PA Consulting Group

IT Governance: OTDA Case Study

Best of New York Presentation

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Agenda

- Presentation Roadmap
- The OTDA Enterprise Architecture Program
- EA and IT Governance Models
- What's Next
- Discussion

PRESENTATION ROADMAP

This presentation describes an ongoing program of work at the Office of Temporary Disability Assistance, including:

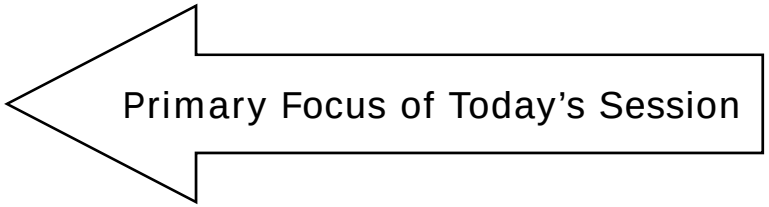
- A description and status of the OTDA Enterprise Architecture Program
- A view of the EA and wider IT Governance issues
  - The EA Governance Recommendation
  - Areas of IT Governance investigation

THE OTDA ENTERPRISE ARCHITECTURE PROGRAM

In August 2007 PA Consulting was brought in to help OTDA establish an Enterprise Architecture Capability.

Major Elements of the program include:

- Raising awareness
- Assessing OTDA EA Maturity
- Selecting an EA Framework
- Developing a governance model
- Selecting supporting tools
- Piloting SDLC integration
- Implementing EA Framework
- Developing Architectures
- Continuously Improving



Definitions . . .

" An Enterprise Architecture or Master Plan establishes the Agency-wide roadmap to achieve an Agency's mission

- through optimal performance of its core business processes
- within an efficient information technology (IT) environment." [1]

A Master Plan links business strategy to elements needed to realize the strategy and consists of:

- Business processes & procedures, including governance models
- Organization structure / roles & responsibilities
- Information technology support

[1] Definition from Federal Enterprise Architecture Framework

The Benefits of a Master Plan

Improve Business Performance	• Effectiveness • Efficiency • Quality of Services • Cycle Time (Time to Policy Implementation / Time to Value) • Client Service / Responsiveness
Improve Performance of IT as a Function	• Effectiveness (do the right things; align IT investments to business priorities) • Efficiency (enable market model; reuse; productivity; ease of exit) • Quality (fit for purpose; reduced defects, increased MTBF) • Cycle Time (development; implementation; release management) • Customer Service / Responsiveness (agility)
Improve IT Management	• Planning (Understand what is in place & how proposed initiatives fit with current landscape (overlaps, opportunity for commonality)) • Development (Employ the most appropriate technology solution) • Operations (Improve integration and interoperability within and across agencies)

Increases Partnering of Business & IT

Development of the Master Plan

Master Plan is driven by the aspirations of the enterprise (i.e. Mission / Objectives)

- What is the purpose of the Enterprise ?
- What does it want to achieve ?

Aspirations drive business strategy

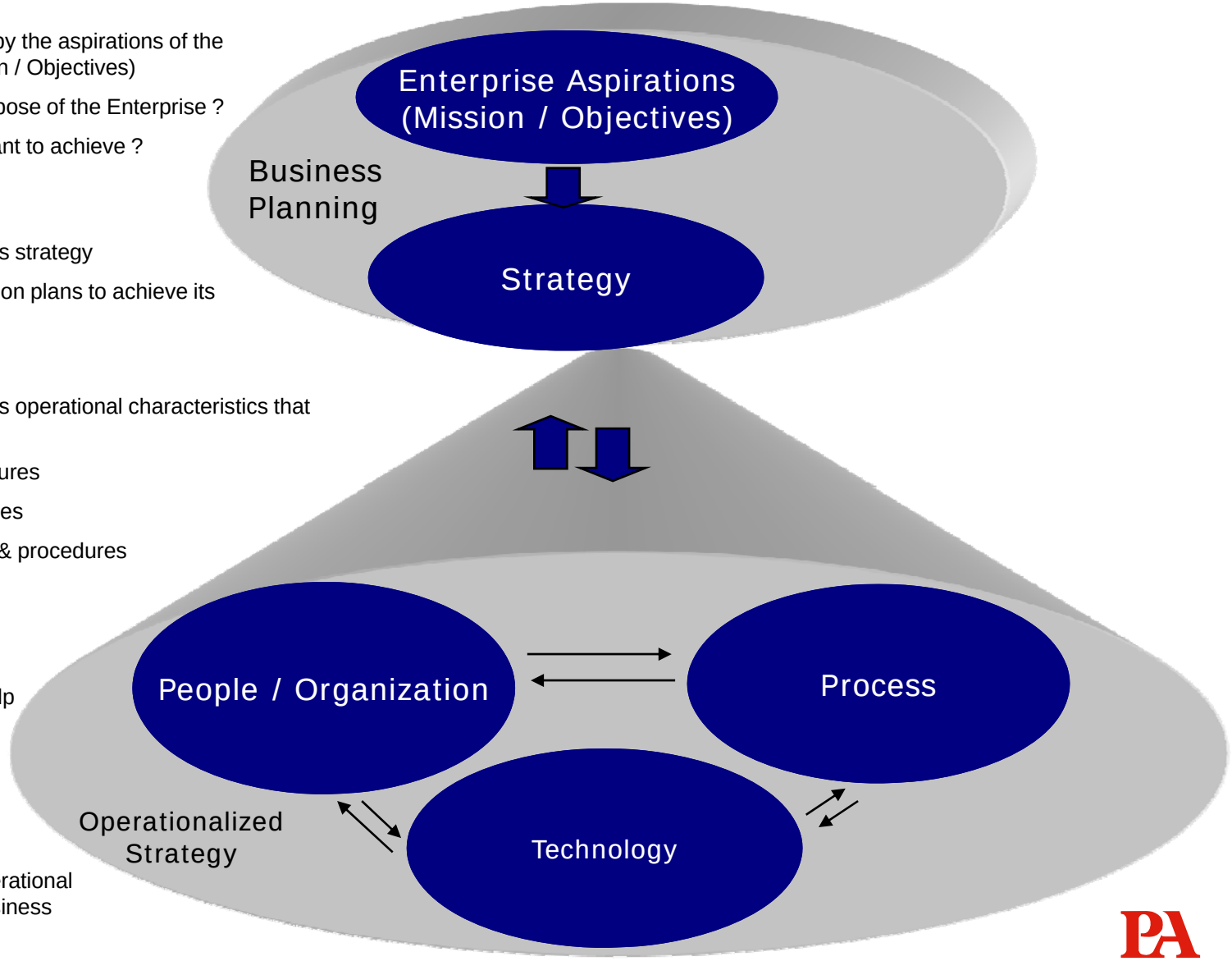
- How the organization plans to achieve its purpose

