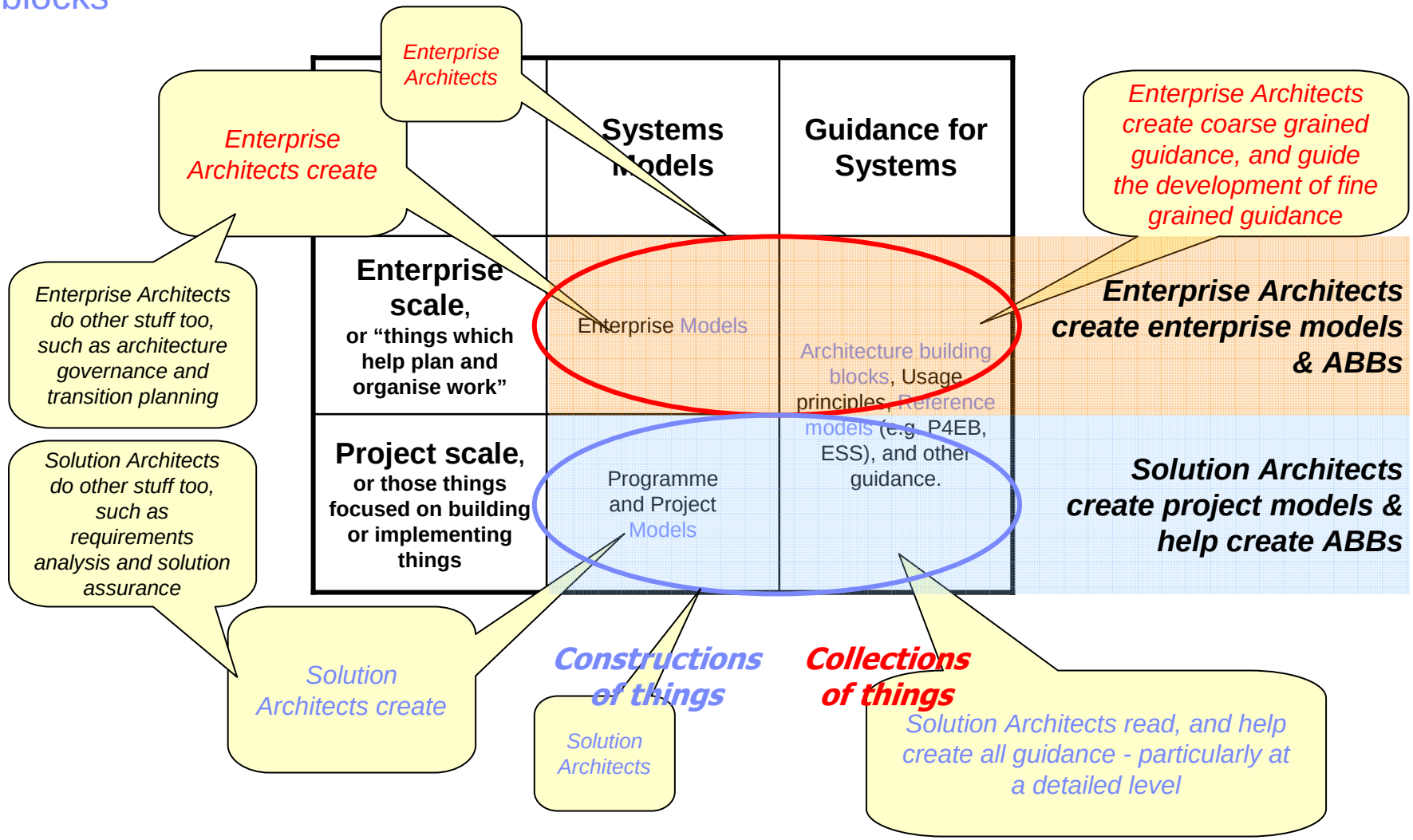




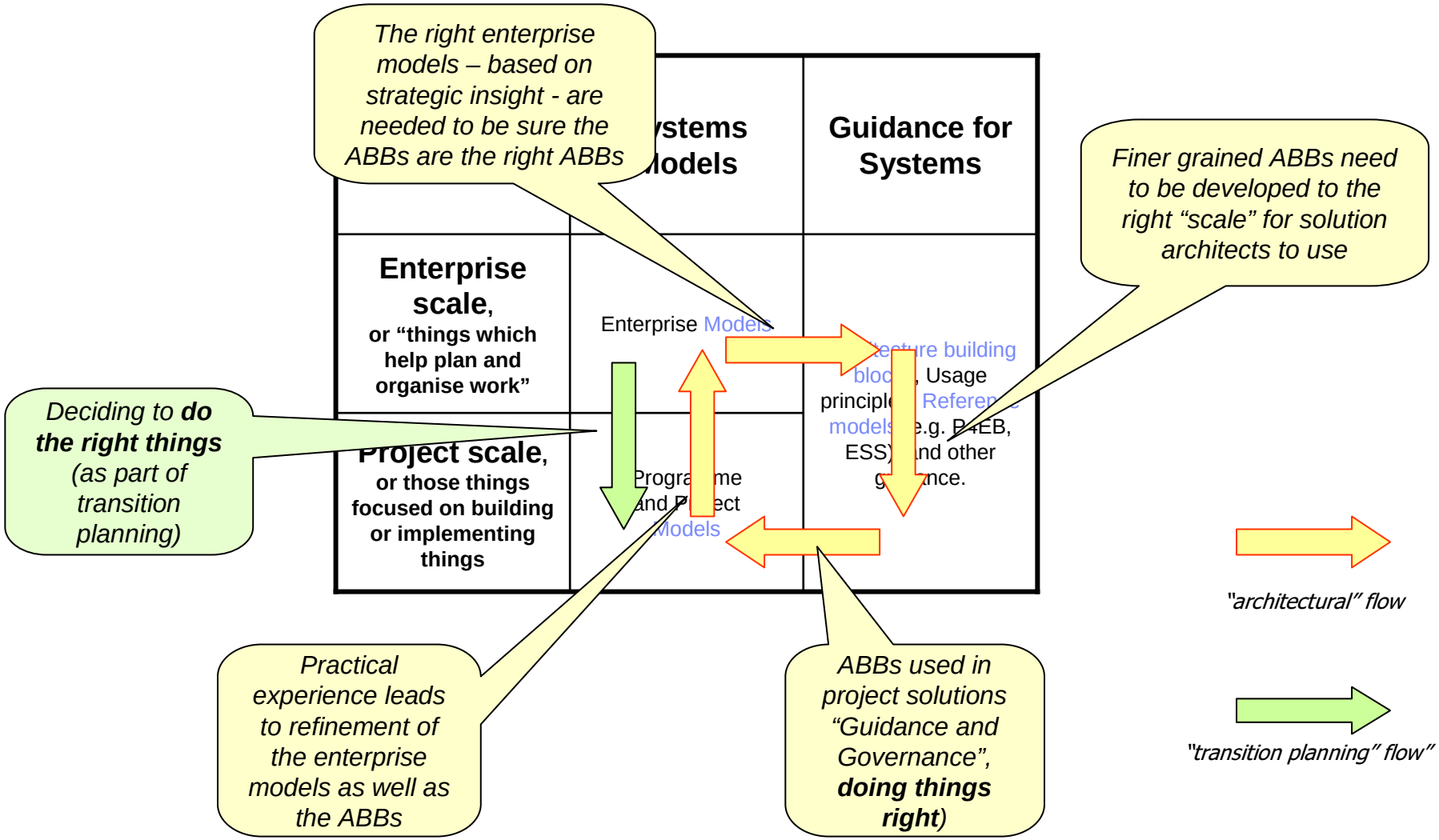


And everything needs to be organised in a sensible manner…

However, however we categorise stuff, the work of Enterprise Architects and Solution Architects are both focused on making and using models AND building blocks



