
Government Enterprise Architecture as Enabler of Public Sector Reform

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Dr. Pallab Saha

- Is currently a member of the faculty with the National University of Singapore (NUS). His current research and consulting interests include Enterprise Architecture, IT Governance, and Business Process Management. He has published several research papers in these areas. Pallab is an active researcher in the area of Enterprise Architecture and has published his first book titled “Handbook of Enterprise Systems Architecture in Practice” in 2007. He has just finished his second book titled “Advances in Government Enterprise Architecture” to be published in 2008. He is currently working on his third book as a co-author along with Scott Bernard, Gary Doucet and John Gotze.

- Leads the Information Systems Management research group within NUS–Institute of Systems Science. Dr. Saha teaches courses in Enterprise Architecture, IT Governance and Business Process Management at the post-graduate and senior executive levels.

- His current consulting engagements are in Enterprise Architecture for Singapore Government agencies. He has provided consulting and advisory services to Infocomm Development Authority of Singapore, Intellectual Property Office of Singapore, CPF Board, and Great Eastern Life Assurance among others. Dr. Saha is the primary author of the Enterprise Architecture Methodology and Toolkit for the Government of Singapore.

- He is also a contributing author of the Enterprise Architecture Management Guide being developed by the International Association of Enterprise Architects (a|EA) and is a frequently invited speaker at international and local conferences on Enterprise architecture and IT governance (including keynote sessions). Prior to academia, he was instrumental in managing Baxter’s environmental health and safety offshore development centre in Bangalore as Head of Projects and Development.

- He has worked on engagements in several Fortune 100 organizations in various capacities. Pallab received his Ph.D in 1999 from the Indian Institute of Science, Bangalore. His Ph.D dissertation was awarded the best thesis in the department. His Ph.D. proposal was selected as one of the top five in India and received a special research grant for the same. Earlier he completed an M.B.A in Information Systems and prior to that gained a B.Sc. in Electronic Sciences from Bangalore University.
Agenda

✓ Background
  ✓ E-Government (E-Gov)
  ✓ Enterprise Architecture (EA)
✓ Linking E-Government and EA
✓ Evolution of Singapore’s E-Gov
  • Singapore Government EA (SGEA)
    ➢ Early Architecture
    ➢ Reference Models
    ➢ Methodology
    ➢ Differentiated EA Design
  • Integrated Enterprise Lifecycle
  • Enabling Government Transformation
  • Further Enhancements
E-Government and E-Government Stage Models

- Refers to the use by government agencies of information and communication technologies that have the ability to transform relations with citizens, businesses, and other arms of government.
- Several available models (like the Gartner, Deloitte & Touché, UN).
- The key stages of E-Government Maturity include:
  - Web Presence
    - Simple, static information through websites. One-way communication.
  - Interaction
    - Simple interaction which is very agency centric.
  - Transaction
    - Conduct of complete online transactions. Needs some of cross-agency communication.
  - Transformation
    - Integrated government (both vertical and horizontal).
Defining EA

An organization’s enterprise architecture is the organizing logic for its core business processes and IT capabilities captured in a set of principles, policies and technical choices reflecting the standardization and integration needs of its operating model.

Source: Enterprise Architecture As Strategy; Ross, Weill, Robertson; 2006
Understanding EA

Enterprise Architecture “the city plan”

System Architecture “the building design”

EA provides a mechanism to instill discipline and control (governance) to business processes and their enabling IT infrastructures.