Business strategy influences operational characteristics that enable the strategy

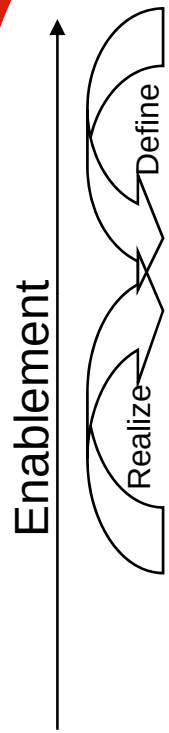
- Organizational structures
- Roles & responsibilities
- Business processes & procedures
- IT enablement

The Master Plan is a tool to help organizations

- Plan
- Analyze
- Implement
- Continually Improve operational elements to achieve business strategy



Typical Architectural Models



Business Models

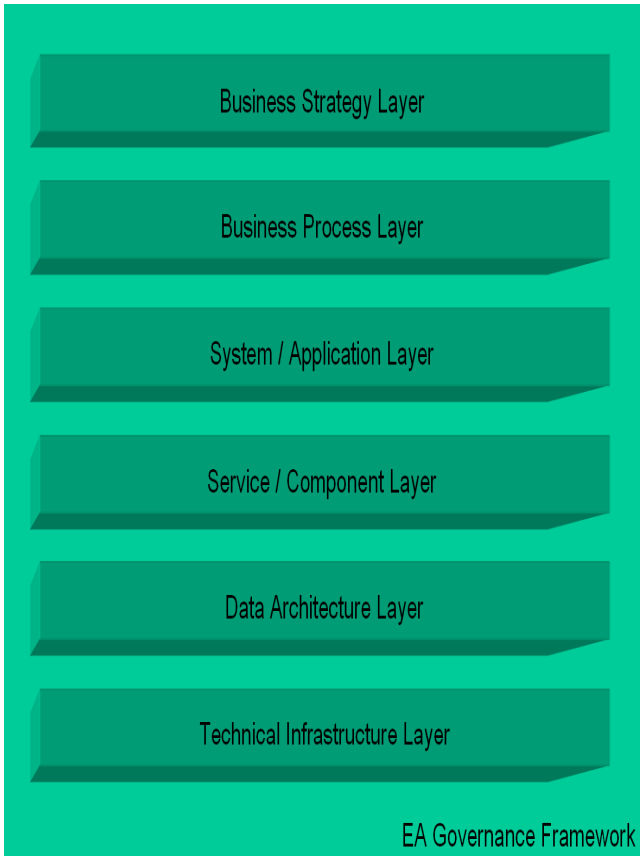
- Business Strategy
- Business Processes
- Organization

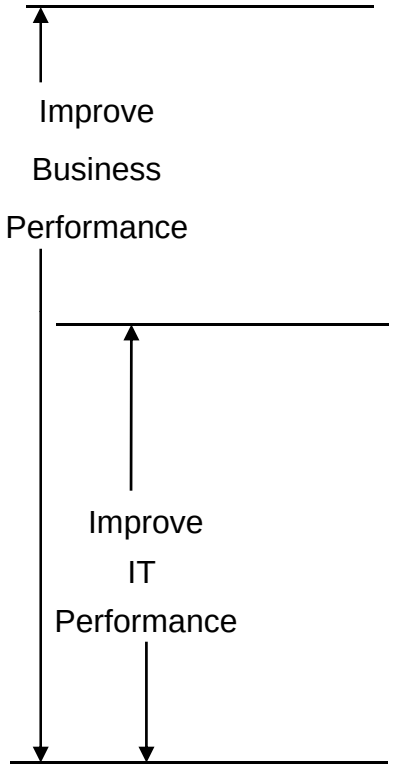
Enabling Info. & Systems Models

- Information Architecture
- Applications / Solutions

Materials Models

- Components / Services / Frameworks
- Data
- Technical Architecture (HW / SW / Networks)





Dimensions of Performance

1. Effectiveness
2. **Efficiency**
3. **Quality**
4. **Cycle Time**
5. Customer Service

Enterprise Architecture Historical Perspective

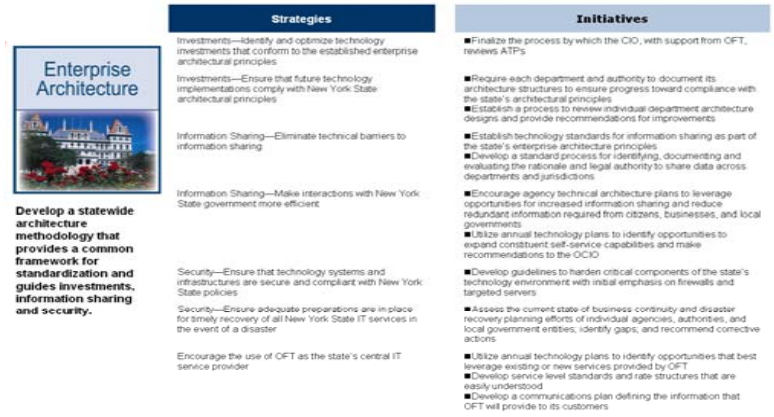
Enterprise Architecture has a solid basis & support at the federal level dating back > 10 years

- The Clinger-Cohen Act of 1996 assigned the CIOs with the responsibility to develop information technology architectures (ITAs).
- The Office of Management and Budget (OMB) M-97-02, Funding Information Systems Investments, October 1996, requires that Agency investments in major information systems be consistent with Federal, Agency, and Bureau ITAs.

A National Association of State CIOs has emphasized the importance of Enterprise Architecture

- Enhances government's ability to deliver effective and timely services
- Supports agencies in their efforts to improve government functions and thereby, services.