There are two "flows": an architectural flow, intended to "do things right", and a transition planning flow, intended to "do the right things"



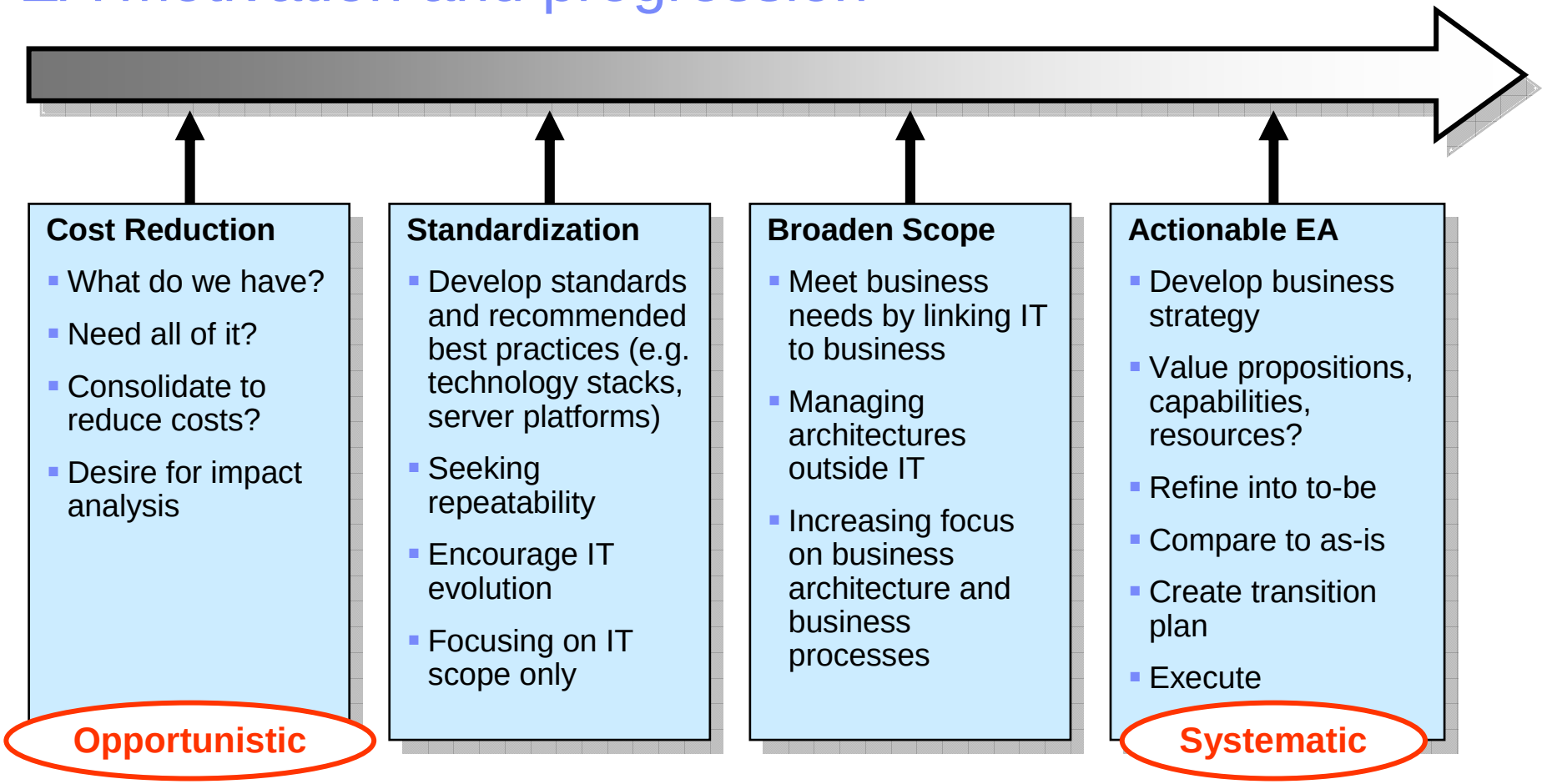
Practical control span for an Enterprise Architect may often exclude actual task/project solutions

