Effective Transformation and Integration that can enable Cross-Jurisdiction Collaboration

NASCIO Forum
September 20, 2012

Sponsored by the Enterprise Architecture & Governance Committee
National Association of State Chief Information Officers

Guest Presenter: Dr. Brian Cameron, Penn State University
Host: Eric Sweden, NASCIO

Center for ENTERPRISE ARCHITECTURE | ea

Enterprise Architecture at Penn State

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Executive Director

Center for Enterprise Architecture

The Pennsylvania State University

IST College Overview

- Opened in 1999 and is the newest college at Penn State
- Mission is to change the world with inspired solutions, humanized technologies, and informed people
- 2,000 undergraduates
- 95% job placement rate

IST Enterprise Integration & Application Option

- Learn about how organizations work and how information technology can be used as strategic resources to support their innovation, mission-critical activities, and business functions
- Topics covered include:

Enterprise systems	Process modeling
Middleware solutions	Workflow analysis
Change management	Value chain

- To succeed in the real world of enterprise IT consulting, students need to learn project management, teamwork, problem-solving, and presentation skills.

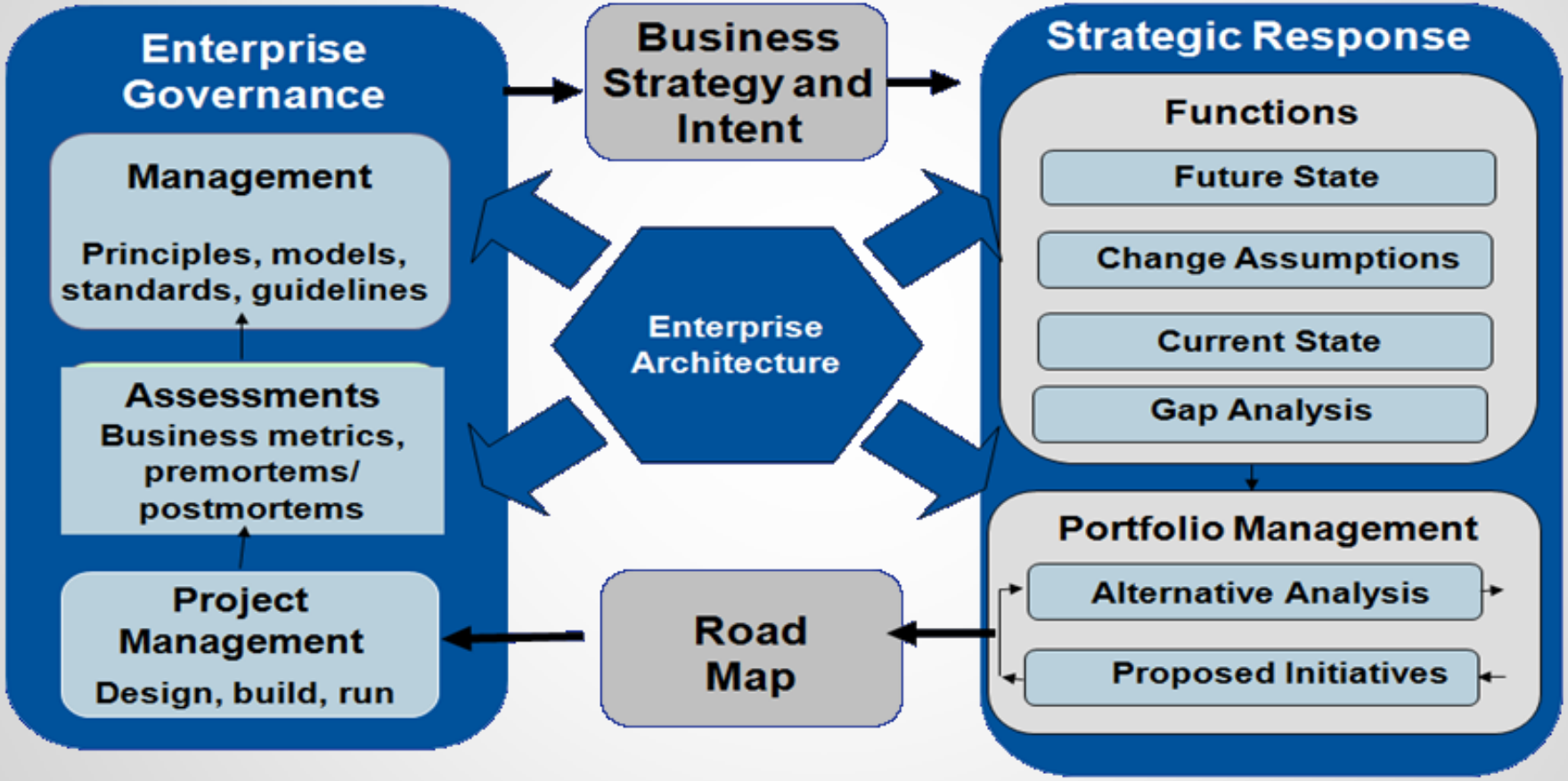
Industry Drivers for Enterprise Architecture

- Global Financial Crisis and Continued Ripple Effects in Government
- Hyper Global Competition
- Shift From an IT Cost Containment Mindset to Business Enablement/Business Value
- Outsourcing of IT - CIO's Role Becomes More About Strategy and Architecture

Industry Drivers for Enterprise Architecture

- According to Michael Porter, more than 80% of organizations do not successfully execute their business strategies.
- He estimates that in 70% of these cases, the reason was not the strategy itself, but bad execution.
- This failure to execute is the most significant management challenge facing public and private organizations in the 21st century according to Gartner.

EA Can Be the Linchpin to Bridge the Strategy to Execution



Enterprise Architecture vs. Systems Architecture

Enterprise Architecture (EA) has very different characteristics from Systems Architecture (SA) as shown in the following table:

	Enterprise Architecture	Systems Architecture
Analogy	City planning	Building a house
Stakeholders	The community	The owner
Requirements	Keeps changing to close business performance gaps	Build a product according to static requirements
Result	Show results incrementally	Not useful until complete
Life Span	Continuous cycle without end	A project with an end
Governance	Stakeholder buy-in	Command and control
Challenge	Continuous change	Best practice

What is Enterprise Architecture ?

Enterprise Architecture (EA) applies architecture principles related to the "orderly arrangement of parts" to analyze the components, the structure and connectivity of business architecture, data architecture, application architecture and technology architecture and identify their relationships to each other and to the strategy of the organization. EA provides a holistic set of descriptions about the enterprise (and extended enterprise) over time.

An EA process that delivers business value to the enterprise produces several things:

- An articulation of the strategic requirements of the enterprise
- Models of the future state, which illustrate what the enterprise should look like across all EA viewpoints in support of the business strategy
- A road map of the change initiatives required to reach that future state
- The requirements, principles, standards and guidelines that will steer the implementation of change initiatives

The primary purpose of describing the architecture of an enterprise is to improve the effectiveness, efficiency, and agility of the business. This includes innovations in the structure of an organization, the centralization or federation of business processes, the quality and timeliness of business information, or ensuring that money spent on information technology can be justified.