Enterprise Architecture is a key element of New York State's IT Strategic Plan



Enterprise Architecture Program Status

Specific elements of the program include:

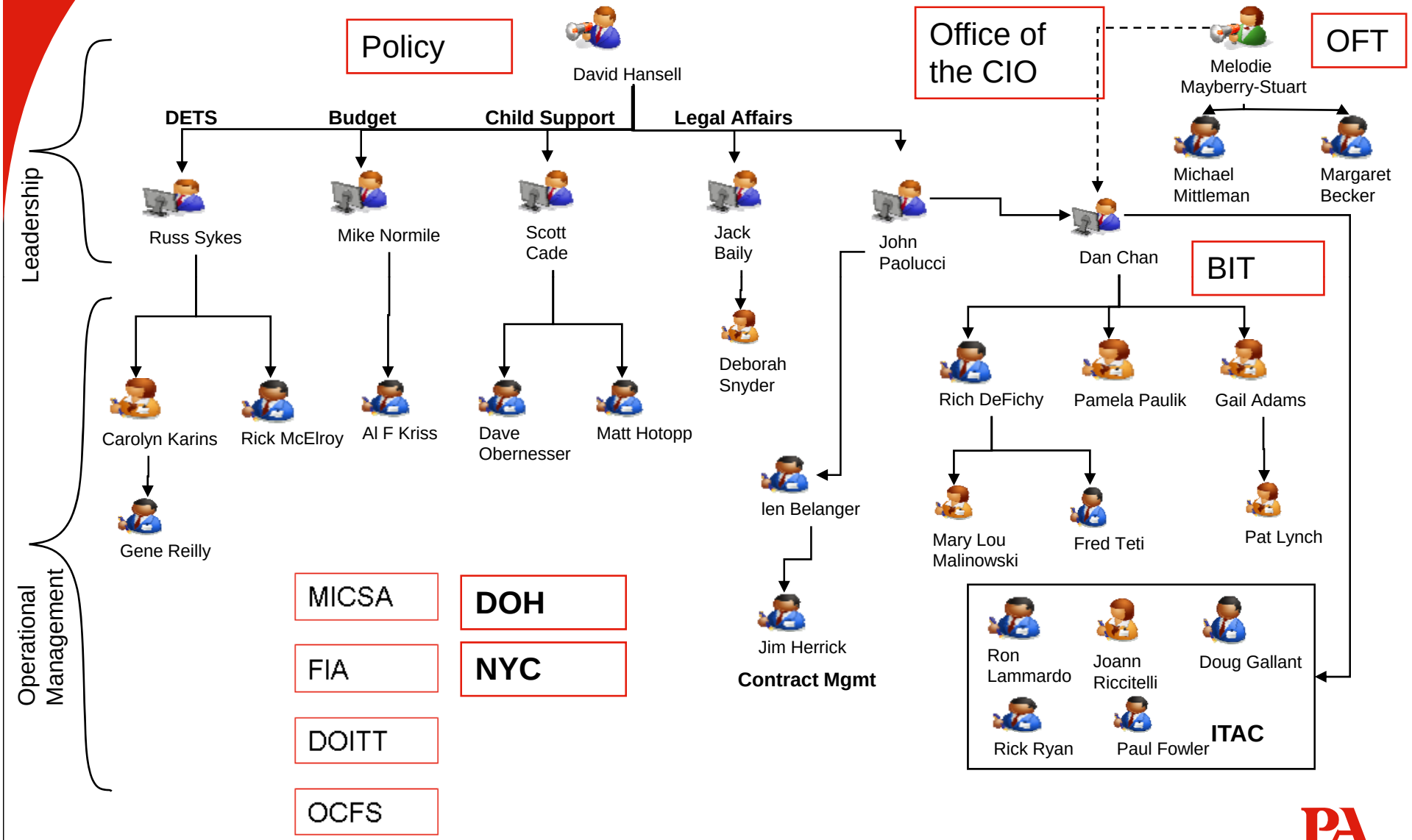
- Raising awareness of EA in OTDA
- Assessing the EA maturity of the enterprise
- Selecting / implementing an EA framework
- Selecting / implementing tools to support the framework
- Defining and implementing a Governance Model
- Defining the skeletal structure for future state models
- Beginning to define the current state models
- Developing EA capabilities within the enterprise

Continues the tradition of employing Enterprise Architecture already established at both the state and federal levels

Aimed at achieving the benefits outlined for Master Planning

Establishing an EA Capability is a long term (2 yr) initiative - however, we will look for short term benefits along the way

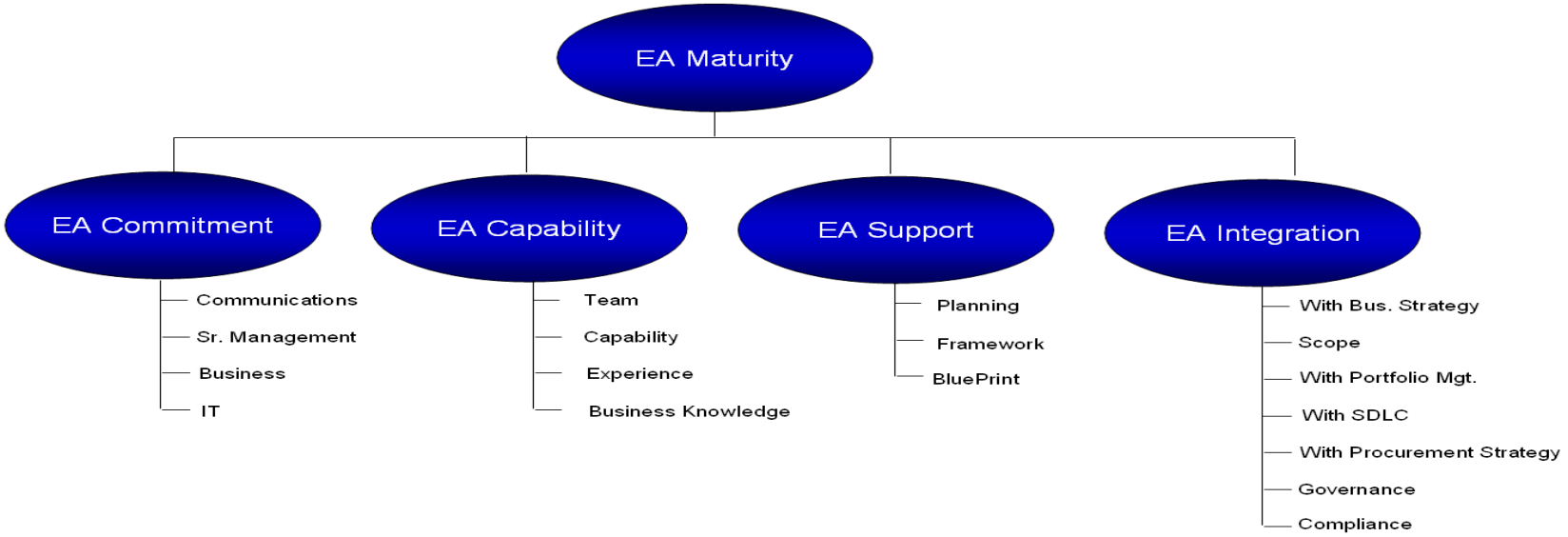
Stakeholders



EA Maturity Assessment – What we did

- Developed a Capability Maturity Model drawing from several models
- Conducted one-on-one and group interviews with 19 stakeholders:
  - Including the entire BIT leadership team
  - And CEES staff
- Analyzed findings against the core dimensions
- Developed series of weighted scores for each dimension to determine the overall EA maturity level for OTDA