Adapted From: IBM; 2006

Business Architecture
- Processes
- Information
- People
- Locations

IT Architecture
- Information
- Application
- Technology

Enterprise Architecture

Business Operating Environment and IT Infrastructure

IT Solutions

Run the Business

Grow the Business

Transform the Business

Governance & Management

Strategy

Enterprise wide focus

Planning

Run the Business

Grow the Business

Transform the Business

Inspire

Lead

Transform

Source: The Esplanade Company Limited

Source: The Esplanade Company Limited
## Evolution of EA Maturity

<table>
<thead>
<tr>
<th></th>
<th>Application Silo</th>
<th>Standardized Technology</th>
<th>Rationalized Data</th>
<th>Modular</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IT Capability</strong></td>
<td>IT applications serve isolated business needs</td>
<td>Firm-wide technology standards</td>
<td>IT focused on wiring core process</td>
<td>Modules enable business model extensions</td>
</tr>
<tr>
<td><strong>Key Management Innovation</strong></td>
<td>Technology-enabled change management</td>
<td>Standardization and exception management, refresh</td>
<td>Recognizing essence of the business</td>
<td>Practices facilitating reusability</td>
</tr>
<tr>
<td><strong>Business Case for IT</strong></td>
<td>ROI of applications</td>
<td>Reduced IT costs; interoperability</td>
<td>Improved business performance; integration</td>
<td>Speed to market; Strategic agility</td>
</tr>
<tr>
<td><strong>Locus of Control</strong></td>
<td>Local control</td>
<td>Senior management support of CIO</td>
<td>Senior management, IT, and process leadership</td>
<td>Senior mgmt, IT, process, and local leadership</td>
</tr>
<tr>
<td><strong>Key Governance Issues</strong></td>
<td>Estimate, measure, communicate value</td>
<td>Establish (local/ regional/ global) standard setting, exception &amp; funding processes</td>
<td>Determine core processes and funding priorities</td>
<td>Define boundaries for business experiments</td>
</tr>
</tbody>
</table>

*Source: Enterprise Architecture As Strategy; Ross, Weill, Robertson; 2006*
EA is Essential for E-Government

<table>
<thead>
<tr>
<th>E-Government Stage</th>
<th>Enterprise Architecture Maturity Stage</th>
<th>Explanation / Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Application Silos</td>
<td>Standardized Technology</td>
</tr>
<tr>
<td>1. Web presence</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>2. Interaction</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>3. Transaction</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>4. Transformation (Connected)</td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>

Agencies / departments still operate in their silos and almost don’t need any architecture.

Simple two-way communication needs very basic and few common technology standards, but still largely within their silos.

Complete online transactions needs moderate level of cross-agency collaboration and sharing at the technology level.

Government appears and operates as ONE, high degree of integration needs common and shared business functions and outcomes.

Source: Advances in Government Enterprise Architecture; Saha; 2008
# Progress of Singapore’s E-Government

<table>
<thead>
<tr>
<th>E-Government Plan (Generations)</th>
<th>Key Points / Evolution Stage</th>
</tr>
</thead>
</table>
2. Automation of simple activities (paperwork elimination)  
3. Encourage the use of Internet  
4. Maps to Web Presence and Interaction stages in the E-Government stage model |
2. Establishment shared data center and civil services network  
3. Maps to Interaction stage in the E-Government stage model |
2. Adoption of common infrastructure, information management and technical standards  
3. Foster cross-agency collaboration  
4. Maps to Transaction stage in the E-Government stage model |
2. Enhancement of e-engagement, capacity and synergy  
3. Maps to Transformation stage in the E-Government stage model |

*Source:* Advances in Government Enterprise Architecture; Saha; 2008
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  - Methodology
  - Differentiated EA Design
- Integrated Enterprise Lifecycle
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- Further Enhancements
As part of its E-Government Action Plan I (E-GAP I), there was a need for a well-designed, reliable and scalable infrastructure.

Triggers for early architecture included:
- Inter-operability
- Economies of scale
- Cross-agency collaboration at a technical level

This led to the development of Singapore’s technology standard blueprint called the “Service-Wide Technical Architecture (SWTA)” in 1999.