Holistic Enterprise Architecture - NASCIO

NASCIO Representing Chief Information Officers of the States

Enterprise Architecture is a management engineering discipline that presents a holistic, comprehensive view of the enterprise including strategic planning, organization, relationships, business process, information, and operations.

The organization must be viewed as a fluid – changing over time as necessary based on the environment and management's response to that environment.

Enterprise Architecture Value Chain -

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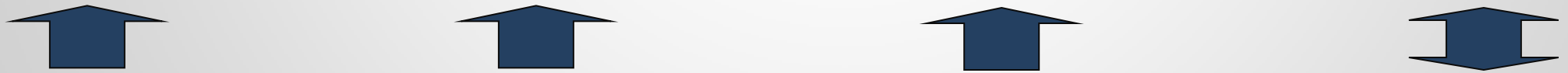
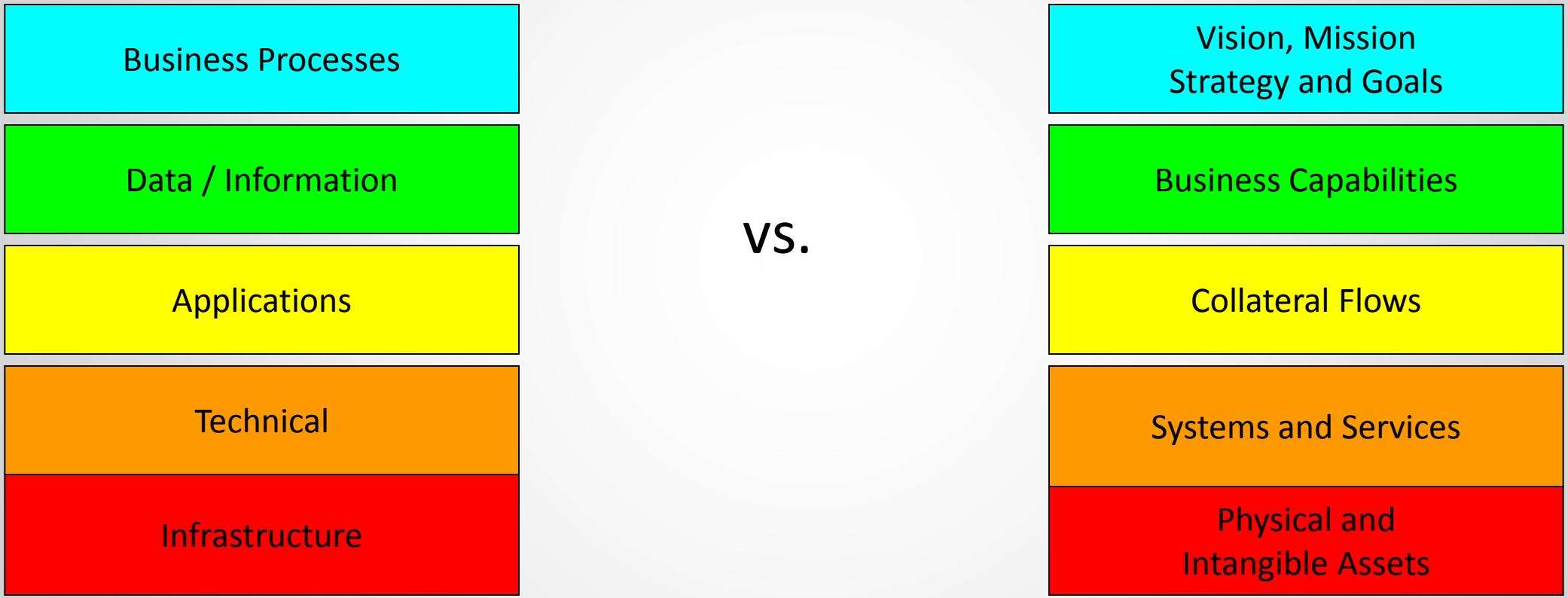
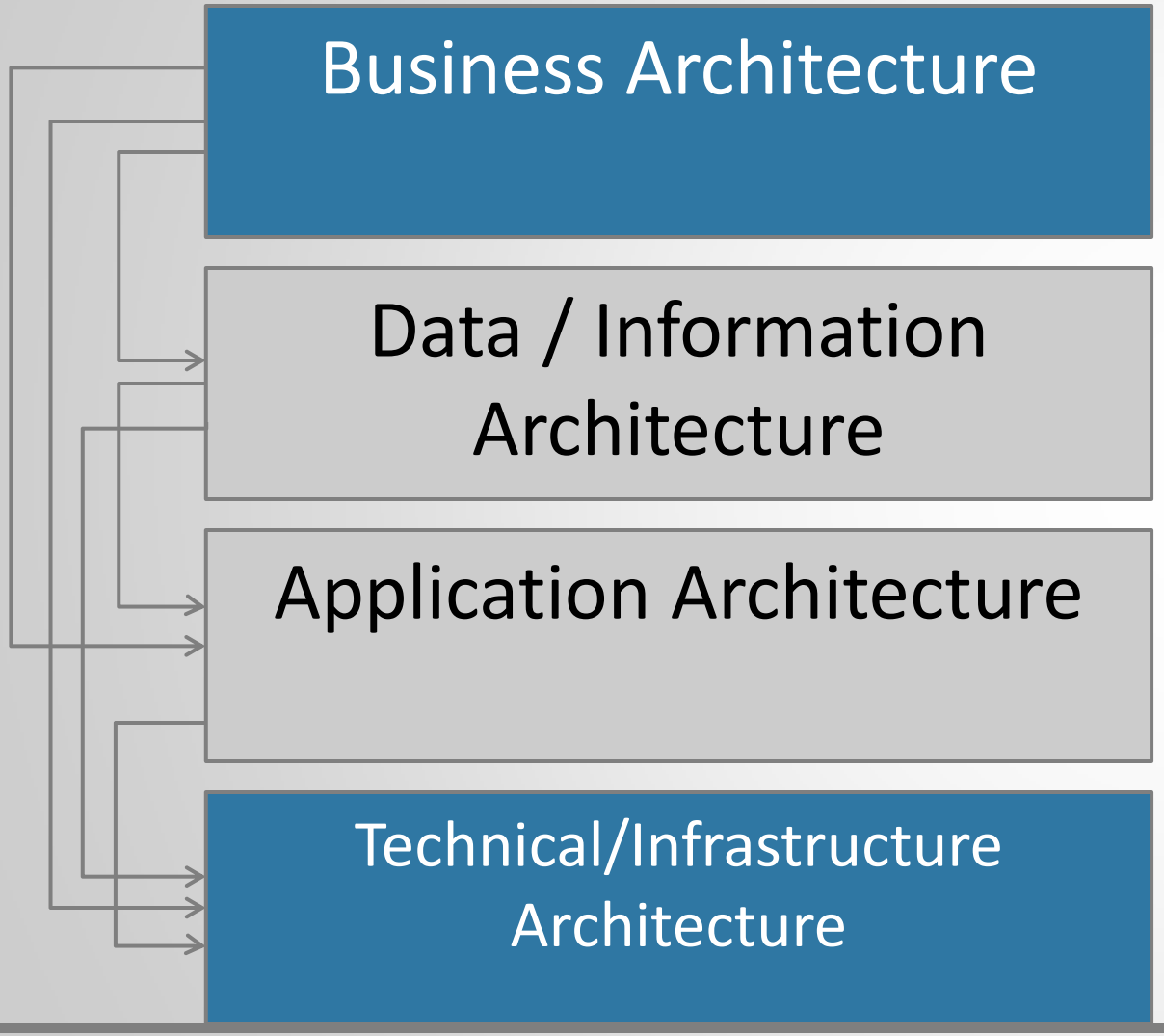