EA Maturity Assessment - What we measured



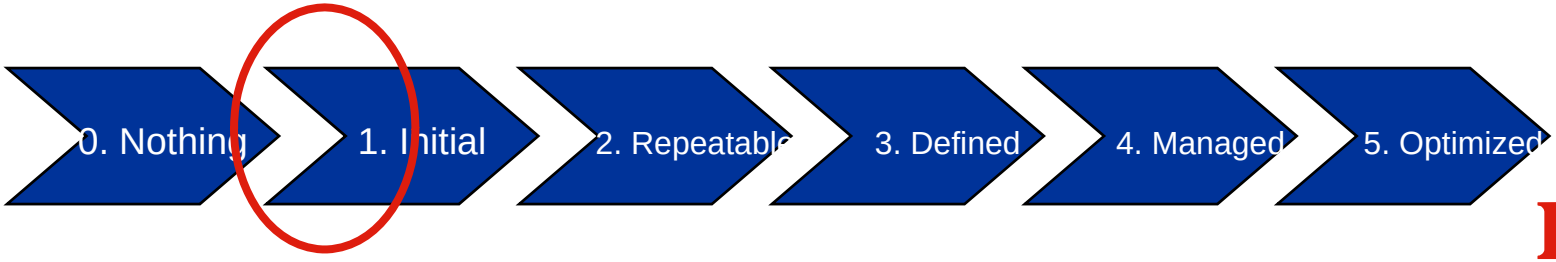
The EA Capability Maturity Models builds on the Capability Maturity Model established by SEI, but is focused on providing an effective and proven method for an organization to understand the maturity of their Enterprise Architecture capability. We will analyze the target OTDA Enterprise Architecture Maturity across 4 dimensions:

- EA Commitment – This dimensions examines the level of awareness and commitment within the organization for Enterprise Architecture both from Senior Management and the Business
- EA Capability – The dimension examines the EA capabilities within the organization, particularly the capability and experience of the EA team, if one exists
- EA Support – This dimension examines the level of support for Enterprise Architecture, this include identification of the EA framework, if available, and supporting materials
- EA Integration – The final dimension examines to what extend EA is integrated within the organization, and the maturity of EA governance and compliance

EA Maturity Assessment - What we found

BIT / OTDA's current maturity assessment score has been calculated to be at 1.22

- OTDA is at the initial stage of EA maturity
- More advanced than 'level zero' which is no existing architecture capability or building blocks in place
- Results are as expected. EA process has only just been established.



EA Frameworks Selection

Identified 6 leading frameworks for detailed evaluation.

Framework	Full Name	Organization
NASCIO	NASCIO EA Development Toolkit	National Association of State CIOs
FEAF	Federal EA Framework	CIO Council
MITA	Medicaid IT Architecture	Centers for Medicare & Medicaid Services (CMS)
TOGAF	The Open Group Architecture Framework	The Open Group
Zachman	Zachman Framework	Zachman Institute for Framework Advancement (ZIFA)
E2AF	Extended EA Framework	Institute for Enterprise Architecture Development

Evaluation Criteria:

- Fit for Purpose
- Interoperability
- Completeness of the Framework
- Cost of the Framework
- Acquisition
- Effort to achieve competence
- Ongoing ease of use
- Ability to customize
- Integration with SDLC
- Effort to maintain
- Currency of the Framework
- Level of adoption of the Framework
- Maturity of the Framework
- Tool Support for the Framework
- Openness of the Framework
- Availability of training
- Viability of the Framework