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – Early Architecture (2/2)

**SWTA Quick Facts**

- Collection of nine technical domains
- Consists of standards, guidelines, best practices and recommended implementations
- Meant for agencies to adapt / adopt
- Mandated as part of IT Governance policy
- Updated every six months
- Well established

*Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007*
SGEA – The Next Generation

- Enterprise Architecture (EA) is a blueprint which links
  - Business functions;
  - Relevant data standards;
  - Common systems and services; and
  - Technologies

- Cross-agency in order to achieve enterprise level or whole-of-government (integrated) goals

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – Reference Models

- Development of reference models which agencies can refer to, in order to find out which agencies they can collaborate with and what shareable data and components are available for use
  - Business Reference Model
  - Data Reference Model
  - Solution Reference Model
  - Technical Reference Model (erstwhile SWTA)
- Identify key potential areas for collaboration
- Develop methodology to help agencies develop their own EA

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – Business Reference Model (1/2)

Provides an organised view of the business of Government using common terminologies

2 Business Areas. Represent the highest level description of the business operations of the Government

33 Lines of Business. These Lines of Business describe more specifically the services and products the Government provides to its stakeholders

137 Business Functions. Describes specific activities that Agencies perform within each Line of Business

Source: Singapore Government Enterprise Architecture; IDA; 2006
SGEA – Business Reference Model (2/2)

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – Data Reference Model

- Specifies definitions for data elements that are commonly used across agencies, to enable more effective data exchange

- DRM comprises:
  - Key data entities (Person, Company, Business, Limited Liability Partnership, and Land) and numerous data elements based on the People, Business, and Land Hub
  - Several sets of codifications

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – Solution Reference Model (1/2)

- Contains a portfolio of systems and service components that can be shared / reused across the Government

**Shared Systems**

Corporate Planning & Development
- BLISS
- SAS@Gov
- PM2S

Finance
- MCPS
- NFS@Gov
- PaC@Gov

HR
- PM2S
- PRAISE
- TRAISI
- VOG

Information Management and Consulting
- eventhub@sg

Project & Logistics Management
- GeBiz

Public Communications
- SGMS
- eventhub@sg

Source: Singapore Government Enterprise Architecture; IDA; 2006
SGEA – Solution Reference Model (2/2)

<table>
<thead>
<tr>
<th>No</th>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Business Context</td>
<td>&lt;Refers to business function in Business Reference Model&gt;</td>
</tr>
<tr>
<td>2</td>
<td>Name</td>
<td>Government Electronic Business (GeBIZ)</td>
</tr>
<tr>
<td>3</td>
<td>Description</td>
<td>GeBIZ is an integrated end-to-end System, which allows public sector officers to perform a range of procurement and revenue tender activities. It also provides government suppliers access to procurement opportunities in the public sector and the option to trade electronically with the government</td>
</tr>
<tr>
<td>4</td>
<td>Owner</td>
<td>Ministry of Finance (MOF)</td>
</tr>
<tr>
<td>5</td>
<td>Platform</td>
<td>Web-based, BEA WebLogic</td>
</tr>
<tr>
<td>6</td>
<td>Database</td>
<td>Oracle</td>
</tr>
<tr>
<td>7</td>
<td>Status</td>
<td>PRODUCTION</td>
</tr>
</tbody>
</table>

Source: Singapore Government Enterprise Architecture; IDA; 2006
SGEA – Technical Reference Model

Source: Handbook of Enterprise Systems Architecture in Practice; Saha; 2007
SGEA – MAGENTA (1/6)

Methodology for Agency Enterprise Architecture

(MAGENTA)

- Aims:
  - Build consensus and common foundation among agencies
  - Fill knowledge gaps
  - Encourage participation and establish commitment
  - Raise levels of effectiveness, quality, efficiency, interoperability, and return on investment for EA capabilities
  - Use of real life case study for validation

Source: Advances in Government Enterprise Architecture; Saha; 2008
SGEA – MAGENTA (2/6)

Scope:

➢ A step-by-step guidance in developing and implementing EA
➢ A common unified approach to EA development and improve agency EA maturity and capability
➢ A mechanism to converge organisational efforts in the development and management of the EA blueprint rather than focus on framework related issues
➢ A common reference point for all architectural assets in terms of scope and intensity