Capabilities

A Non-IT Centric Perspective



A Traditional View of Enterprise Architecture Domains

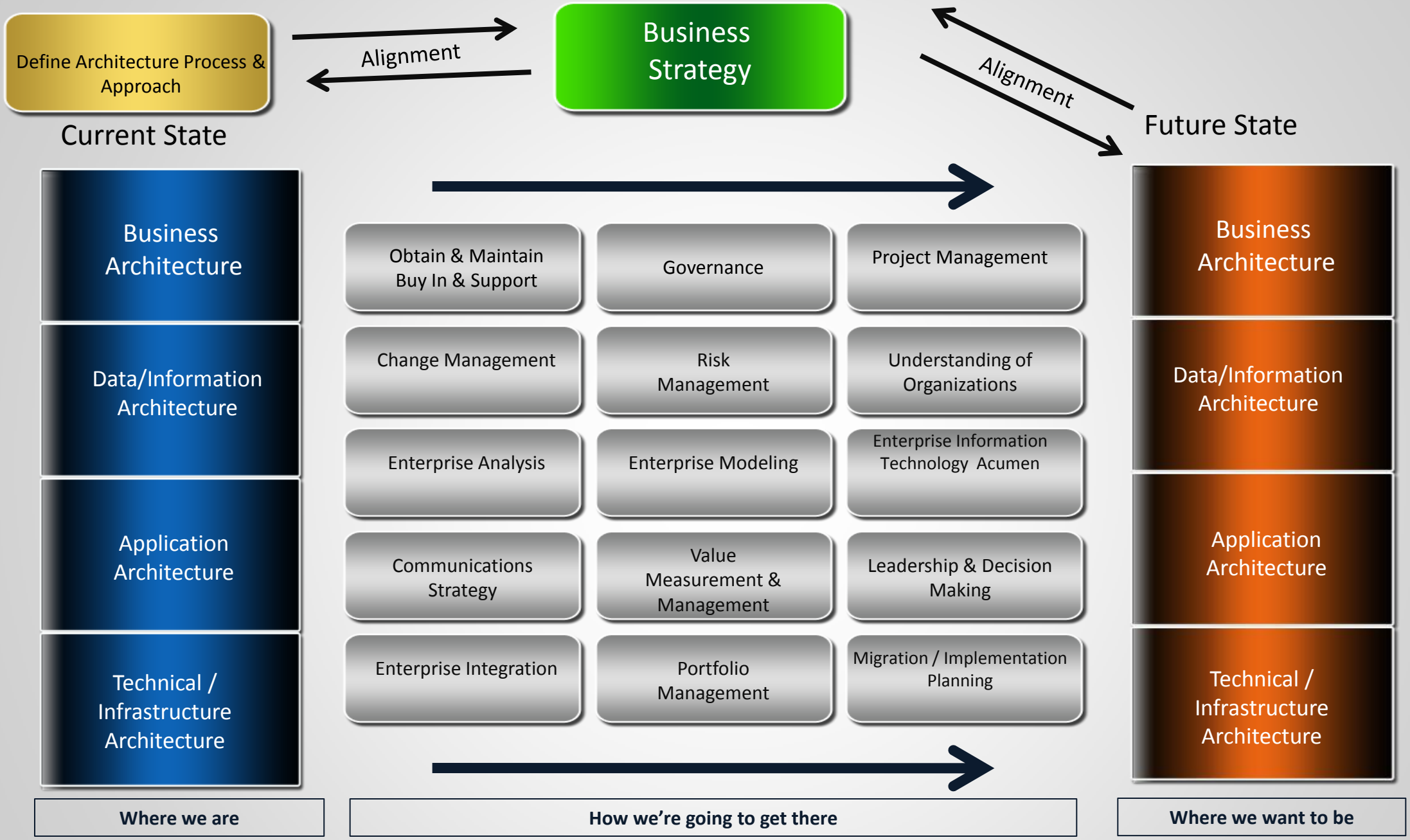


- Business goals and objectives
- Business systems, organization units, functions, processes, events

- Business domains, business entities, data elements, relationships
- Data requirements