EA Framework score and recommendation

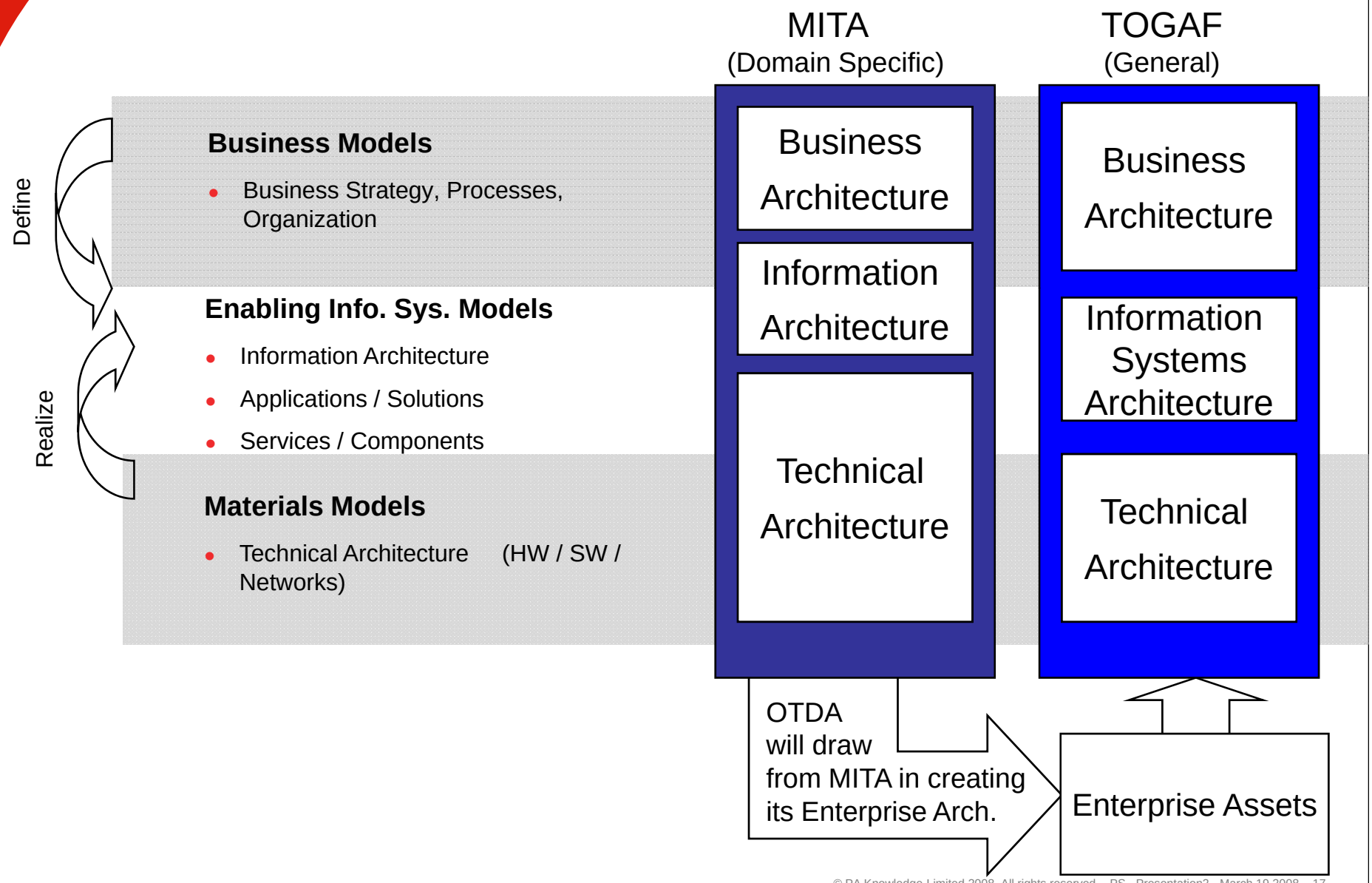
Evaluation Categories	Framework	Score
Fit for Purpose:	**MITA**	**2010**
	NASCIO Framework	1920
	TOGAF	1770
Framework Completeness:	TOGAF	605
	NASCIO Framework	426
	MITA	400
Overall Scores:	**TOGAF**	**3073**
	NASCIO Framework	**2994**
	MITA	**2969**

Recommendation

Adopt TOGAF ADM

- But utilize the MITA SOA/ESB technical architecture framework as the Enterprise Continuum (reference architecture, design patterns, architectural artifacts)
- Consider applicability of the MITA Business Architecture for inclusion into the Enterprise Continuum related to business processes.

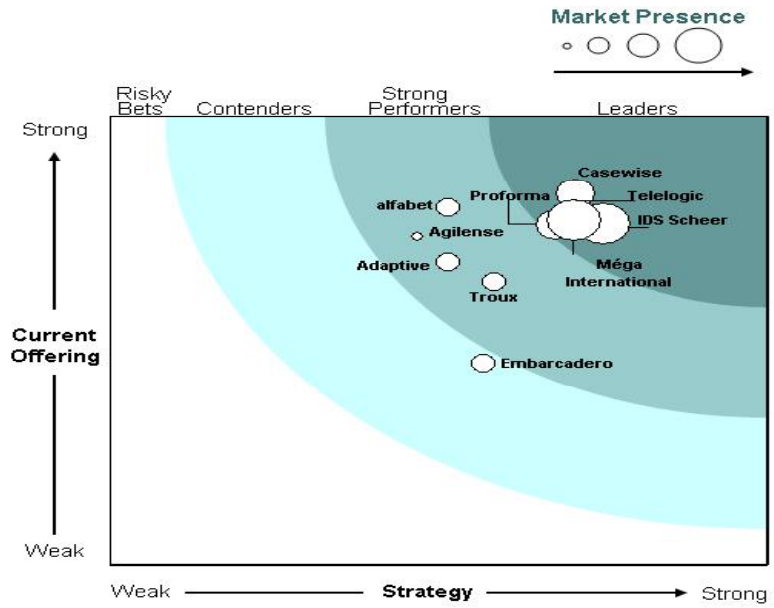
Architectural Models



EA Tool Evaluation – What we did

- Performed a market scan of the best EA tool providers and listed 24 potential tools
- Used Forrester and Gartner reports to filter the top 7 leaders
- Verified the extent to which the tools supported TOGAF
- Listed 120 parameters as the requirements for the tool
- Prioritized the requirements using MoSCoW analysis into 34 must have requirements
- Invited the vendors to perform a detailed tool demonstration
- Evaluated the features in the tool using our criteria

EA Tool Evaluation – Methodology used



Evaluation Criteria included:

- Validation mechanisms
- Wizards for creating models
- Application models
- Process models
- BPM
- Help features
- Information / data models
- UML / BPMN support
- Systems/technology models
- SOA / Services models
- People, organization, and location
- Attachments
- Metamodel customization
- Metamodel validation
- Abstraction of models
- Graphical customizability
- Model Documentation
- Versioning
- Gap and impact analysis
- Audit trail
- BPEL or other BP models
- MS office integration
- Reporting features
- Web publishing features
- Support TOGAF framework
- Overall EA compliance
- Backup and restore features

EA Tool Evaluation – What we found

Vendor	Tool	Weighted Score Max: (486)	TOGAF Support
Mega	Mega	478	Best
IDS Scheer	Aris	386	Average
CaseWise	Case Modeler	378	Good
Telelogic	System Architect	377	Good
Troux	Troux	372	Average
Meta Storm	Provision	275	Good
Future Tech	Envision	189	Average