	Systems Models	Guidance for Systems
Enterprise scale, **or "things which help plan and organise work"**	Enterprise Models	Architecture building blocks, Usage principles, Reference models (e.g. P4EB, ESS), and other guidance.
Project scale, **or those things focused on building or implementing things**	Programme and Project Models	
	Solution Architecture	***Enterprise Architecture***

"Enterprise Architects create coarse grained EA and oversee the development of the fine grained EA

"Solution Architects create solution architectures and contribute to the fine grained EA"

EA motivation and progression



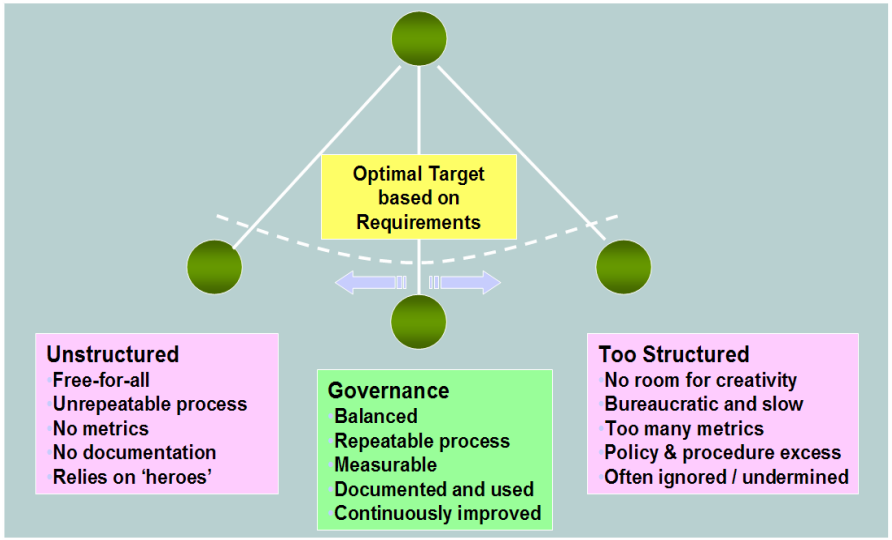
Customers span a range of EA goals & scope

Architecture Governance: striking the right balance

- The manner in which Enterprise Architects engage with Solution and IT architects must fit the enterprise's management style