- Application portfolios, subsystems
- Interfaces, integration

- Hardware and software platforms
- Network and communications infrastructure

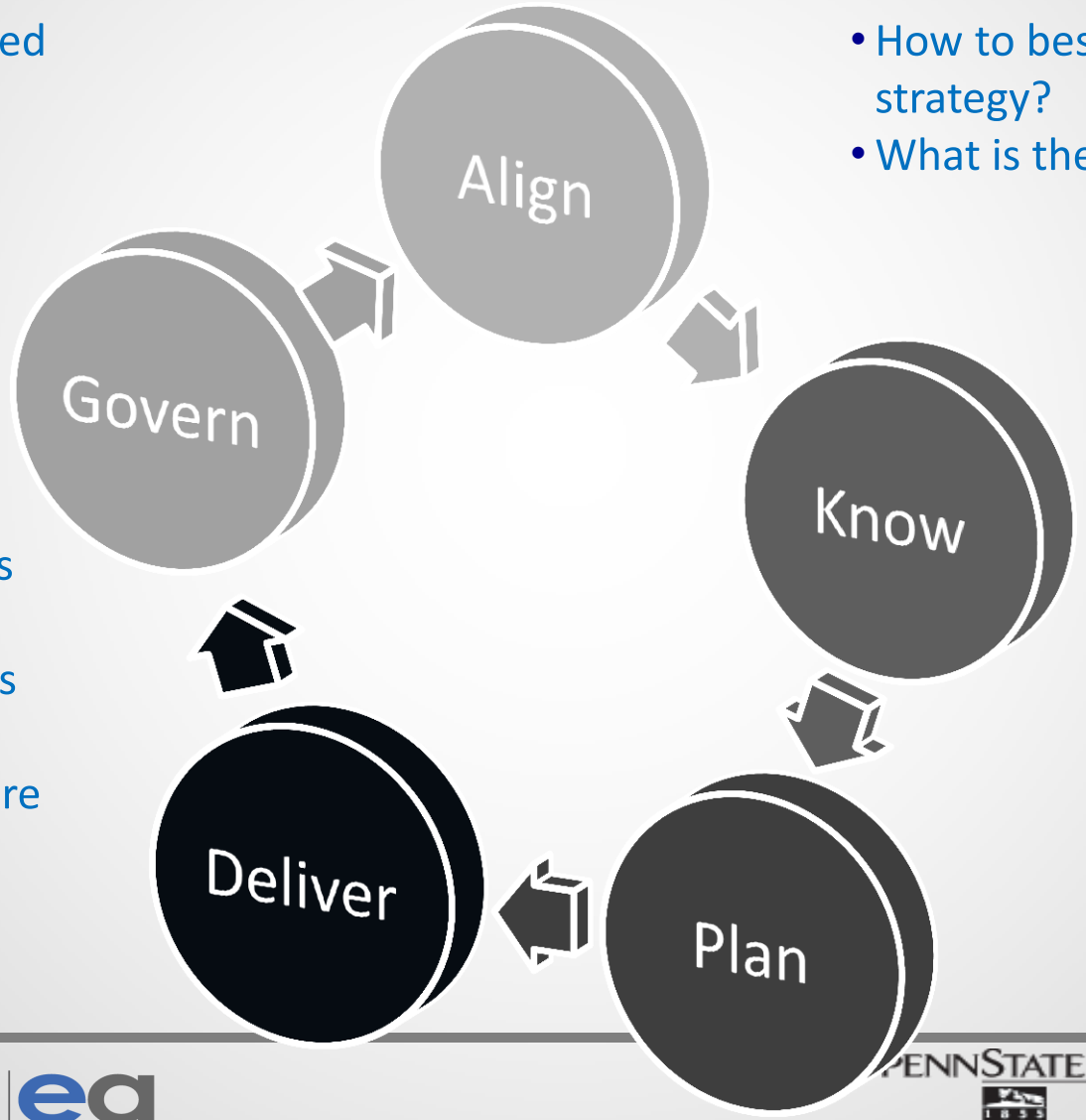

Define Architecture Process & Approach
Alignment
Business Strategy
Alignment
Current State
Future State
Business Architecture
Data/Information Architecture
Application Architecture
Technical / Infrastructure Architecture
Obtain & Maintain Buy In & Support
Governance
Project Management
Change Management
Risk Management
Understanding of Organizations
Enterprise Analysis
Enterprise Modeling
Enterprise Information Technology Acumen
Communications Strategy
Value Measurement & Management
Leadership & Decision Making
Enterprise Integration
Portfolio Management
Migration / Implementation Planning
Business Architecture
Data/Information Architecture
Application Architecture
Technical / Infrastructure Architecture
Where we are
How we're going to get there
Where we want to be

A Non-Traditional View of Enterprise Architecture Domains

Vision, Mission Strategy and Goals	• The enterprise-wide vision, mission, strategy and goals that the business capabilities support.
Business Capabilities	• The integration of multiple systems and services and the collateral flowing within and between them into business capabilities.
Collateral Flows	• Generalizing information to everything that flows within and between the enterprise's systems and services.
Systems and Services	• Generalizing IT applications to all the systems and services built up from the physical and intangible assets of the enterprise
Physical and Intangible Assets	• Generalizing the physical (HW infrastructure) and intangible (SW infrastructure) assets of the IT organization to the entire enterprise.

Architecture-Driven Business Planning

- Have projects made their expected contributions?
- Has anything changed that requires realignment?
- How are assets being leveraged?



- How to best achieve the business strategy?
- What is the architecture vision?

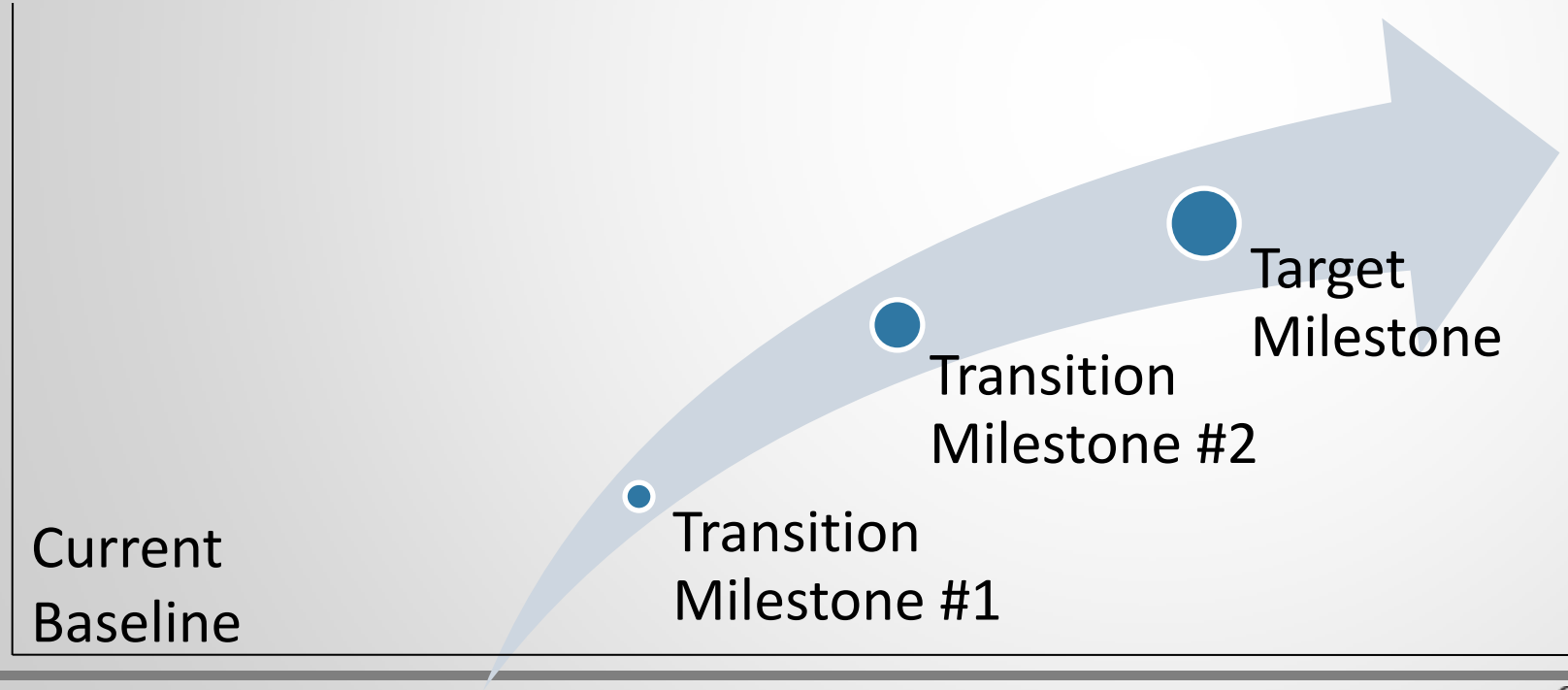
- What does the business do now?
- How should it do it in the future?

- What architecture contributions will projects make?
- What architecture requirements will projects fulfill?
- What architecture constraints are projects subjected to?

- How to maximize opportunities?
- How to leverage IT investments?
- What is the roadmap for transformation?