Next steps

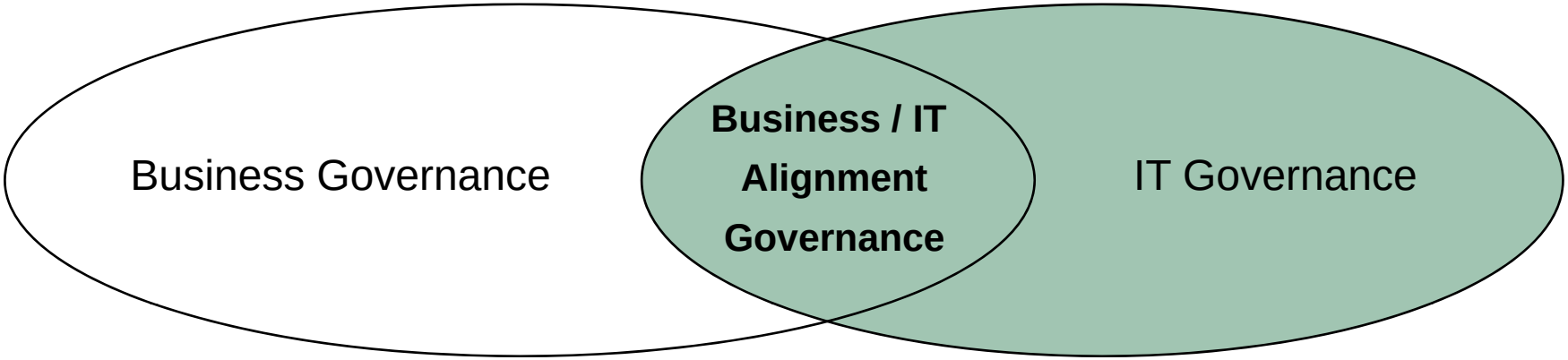
- Mega Tool Acquired, Training scheduled

GOVERNANCE – DEFINITIONS

Governance is Concerned with:

- Determining WHAT decisions need to be made
- Deciding WHO is best positioned to make those decisions
- Providing guidance on HOW such decisions should be made

What needs to be governed?



- There are broader Governance issues for an enterprise than will be discussed here…
- This presentation we will focus on governance concerns of IT
- These concerns fall into 2 broad categories:
  - Governance of IT
    - Service management
    - Focus of COBIT
  - Governance of Business/ IT alignment
    - Focus of Enterprise Architecture Governance

IT Governance

The Activities and Concerns of IT have been described within a now well accepted framework: the IT Infrastructure Library (ITIL).

The activities within the domain of IT include:

- **Service Strategy**
  Focuses on identifying opportunities for services to meet the requirements of internal or external customers. The output is a strategy for the design, implementation, maintenance and continual improvement of the service as an organizational capability and a strategic asset.
- **Service Design**
  Focuses on the design which addresses all aspects of the proposed service, as well as the processes to support it. Key areas are Availability Management, Capacity Management, Continuity Management and Security Management.
- **Service Transition**
  Focuses on implementing the service design and creating a production service or modifying an existing service. Key areas are Change Management, Release Management, Configuration Management and Service Knowledge Management.
- **Service Operation**
  Focuses on operating the services and maintain their functionality defined in the Service Level Agreements with the customers. Key areas are Incident Management, Problem Management and Request Fulfillment.
- **Continual Service Improvement**
  Focusing on Measuring and Monitoring performance levels and continually improving the services provided.

IT Governance

The Issue of Governance of the activities within the domain of IT are addressed in a set of best practices know as: Control Objectives for Information and related Technology (COBIT)

COBIT Defines 34 Areas of IT governance, roughly grouped along the lines of the ITIL service areas.

Plan & Organize

1. Define a strategic IT plan
2. Define the information architecture
3. Determine technological direction
4. Define the IT processes, organization and relationships
5. Manage the IT investment
6. Communicate management aims and direction
7. Manage IT human resources
8. Manage quality
9. Assess and manage IT risks
10. Manage projects

Acquire & Implement

1. Identify automated solutions
2. Acquire and maintain application software
3. Acquire and maintain technology infrastructure
4. Enable operation and use
5. Procure IT resources
6. Manage changes
7. Install and accredit solutions and changes

Deliver & Support

1. Define and manage service levels
2. Manage third party services
3. Manage performance and capacity
4. Ensure continuous service
5. Ensure systems security
6. Identify and allocate costs
7. Educate and train users
8. Manage service desk and incidents
9. Manage the configuration
10. Manage problems
11. Manage data
12. Manage the physical environment
13. Manage operations

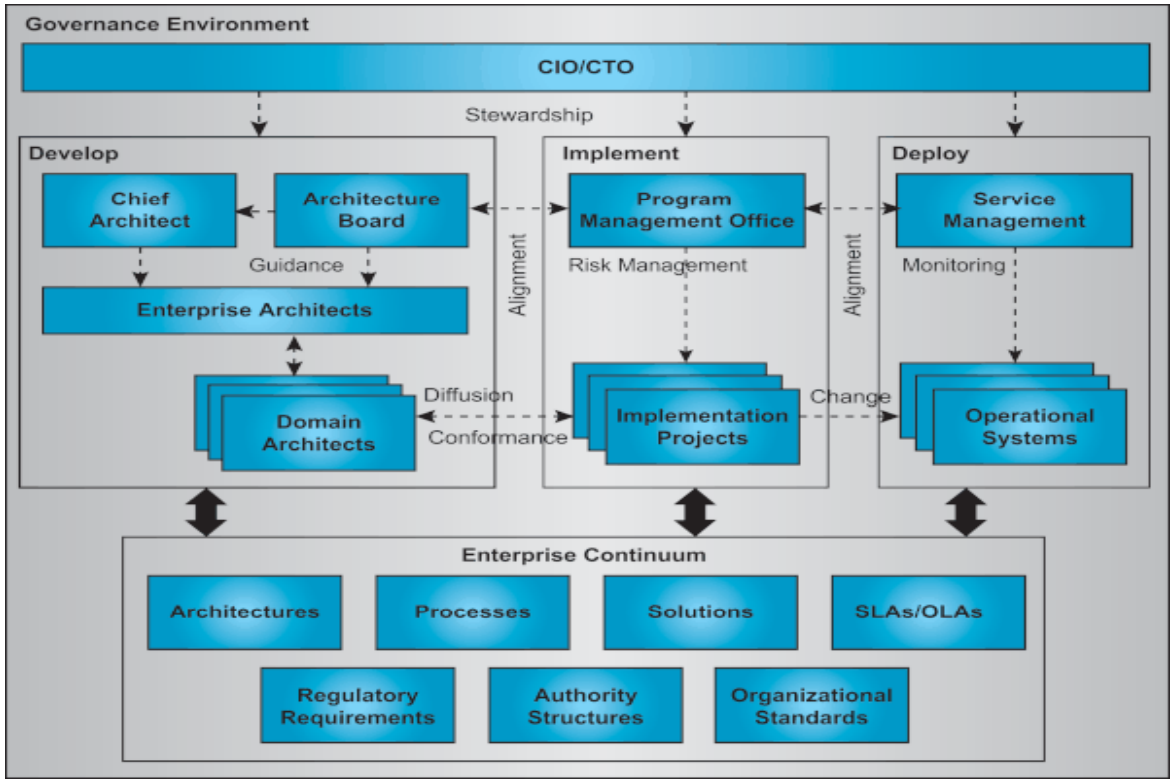
Monitor & Evaluate

1. Monitor and evaluate IT performance
2. Monitor and evaluate internal control
3. Ensure compliance with external requirements
4. Provide IT governance