Source: Advances in Government Enterprise Architecture; Saha; 2008
SGEA – MAGENTA (3/6)

- Representative Capability:
  1. Business Performance
     - What are our core business processes?
     - Where can we achieve dramatic improvements?
     - What are the areas where we need to collaborate with other agencies?
     - What are our key information requirements to support core business processes?
  2. Investment Performance
     - Which business processes must receive our investments?
     - How do we categorise our investments for IT-enabled transformation?
  3. IT Performance
     - Which business processes have no IT enablement and where are we overspending?
     - Where can we take benefits of common data, applications and technology?
     - Where do we have redundancies and overlaps?
     - What metrics do we need to assess the programme effectiveness?

Source: Advances in Government Enterprise Architecture; Saha; 2008
SGEA – MAGENTA (4/6)

**METHODOLOGY FOR AGENCY ENTERPRISE ARCHITECTURE (MAGENTA)**

**INITIATE PROGRAMME**
- PHASE 1: Establish Enterprise Architecture Programme

**CURRENT ARCHITECTURE**
- PHASE 2: Scan & Analyse Current Business State
  - PHASE 3: Understand Current IT Architecture

**GAP ANALYSIS**
- PHASE 4: Analyse Gaps & Derive Opportunities

**TARGET ARCHITECTURE**
- PHASE 5: Develop Target Business Architecture
  - PHASE 6: Develop Target IT Architecture

**SUSTAIN PROGRAMME**
- PHASE 7: Design Enterprise Architecture Governance & Management
  - PHASE 8: Document Enterprise Architecture Blueprint & Transition Plan
  - PHASE 9: Maintain Enterprise Architecture

**PROGRESS IN TIME**

**STAKEHOLDER GROUPS**

**SOURCE:** Advances in Government Enterprise Architecture; Saha; 2008
Methodology

- Step-by-step instruction oriented
- Structure
  - **MAGENTA MAP**: Graphical view of MAGENTA identifying the phase that is being described.
  - **OBJECTIVE**: The key intent of executing the phase.
  - **INPUTS**: Items that are required to execute the phase. Each input contains a reference to the steps where it is utilised.
  - **OUTPUTS**: Items that are produced as a result of executing the phase. Each output contains reference to the steps that are utilised to produce the specific output.
  - **STEPS**: Activities performed in the phase shown both in graphical and detailed tabular form. Each step is numbered for easy reference. Each step makes reference to a Phase Tool / Phase Example where appropriate. Every step also identifies the role responsible for performing the step.
  - **PHASE TOOLS**: Templates, guidelines and pointers that are useful in executing a specific step of the phase.
  - **PHASE EXAMPLES**: Illustrations of outputs that are produced as a result of executing a specific step in the phase. The examples are intended to illustrate the outcome of executing specific steps.
  - **DO’S & DON’T’S, TIPS, and FAQs**
  - **CASE STUDY**: Demonstrates the use of the methodology with the development of EA for a Singapore Government Agency

*Source: Advances in Government Enterprise Architecture; Saha; 2008*
MAGENTA is intended for application at different agencies in the following clusters:

- Government administration
- Manufacturing and services
- Education and learning
- Healthcare and social services
- Justice and law enforcement

MAGENTA for Defense is currently under development

Source: Advances in Government Enterprise Architecture; Saha; 2008

MAGENTA is being incorporated into a leading EA tool by the government
EA Design Models in MAGENTA

Technology Differentiation Model
- Development of new technology standards and products
- Technology innovation focused decentralized governance model
- Technology leadership is the key driving factor
- Scope of technology goes beyond IT
- Benefits oriented toward widespread adoption of developed technology standards
- Management of technology R & D is a critical capability
- IT portfolio skewed towards strategic R & D initiatives

Business Differentiation Model
- Development of new business models that are replicated by peers / competitors
- Business innovation focused decentralized governance model
- Business agility is the key driving factor
- Value not is the unit of competition
- Benefits oriented towards revenue growth
- Enterprise portfolio skewed towards strategic initiatives
- IT viewed as a competitive differentiator, and completely entwined into the business
- Ubiquitous architecture in an integrated enterprise