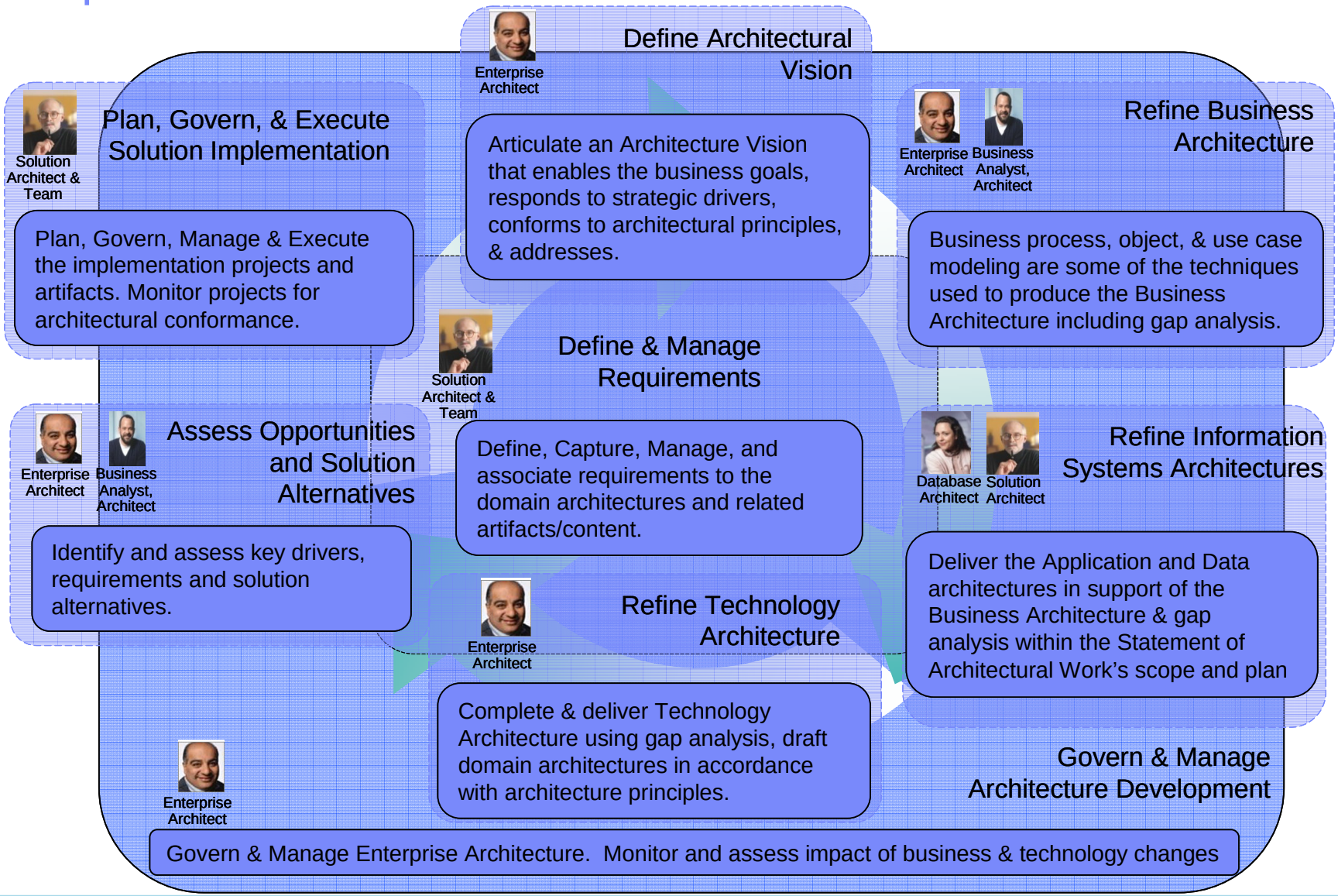
  - Which fits your wider cultural context? Which applies to your organization now? Which will be needed in the future?

    - *Command and Control*
      "do what I say, and I will ensure you do"
    - *Guide and Govern*
      "use the architecture, and we'll discuss those areas where it does not make sense"
    - *Publish and Trust*
      "I know you will do your best - go do it"