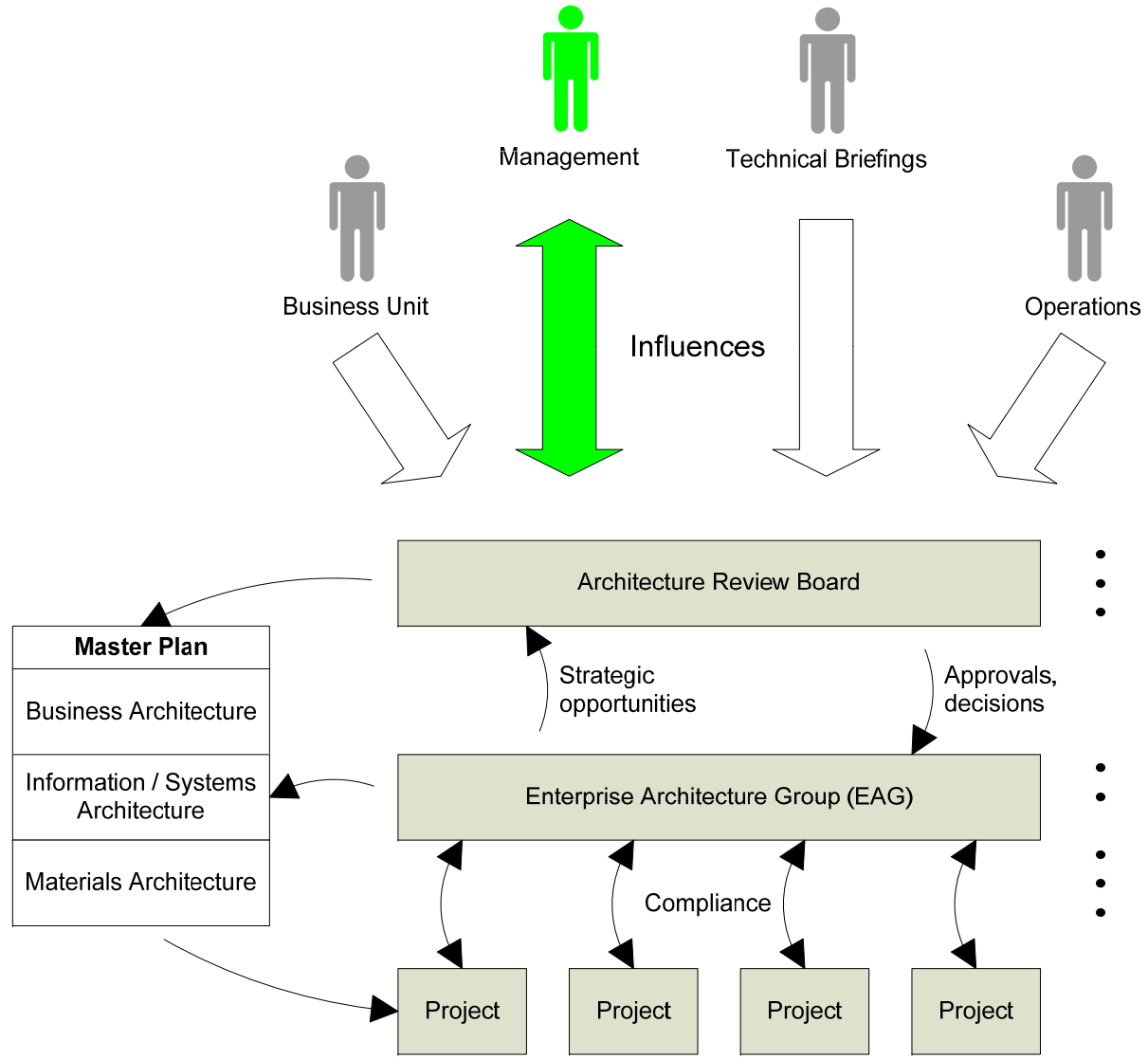
Business/IT Alignment

Business / IT Alignment is addressed by Enterprise Architecture (although the scope of Enterprise Architecture extends beyond this to the larger questions of how best to improve performance of the enterprise)

The Open Group Architecture Framework (TOGAF) describes a generic Enterprise Architecture Governance Model, which we used as a starting point for OTDA's EA governance model



EA Governance Recommendation



- Approves overall architecture
- Resolves escalated issues
- Sponsors / drives EA

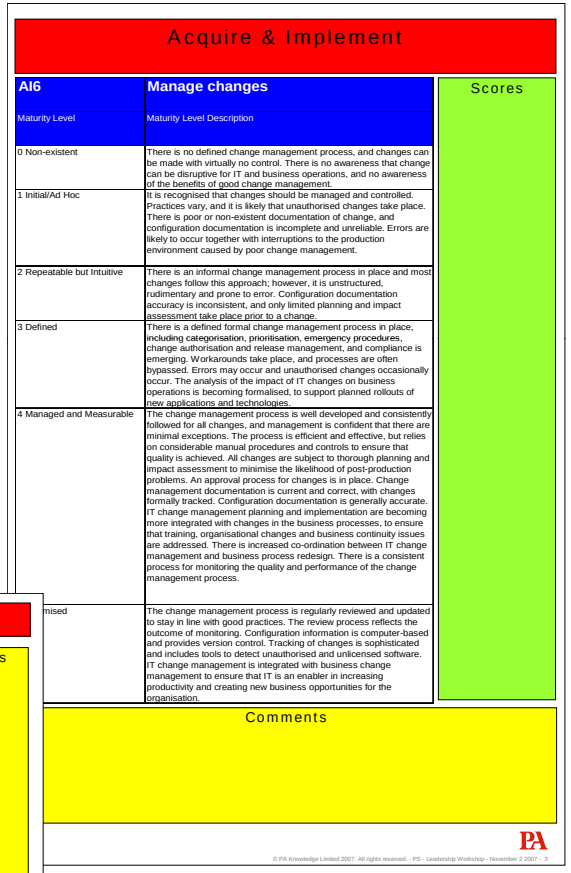
- Develops Master Plan
- Guides development of project architectures
- Monitors compliance
- Approves project architecture
- Grants exceptions as appropriate

IT Governance – What we did

When it was clear that EA Governance could not be implemented in isolation from the rest of IT, we started to take a look at the broader IT Governance.