Technology Standardization Model
- Adoption of technology standards
- Extensive use of TRM and DRM
- Control / compliance oriented centralized governance model
- Benefits oriented towards reduction of technology costs
- Interoperability is the key driving factor
- Reduction of technology silos
- IT engagement levels are restrained
- IT portfolio skewed towards infrastructure and transactional initiatives

Business Standardization Model
- Adoption of common business processes
- Extensive use of SRM and BRM
- Consensus oriented federated governance model
- Benefits oriented towards reduction of business operating costs and bottom-line performance
- Collaboration is the key driving factor
- Reduction of business / functional silos
- IT engagement levels are strong
- IT portfolio skewed towards informational initiatives
- Movement towards service oriented architecture

Source: Advances in Government Enterprise Architecture; Saha; 2008

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✓ Integrated Enterprise Lifecycle
• Enabling Government Transformation
• Further Enhancements
Government IT Governance Framework

Source: Singapore Government Enterprise Architecture; IDA; 2006
Classical IT Planning Based Approach

Source: Advances in Government Enterprise Architecture; Saha; 2008
MAGENTA Derived EA Based Approach

Source: Advances in Government Enterprise Architecture; Saha; 2008
Integrated Enterprise Lifecycle

- Environmental Drivers (External and Internal)
  - Mission & Vision
  - Goals and CSFs
  - Objectives
  - Strategy
  - Metrics
  - Strategic Plan

- Strategic Planning
  - Engagement
  - IT Mission & Vision
  - IT Goals and CSFs
  - IT Objectives
  - IT Strategy
  - IT Metrics
  - IT Strategic Plan

- Enterprise Architecture Planning
  - Engagement
  - Security
  - Data
  - Application
  - Technology
  - IT Initiatives
  - IT Architecture

- Business Architecture
  - Business Process
  - Information
  - People
  - Location
  - Business Initiatives

- Implementation Planning
  - Business Portfolio
  - Annual Business Plan
  - Project Plan
  - IT Portfolio
  - Annual IT Plan
  - IT Project Plan

- Vertical Alignment
  - Compliance & Change Management

- Horizontal Alignment
  - Feedback

- iN2015 & iGOV 2010
  - SGEA
  - Agency EA

- Inspire
  - Lead
  - Transform

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Source: Advances in Government Enterprise Architecture; Saha; 2008
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The concept of connected government is derived from whole-of-government approach which utilizes technology as a strategic tool and as an enabler for public service innovation and productivity growth.

**Moving to Connected Governance**

1. Intra-Government Process Re-engineering ➔ efficient, responsive and tailored government to reflect citizen needs
2. Inter-Government Process Re-engineering ➔ efficient, joined-up and borderless government:
   - vertical cooperation/integration between levels
   - horizontal cooperation/integration between agencies at same level
   - multi-stakeholder cooperation (with private and third sectors)
3. Re-engineer legacy technology, processes, skills and mindsets

*Source: UN E-Government Survey 2008; United Nations; 2008*
Connected Government (2/2)

Connected government leads to improved coordination of processes and systems within and across government agencies and organizations.

**ICT-enabled connected governance contributes to:**

- **Internally**
  - Avoidance of duplication
  - Reducing transaction costs
  - Simplifying bureaucratic procedures
  - Greater efficiency
  - Greater coordination and communication
  - Enhanced transparency
  - Information sharing between agencies
  - Security of information management

- **Externally**
  - Faster service delivery
  - Greater efficacy
  - Increased flexibility of service use
  - Innovation in service delivery
  - Greater participation
  - Greater citizen empowerment
  - Citizen participation

Towards Connected Government with SGEA (1/2)

Source: Advances in Government Enterprise Architecture; Saha; 2008
## Towards Connected Government with SGEA (2/2)