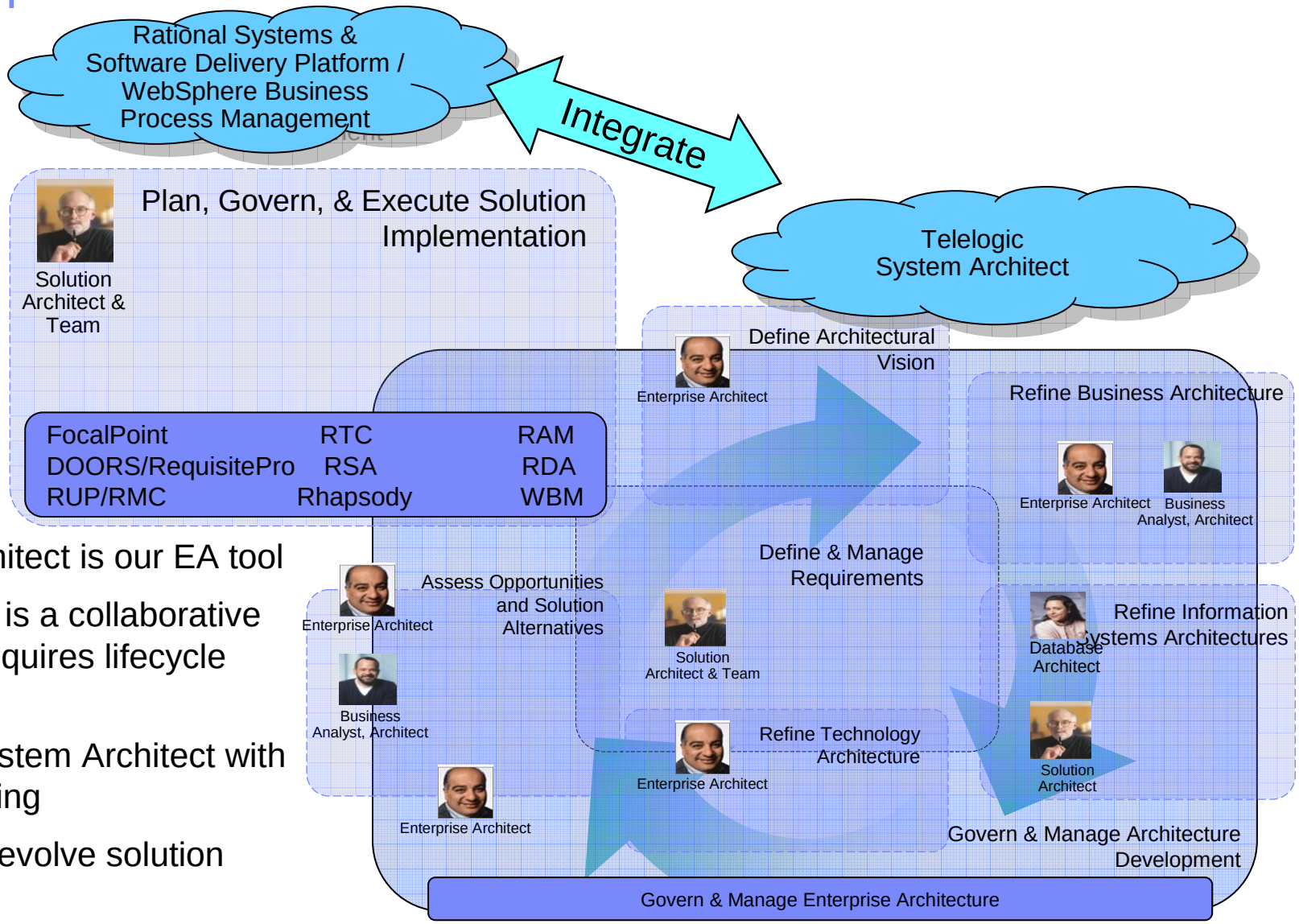


And whichever style you choose, a balance will be needed

Enterprise Architecture Green Thread



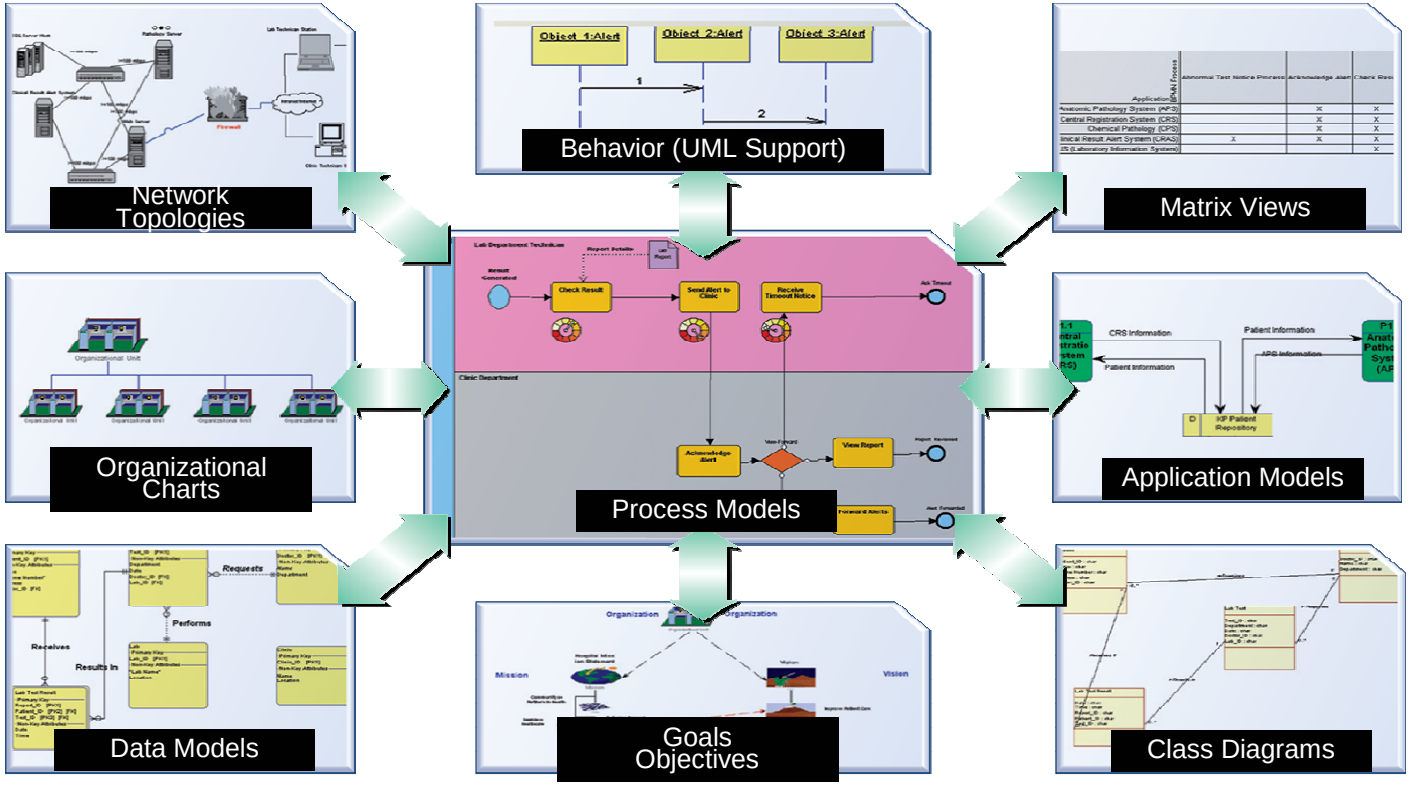
Tool Support for Actionable EA