Deliver Increasing Business Agility

- Need to move from current state (less effective) to future state (more agile)
- Need strategic plan for transforming organization
- Establish stable, transition milestones



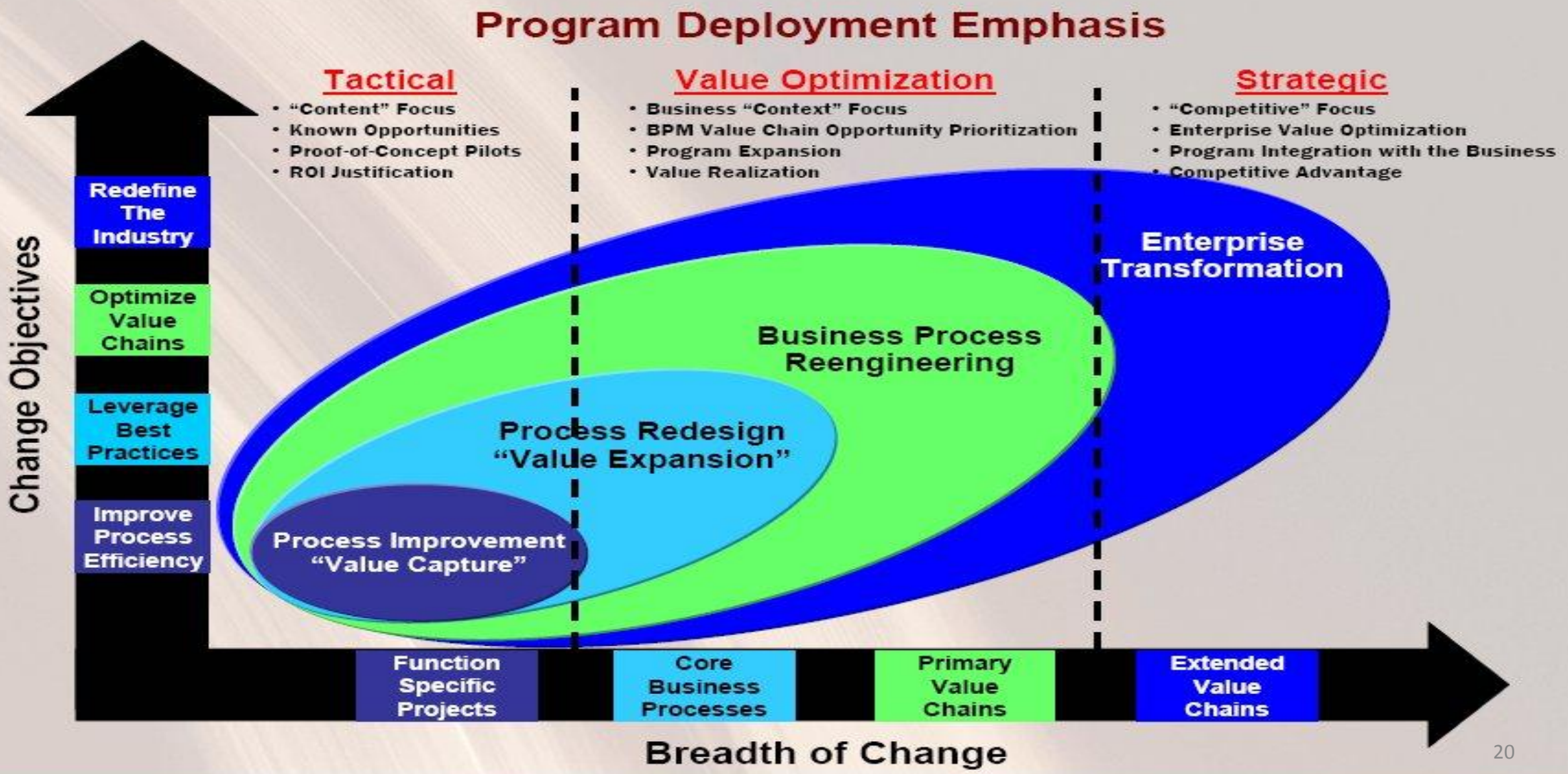
Benefits of Enterprise Architecture

- Ability to unify and integrate business process across the enterprise (and extended enterprise)
- Ability to unify and integrate data across the enterprise and link with external partners
- Readily available documentation of the enterprise
- Increased agility by lowering the “complexity barrier”, an inhibitor of change
- Reduced solution delivery time and development costs by maximizing reuse of enterprise models and resources
- Engineer “primitive” components that can be reused in any implementation such that the Enterprise can be assembled to order (Long-Term Value = Effectiveness & Agility)
- Remove all redundancy from the architecture and normalize everything in the architecture (Short-Term Value = Efficiency)
- Ability to create and maintain a common vision of the future shared across the enterprise, driving continuous alignment
- Provides a shared language to see, think, and talk about the enterprise

Benefits of Enterprise Architecture

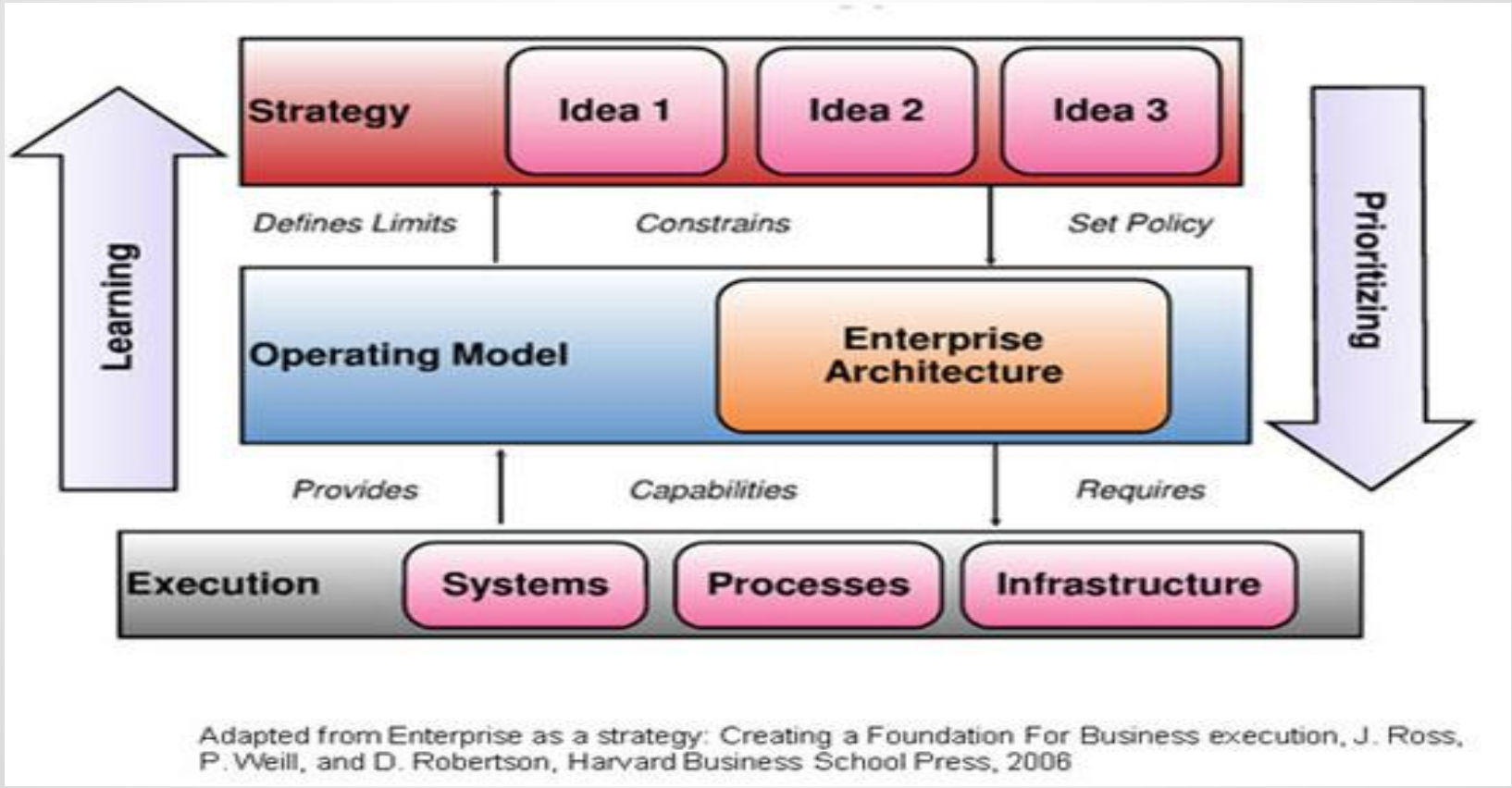
Provides a mechanism to operationalize Enterprise Alignment and Enterprise Transformation

Enterprise Transformation



The Need for Enterprise Architecture

Effective Enterprise Architecture is the key to enable the Enterprise to address orders of magnitude increases in complexity and orders of magnitude increases in the rate of change.