<table>
<thead>
<tr>
<th>EA Activity Using MAGENTA</th>
<th>Aspect of Connected Government (Transformation) Covered</th>
</tr>
</thead>
</table>
| 1. Developing business architecture | • Core business processes  
• Agency process reengineering  
• Collaboration opportunities using BRM |
| 2. Developing information architecture | • Core data entities  
• Agency meta-data  
• Use of common data entities with DRM  
• Contribution to DRM |
| 3. Developing solution architecture | • Core systems and services  
• Agency service registry  
• Use of shared systems and services with SRM  
• Contribution to SRM |
| 4. Developing technical architecture | • Core technologies  
• Agency technology inventory  
• Use of technology standards and common infrastructure  
• Contribution to TRM |
| 5. Designing and Deploying Architecture Governance | • Linkages to integrated governance framework (strategic planning; IT planning; IT portfolio management; IT service management) |

*Source: Advances in Government Enterprise Architecture; Saha; 2008*
Using BRM to Identify Collaboration Opportunities

### Agencies to Business Functions Matrix

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Financial Assistance for business</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Financial Assistance Portal (Social Sector)</td>
<td></td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
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<tr>
<td>Post Secondary Education</td>
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<td></td>
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<tr>
<td>Public Health Monitoring</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Singapore Government Enterprise Architecture; IDA; 2006

- **Agency Grant process/application**
- **Generic Grant process/application for multiple agencies**

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Using DRM to Build Agency IA

- To align agency data standards with the Data Reference Model
- To identify source data for data reuse (instead of collecting it again)
- As a reference for agencies to develop their own Information Architecture

Source: Singapore Government Enterprise Architecture; IDA; 2006
Using SRM to Build Agency AA

Agency wants to develop a system

Looks in SRM to see if there are shared systems or service components it can use

Does not find suitable shared system / service component - proceeds to build / collaborate

Finds a suitable system / service component and proceeds to use them

Source: Singapore Government Enterprise Architecture; IDA; 2006
Mapping the Progress of EA vis-à-vis E-Gov

Legend
1. CSCP – Civil Service Computerisation Programme
2. eGAP – Electronic Government Action Plan
3. iGOV – Integrated Government Plan
4. SWTA – Service-wide Technical Architecture
5. SGEA – Singapore Government Enterprise Architecture
6. MAGENTA – Methodology for Agency Enterprise Architecture

Source: Advances in Government Enterprise Architecture; Saha; 2008
Positioning SGEA in iGOV 2010

vision
To be an Integrated Government that delights customers and connects citizens through infocomm

strategic thrusts

- Increasing Reach & Richness of e-Services
  - Develop insights to enhance e-Services to customers
  - Deliver proactive, user-friendly, responsive and integrated e-Services
  - Extend the reach of e-Services

- Increasing Citizens’ Mindshare in e-Engagement
  - Deliver clear and useful information online in a vibrant and interesting manner
  - Attract participation in online public consultations and feedback

- Enhancing Capacity & Synergy in Government
  - Create synergy through shared data, processes & systems
  - Enrich public officers’ work experience through innovative use of infocomm
  - Foster innovative exploitation of infocomm in public sector

- Enhancing National Competitive Advantage
  - Enhance economic competitiveness through sectoral transformation
  - Collaborate with Infocomm industry in iGov solutions
  - Showcase and promote iGov solutions

key enablers
- Infocomm Management and Governance
- Public Sector Infocomm Competency Development
- Infocomm Security and Infrastructure

Source: Singapore Integrated Government 2010; IDA; 2006

EA appears 41 times in the latest UN Report and Page 89 refers to SGEA

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Current State of EA Around the World

1. EA is still very much IT department / CIO led program (credibility plays a key role)
2. (Somehow) the main purpose of EA is building good IT systems (it is a system centric perspective)
3. The footprint of the EA program is variable
4. (Usually) EA programs are disconnected / isolated from the rest of the organization (need special engagement mechanisms)
5. EA (and their artifacts) become the end (leading to legislations and compliance requirements)

This is good, but not enough.