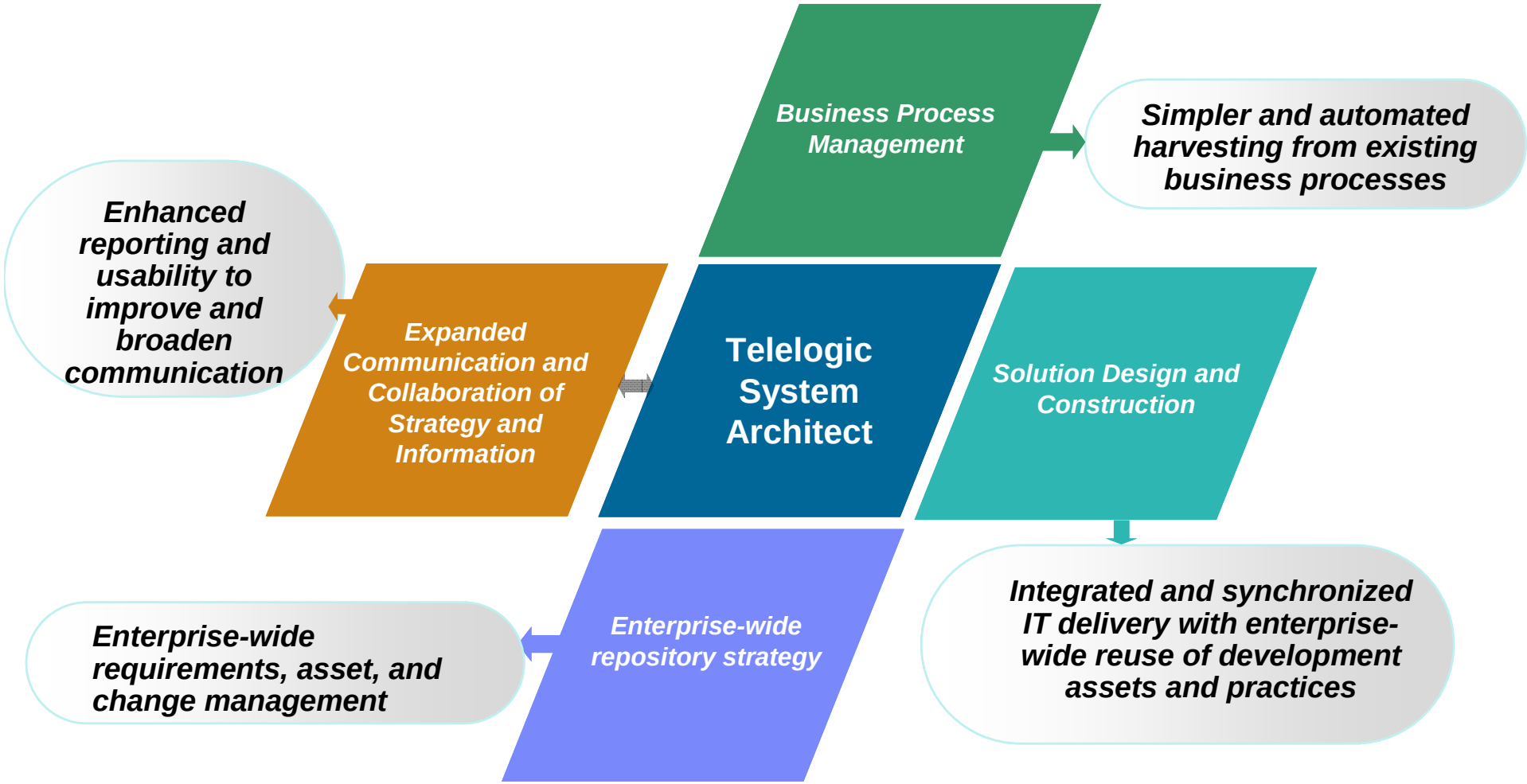
- System Architect is our EA tool
- Architecture is a collaborative process – requires lifecycle support
- Integrate System Architect with solution tooling
- Continue to evolve solution tooling