Adapted from Enterprise as a strategy: Creating a Foundation For Business execution, J. Ross, P. Weill, and D. Robertson, Harvard Business School Press, 2006

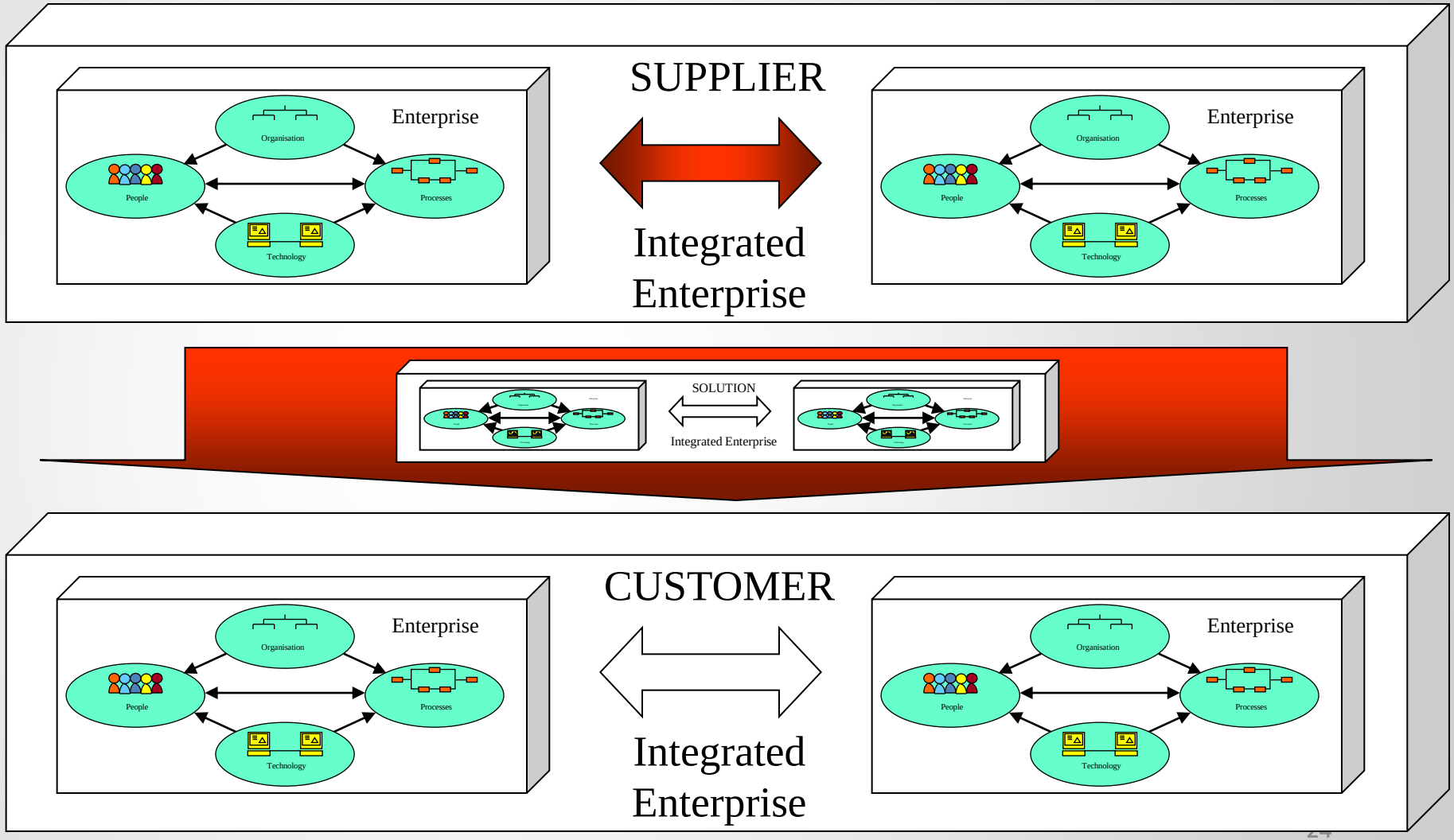
The Role of Enterprise Architecture in "Joined-Up Government"

Joined-Up Government

The term "joined-up government" was coined several years ago in the United Kingdom, when Prime Minister Tony Blair presented the first U.K. e-government strategy. This strategy's goal was to "join up" electronic services by 2005. Since then, the term has been widely used worldwide to describe the integration of services, processes, systems, data and applications necessary to achieve a seamless, citizen-centered government.

Enterprise Architecture Across the Supply Chain

In today's complex, extended enterprises, data resides in my locations and silos making Enterprise Architecture a critical element for effective integration



Challenges to Joining Up Government

	Level 1 Presentation	Level 2 Data exchange	Level 3 Transaction	Level 4 Sharing
Strategy and policy	Freedom of information	Privacy Electronic documents	Privacy Transaction fees Authentication	Impact on IT market Accountability
People	Existing	Decrease in clerical support staff	Skill set changes, increased business staff and appraisals	Job structures, Relocation Shared service organizations
Process	Content management	Metadata E-mail best practice	BPR Relationship mgmt. Channel mgmt.	Quality assurance Reusability
Technology	Web Content management tools	XML E-mail management Document management	WS, security, APS, CRM, identification and authentication	ERP packages Open source WS