Source: Coherency Management; Bernard, Doucet, Gotze, Saha; 2008
Coherency Management - Core Theme in Enterprises

- Coherence

  - Logical, orderly and consistent relation of the parts to the whole
  - Necessary in designing and operating complex enterprises that must continually adapt to changes in mission and market conditions

<table>
<thead>
<tr>
<th>Goal</th>
<th>Coherence</th>
</tr>
</thead>
<tbody>
<tr>
<td>→</td>
<td>Enterprise Architecture</td>
</tr>
<tr>
<td>Means</td>
<td>Coherence</td>
</tr>
<tr>
<td>→</td>
<td>Alignment, Agility and Assurance</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Coherence</td>
</tr>
</tbody>
</table>

- Centralized (A)
- Decentralized (B)
- Distributed (C)

Source: Coherency Management; Bernard, Doucet, Gotze, Saha; 2008
# The Three Modes of EA

<table>
<thead>
<tr>
<th>Foundation Architecture</th>
<th>Extended Architecture</th>
<th>Embedded Architecture</th>
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<tr>
<td><strong>Strategic Drivers</strong></td>
<td>Technology and business standardization</td>
<td>Business transformation</td>
</tr>
<tr>
<td>(why do we do it?)</td>
<td>Systems engineering</td>
<td>Product / service leadership</td>
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<tr>
<td></td>
<td>IT asset utilization</td>
<td>Business agility</td>
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<tr>
<td></td>
<td></td>
<td>Enterprise engineering</td>
</tr>
<tr>
<td><strong>Locus of Control</strong></td>
<td>CIO / IT Organization</td>
<td>CIO involved during change</td>
</tr>
<tr>
<td>(Who leads the programme?)</td>
<td></td>
<td>Business architects / process owners</td>
</tr>
<tr>
<td><strong>Critical Management Innovation</strong></td>
<td>Architecture by compliance</td>
<td>Enterprise business architecture</td>
</tr>
<tr>
<td>(how is it accomplished?)</td>
<td>Replacement approach</td>
<td>Organizational improvements</td>
</tr>
<tr>
<td></td>
<td>Flexible programme intensity and cope</td>
<td>Architecture by push with extraneous processes</td>
</tr>
<tr>
<td></td>
<td>Project oriented</td>
<td>Actionable architecture</td>
</tr>
<tr>
<td><strong>Key Governance Mechanisms</strong></td>
<td>Specialized EA team</td>
<td>Cross-institutional governance</td>
</tr>
<tr>
<td>(what is used to assure it?)</td>
<td>Project business cases</td>
<td>Value based tracking</td>
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<tr>
<td></td>
<td>Architecture review board</td>
<td>Business leadership in IT projects</td>
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<td></td>
<td>Led by CIO</td>
<td>Led by CXO</td>
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<tr>
<td><strong>Programme Metrics</strong></td>
<td>Cost efficiency</td>
<td>Time to market</td>
</tr>
<tr>
<td>(how is it measured?)</td>
<td>IT responsiveness</td>
<td>Business responsiveness</td>
</tr>
<tr>
<td></td>
<td>IT risk management</td>
<td>Strategic alignment</td>
</tr>
<tr>
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<td>Business-IT alignment</td>
<td>Coherence in IT and non-IT space</td>
</tr>
<tr>
<td><strong>Benefits &amp; Outcomes</strong></td>
<td>Shared technology platforms</td>
<td>Shared business platforms</td>
</tr>
<tr>
<td>(what do we get?)</td>
<td>Economics of scale</td>
<td>Business value of IT</td>
</tr>
<tr>
<td></td>
<td>Better systems design</td>
<td>Better information governance</td>
</tr>
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</table>

Source: Coherency Management; Bernard, Doucet, Gotze, Saha; 2008
Is Coherent Government the Next Stage in Evolution?
Content Credits and Acknowledgments

■ Content Sources


➤ Advances in Government Enterprise Architecture; Pallab Saha; 2008 (In-Press).


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Thank You

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