IBM Telelogic System Architect

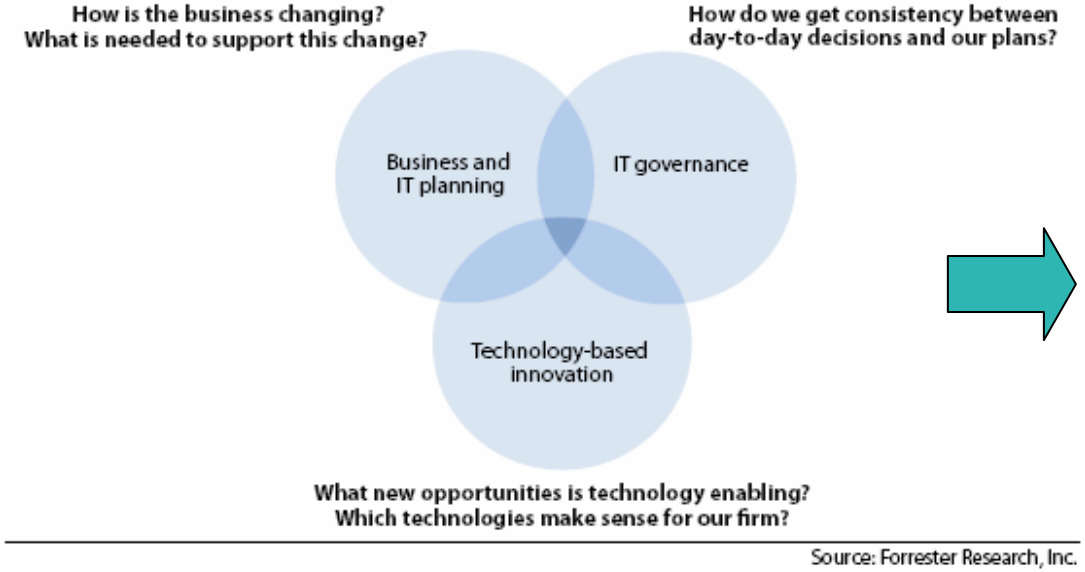
- Tool suite for the development of enterprise architecture and models



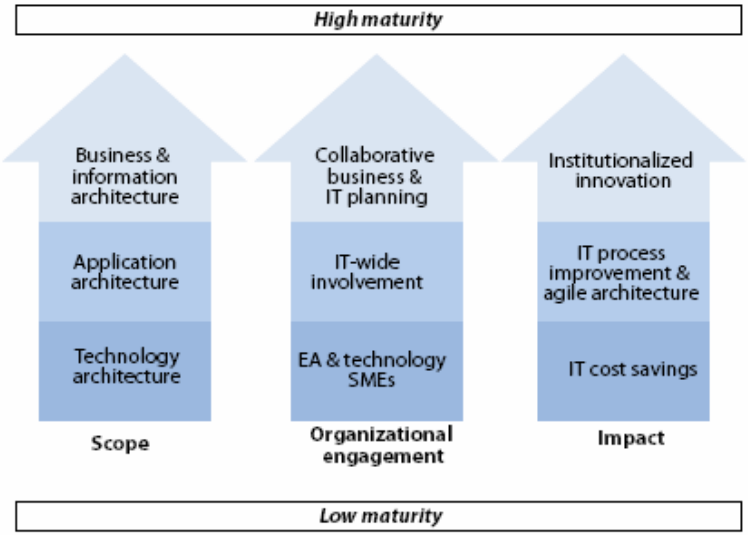
Expanding System Architect's Reach and Relevance



Directions: Market evolution and convergence



Source: Forrester Research, Inc.



Gartner

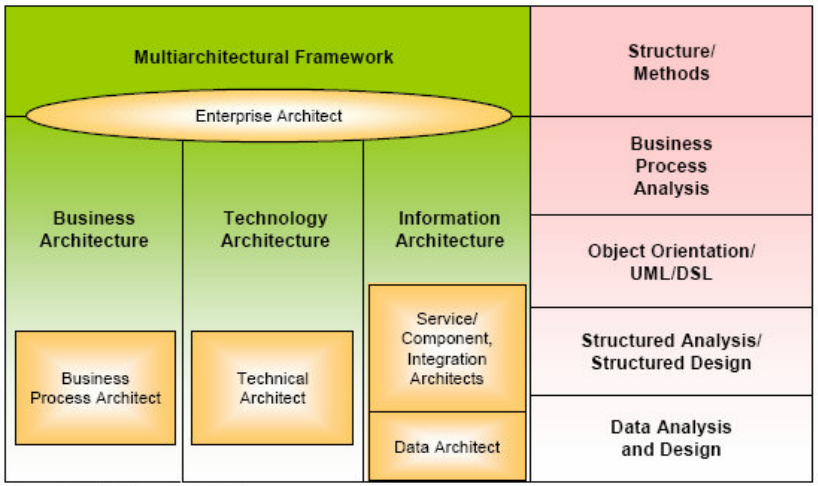
Michael J. Blechar, David Norton

Publication Date: 21 November 2007

BPA, OOA&D and Database Design Modeling Tools Are Converging Into Suites

Next-generation business process improvement initiatives and technical architectures using service-oriented paradigms based on reuse are driving business process architects and analysts using business process analysis tools to increasingly share models and requirements with IT applications and data modelers.