Acronym Key

APS - application platform suite

BPR - business process re-engineering

ERP - enterprise resource planning

CRM - customer relationship management

WS - Web services

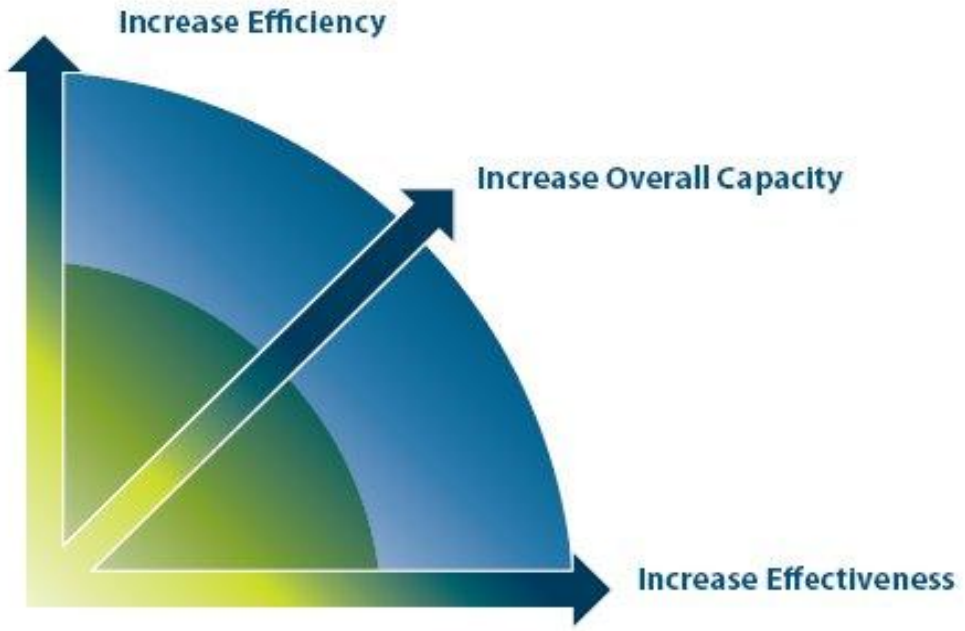
XML - Extensible Markup Language

Source: Gartner

The Need for “City” Planning

The Benefits of Enterprise Architecture in Government

There are three primary ways of generating public value:
Increasing effectiveness, in-creasing efficiency, and creating new capacity.
Maximizing feasibility ensures goals are achieved.



Source: Harvard: Leadership for a Networked World - www.lnwprogram.org

Enterprise Architecture in Government

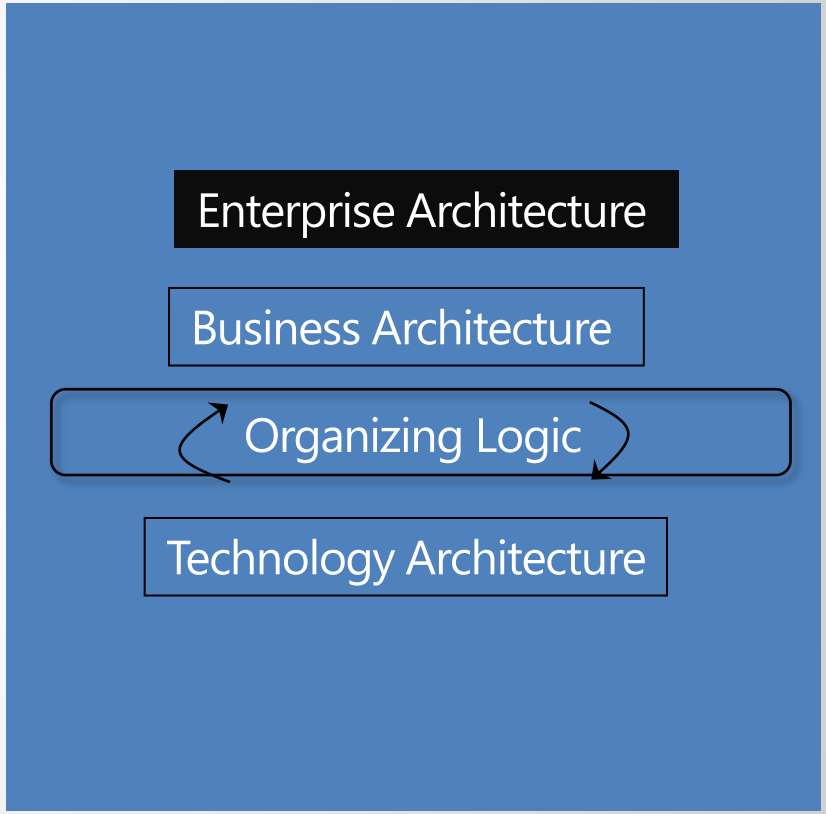
Employ enterprise architecture as the path to organizational transformation and for managing continual renewal. Enterprise architectures are a recognized tenet of organizational transformation and IT management in public and private organizations. Without an enterprise architecture, it is unlikely that an organization will be able to transform business processes and modernize supporting systems to minimize overlap and maximize interoperability.
-GAO August 2006

An enterprise architecture is a blueprint for organizational change defined in models that describe (in both business and technology terms) how the entity operates today and how it intends to operate in the future; it also includes a plan for transitioning to this future state.
-GAO August 2006

Overview of the Center for Enterprise Architecture

EA Initiative at the College of IST

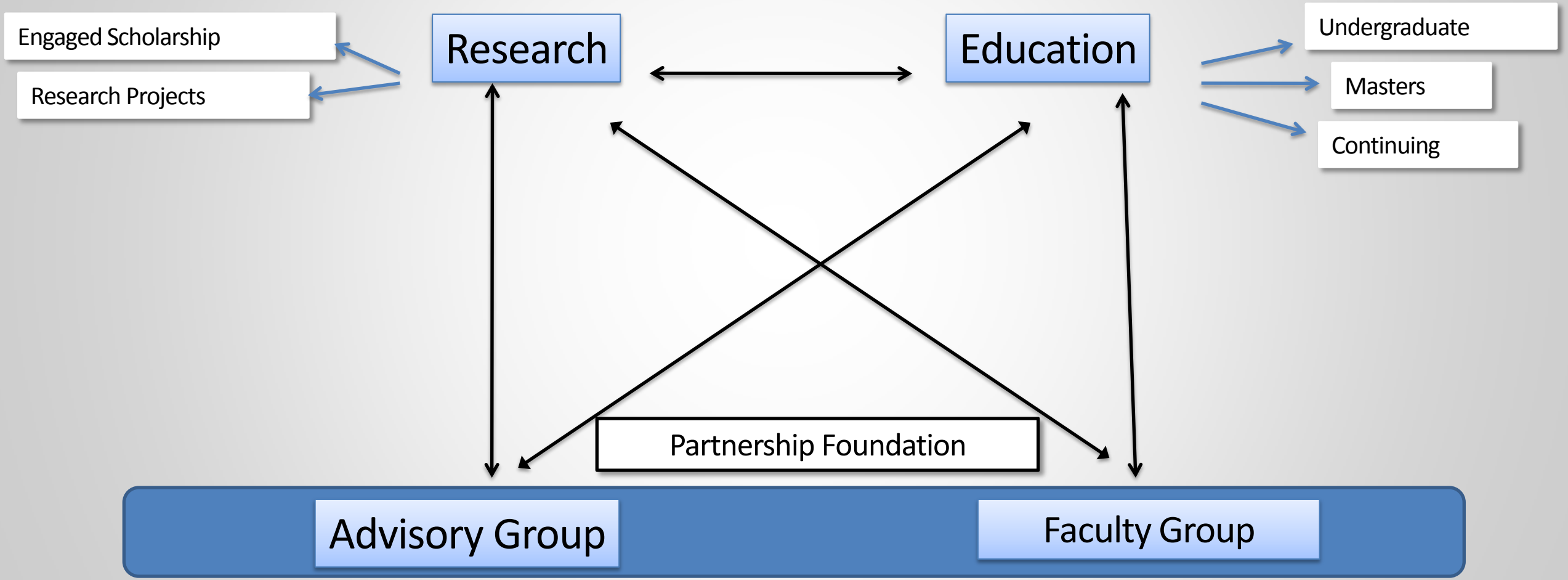
- Enterprise Architecture Advisory Board, over seventy organizations from seven countries
- First Advisory Board Meeting conducted September 2009:
  - Creation of an undergraduate EA degree focus
  - Creation of an online Professional Masters Program
  - Creation of a professional development portfolio
  - Creation of an EA Research Center