EA Coordination and Collaboration



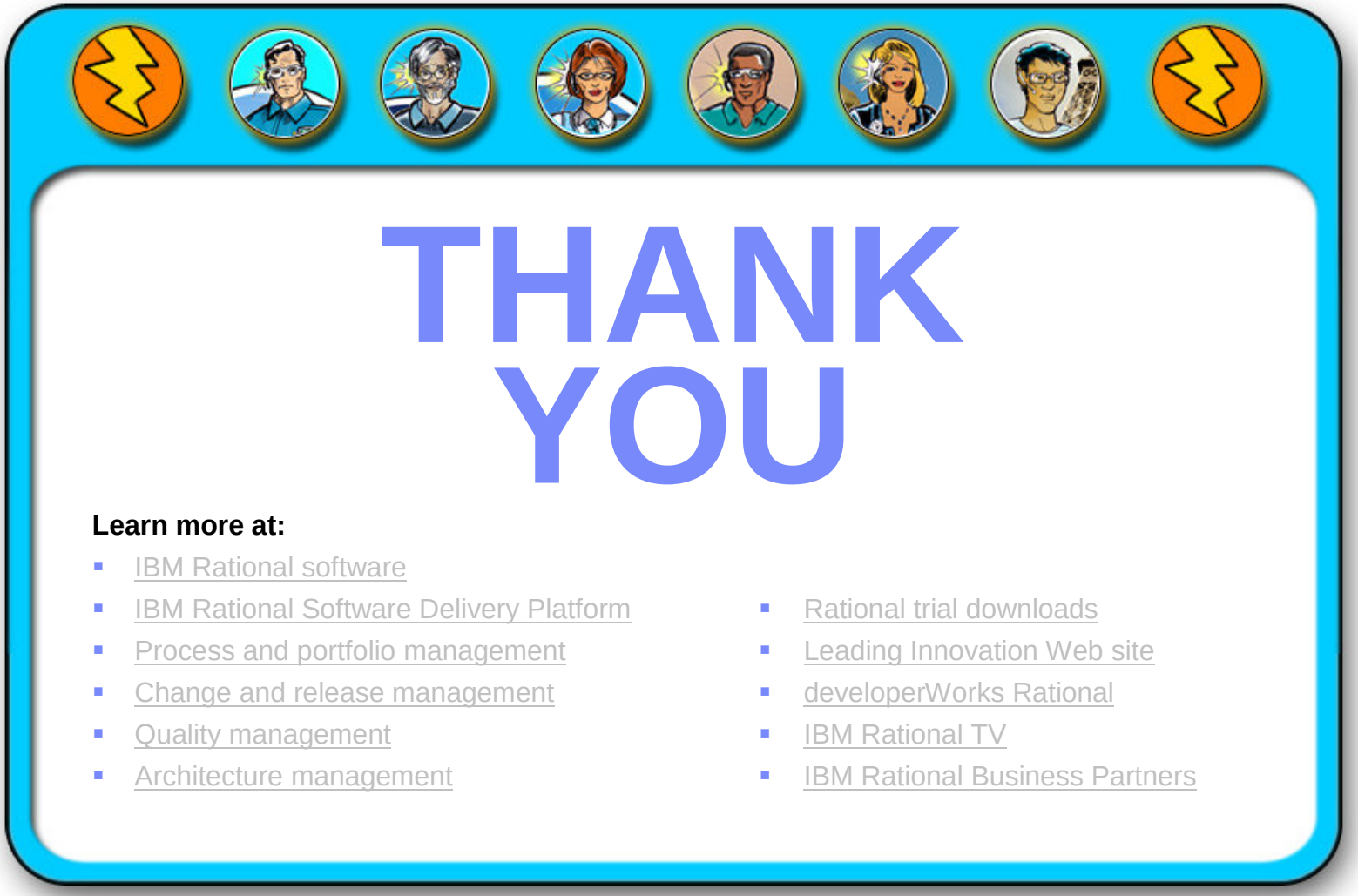
Source: Gartner (November 2007)

Summary

- Enterprise Architecture play a key role in Enterprise IT organizations
  - The strategic **context for the evolution** of the architectures and solutions in response to changing business needs and emerging new technologies
  - A logical progression from business needs to solutions and forms the basis for uniform project implementation (compliance) to save time & cost
  - A **common understanding** of the inherent architecture complexity by describing the architecture **building blocks** and their relationships and by regulating their **usage**
  - An unambiguous consistent, and agreed-on **terminology** complemented by graphical charts in "rich picture notation" to support communication
  - The **strategic alignment** needed for (strategic) **planning** by assessing the feasibility of new solutions requested by business in terms of time and cost

- IBM offers a comprehensive, integrated set of solutions to support Actionable Enterprise Architecture in your organization

QUESTIONS



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