Four Main Areas of the EA Initiative

- **Undergraduate Education Committee**
  Defining the competencies that an undergraduate student graduating with a focus in Enterprise Architecture should possess.
- **Masters Education Committee**
  Defining what competencies should be built into the new online Enterprise Architecture Professional Masters Program.
- **Professional Development Committee**
  Defining what type of continuing education offering should be developed in the area of enterprise architecture. Offerings could include certificate programs, executive education, and customized programs for specific organizations.
- **Research Committee**
  Defining what research streams should be developed and enhanced in relation to Enterprise Architecture. Helped develop a straw man participation model for the new EA Center.

The Center for Enterprise Architecture



Enterprise Architecture Professional Masters

- First Enterprise Architecture Masters Program in North America
- First Online Enterprise Architecture Masters in the World
- Implementation of Online Masters Courses (January 2011 – Present)
- Professional Masters Program in EA Approved by University Board of Trustees (March 2012)
- Gartner Endorsement of EA Masters Program (April 2012)
- Many Masters Program Inquiries

Masters Areas of Focus

Initial optional areas of focus: Enterprise Integration, Security, Software Engineering, Supply Chain Management, Project Management

Current Research Activities

- EA career path development
- EA framework development and usage
- EA maturity assessments
- EA Stakeholder analysis & engagement
- Understanding EA styles
- Value measurement frameworks for EA
- Application of EA to areas outside of IT (e.g.: supply chain)

Center for Enterprise Architecture: Major Goals for the Coming Year

- Launch of Online Professional Masters in EA
- Launch of Undergraduate Focus in EA
- Growth of Professional Education Portfolio
- Growth of Custom Education Partnerships
- Growth of the Research Portfolio
- Expansion of the Center for Enterprise Architecture

Current Organizations Involved in the Center for Enterprise Architecture

Alfabet, Germany
Applied Research Lab/ Penn State
Air Force Research Laboratory
Armstrong Process Group
Assoc. of Enterprise Architects (AEA)
Association for Enterprise Information
BAE Systems Inc
Bllue Cross Blue Shield Association
Boeing
Booz Allen Hamilton
Business Architecture Guild
Center for the Advancement of the Enterprise Architecture Profession (CAEAP)
CIGNA
Computer Aid Inc. (CAI)
Computer Sciences Corporation
Cutter Consortium
DAGH,LLC
Department of Homeland Security
Data Management International (DAMA International)
Defense Intelligence Agency
Deloitte Consulting
EMC Corporation
Ernst & Young
FEMA
Forrester Research
Gartner
GEICO
IBM
Innoveer Solutions
Integration Consortium
Iteraplan, Germany
International Organization for Standardization (ISO)
Johnson & Johnson
Kaiser Permanente
Kingdee Research Institute, China
LMI
Lockheed Martin
Mathet Consulting, Inc.
Meraka Institute, South Africa
NetApp
Northrop Grumman
Object Management Group (OMG)
Oracle
PA. State System of Higher Education (PASSHE)
Pfizer
Pinnacle Business Group
PNC Financial Services Group
PricewaterhouseCoopers
Progressive Insurance
Raytheon
Smartsphere PPM and EAM Solutions
State Farm Insurance Company
TATA Consultancy Services , India
The Confiance Group
The Enterprise Architecture Shared Interest Group from the Industry Advisory Council
The National Defense University
The MITRE Corporation
The Open Group
TONEX
Trout Technologies
Unisys Corporation
U.S. Department of Defense
U.S. Department of Interior
U.S. General Services Administration (GSA)
U.S. Office of Management and Budget (OMB)
U.S. Air Force, Chief, Enterprise Architecture Division, Office of Warfighting Integration and CIO
Verizon Telecom - Information Systems
Virginia Information Technologies Agency
Wipro Technologies

The Federation of Enterprise Architecture Professional Organizations (FEAPO)

The Federation of Enterprise Architecture Professional Organizations (FEAPO)

WHAT IS FEAPO?

The Federation of Enterprise Architecture Professional Organizations (FEAPO) is an association of professional organizations whose members have an active interest in the practice and professionalism of Enterprise Architecture.

WHY FEAPO?

FEAPO provides a forum to facilitate collaboration and coordination of activities among Enterprise Architecture (EA) related professional organizations, to work toward a better integrated community and "one face" for the advancement of the profession of Enterprise Architecture. The advent of FEAPO has been welcomed from the world all over because there is a strong desire among practitioners and organizations in many countries to professionalize and advance the field of enterprise architecture.

WHAT DOES FEAPO DO?

FEAPO encourages the Enterprise Architecture community to undertake cross organizational activities to standardize, professionalize, and otherwise advance the discipline of Enterprise Architecture.

For more information, please visit http://www.feapo.org/.

The Federation of Enterprise Architecture Professional Organizations Current Members

- Data Management International (DAMA International)
- DAMA International Education and Research Foundation
- International Council on Systems Engineering (INCOSE)
- IEEE Computer Society
- The Association for Enterprise Information
- BCS, The Chartered Institute for IT
- The Australian Computer Society
- The Business Architecture Guild
- The Business Architecture Society (BAS)
- The Canadian Information Processing Society (CIPS)
- The Center for the Advancement of the Enterprise Architecture Profession (CAEAP)
- The Global IT Community Association (GITCA)
- The International Federation for Information Processing International Professional Practice Partnership (IFIP IP3)
- International Institute of Business Analysis (IIBA)
- The National Association of State CIOs
- The Network Professional Association (NPA)
- New Zealand Computer Society

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Note: The National Defense University, MITRE, Gartner, Forrester, and Cutter are functioning as external advisors.

FEAPO Major Goals For The Coming Year

- Expansion to Over 20 Member Organizations
- Continue to Build Relationships and Trust Between FEAPO Members
- Launch EA BOK Project (Fall 2012)
- EA Perspective Paper (March 2013) and Assume Editorship of Wikipedia
- Summit on the Enterprise Architecture Profession: Ratification of EA Perspective Paper & EA Career Path Framework (April 2013)
- Launch Phase II of EA Career Path Framework Initiative (May 2013)
- Launch FEAPO Affiliate Membership Level (June 2013)
- Continue with the FEAPO Roadmap of Activities for the EA Profession

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Questions/Discussion

Thank You!

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This project was supported by Grant No. 2010-DJ-BX-K046 awarded by the Bureau of Justice Assistance. The Bureau of Justice Assistance is a component of the Department of Justice's Office of Justice Programs, which also includes the Bureau of Justice Statistics, the National Institute of Justice, the Office of Juvenile Justice and Delinquency Prevention, the Office for Victims of Crime, and the SMART Office. Points of view or opinions in this document are those of the author and do not necessarily represent the official position or policies of the U.S. Department of Justice.