Used a Leadership Workshop in November to run a COBIT maturity benchmark, carrying out two exercises with the BIT Leadership Team:

- Firstly we asked everyone to look at the “As-Is” processes, answering each of the related questions individually
- Then we asked everyone to go through the same processes, selecting a single Maturity Level that most reflected where they wanted to be within a 2 year timeframe

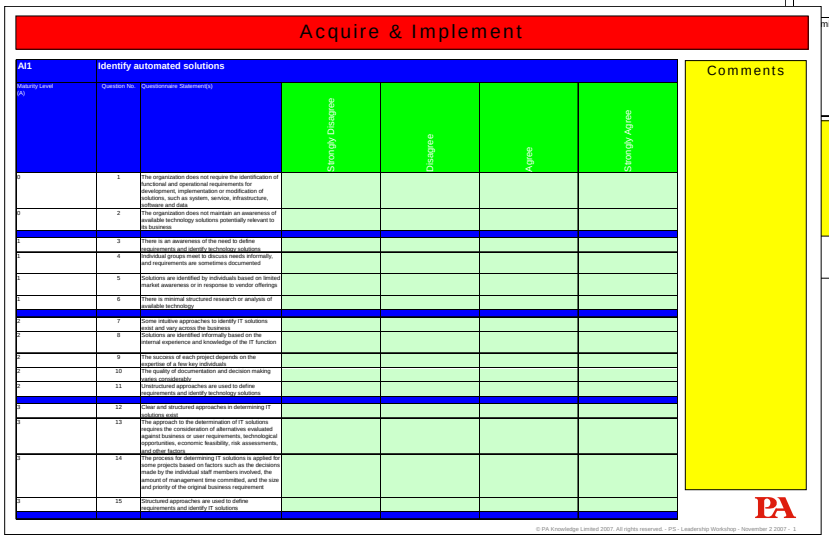


Acquire & Implement

AI6	Manage changes
Maturity Level	Maturity Level Description
0 Non-existent	There is no defined change management process, and changes can be made with virtually no control. There is no awareness that change can be disruptive for IT and business operations, and no awareness of the benefits of good change management.
1 Initial/Ad Hoc	It is recognised that changes should be managed and controlled. Practices vary, and it is likely that unauthorised changes take place. There is poor or non-existent documentation of change, and configuration documentation is incomplete and unreliable. Errors are likely to occur together with interruptions to the production environment caused by poor change management.
2 Repeatable but Intuitive	There is an informal change management process in place and most changes follow this approach; however, it is unstructured, rudimentary and prone to error. Configuration documentation accuracy is inconsistent, and only limited planning and impact assessment take place prior to a change.
3 Defined	There is a defined formal change management process in place, including categorisation, prioritisation, emergency procedures, change authorisation and release management, and compliance is emerging. Workarounds take place, and processes are often bypassed. Errors may occur and unauthorised changes occasionally occur. The analysis of the impact of IT changes on business operations is becoming formalised, to support planned rollouts of new applications and technologies.
4 Managed and Measurable	The change management process is well developed and consistently followed for all changes, and management is confident that there are minimal exceptions. The process is efficient and effective, but relies on considerable manual procedures and controls to ensure that quality is achieved. All changes are subject to thorough planning and impact assessment to minimise the likelihood of post-production problems. An approval process for changes is in place. Change management documentation is current and correct, with changes formally tracked. Configuration documentation is generally accurate. IT change management planning and implementation are becoming more integrated with changes in the business processes, to ensure that training, organisational changes and business continuity issues are addressed. There is increased co-ordination between IT change management and business process redesign. There is a consistent process for monitoring the quality and performance of the change management process.
mised	The change management process is regularly reviewed and updated to stay in line with good practices. The review process reflects the outcome of monitoring. Configuration information is computer-based and provides version control. Tracking of changes is sophisticated and includes tools to detect unauthorised and unlicensed software. IT change management is integrated with business change management to ensure that IT is an enabler in increasing productivity and creating new business opportunities for the organisation.

Scores

Comments



Acquire & Implement

AI1	Identify automated solutions					
Maturity Level (A)	Question No.	Questionnaire Statement(s)	Strongly Disagree	Disagree	Agree	Strongly Agree
0	1	The organization does not require the identification of functional and operational requirements for development, implementation or modification of solutions, such as system, service, infrastructure, software and data.				
0	2	The organization does not maintain an awareness of available technology solutions potentially relevant to its business				
1	3	There is an awareness of the need to define requirements and identify technology solutions				
1	4	Individual groups meet to discuss needs informally, and requirements are sometimes documented				
1	5	Solutions are identified by individuals based on limited market awareness or in response to vendor offerings				
1	6	There is minimal structured research or analysis of available technology				
2	7	Some intuitive approaches to identify IT solutions exist and vary across the business				
2	8	Solutions are identified informally based on the internal experience and knowledge of the IT function				
2	9	The success of each project depends on the expertise of a few key individuals				
2	10	The quality of documentation and decision making varies considerably				
2	11	Unstructured approaches are used to define requirements and identify technology solutions				
3	12	Clear and structured approaches in determining IT solutions exist				
3	13	The approach to the determination of IT solutions requires the consideration of alternatives evaluated against business or user requirements, technological opportunities, economic feasibility, risk assessments, and other factors				
3	14	The process for determining IT solutions is applied for some projects based on factors such as the decisions made by the individual staff members involved, the amount of management time committed, and the size and priority of the original business requirement				
3	15	Structured approaches are used to define requirements and identify IT solutions				

Comments

IT Governance – model used

Selected representative processes from the COBIT framework to form the maturity benchmark . . .

Plan & Organize

1. Define a strategic IT plan
2. Define the information architecture
3. Determine technological direction
4. Define the IT processes, organization and relationships
5. Manage the IT investment
6. Communicate management aims and direction
7. Manage IT human resources
8. Manage quality
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Acquire & Implement

1. Identify automated solutions
2. Acquire and maintain application software
3. Acquire and maintain technology infrastructure
4. Enable operation and use
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Deliver & Support

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12. Manage the physical environment
13. Manage operations

Monitor & Evaluate

1. Monitor and evaluate IT performance
2. Monitor and evaluate internal control
3. Ensure compliance with external requirements
4. Provide IT governance

Process used in maturity benchmark

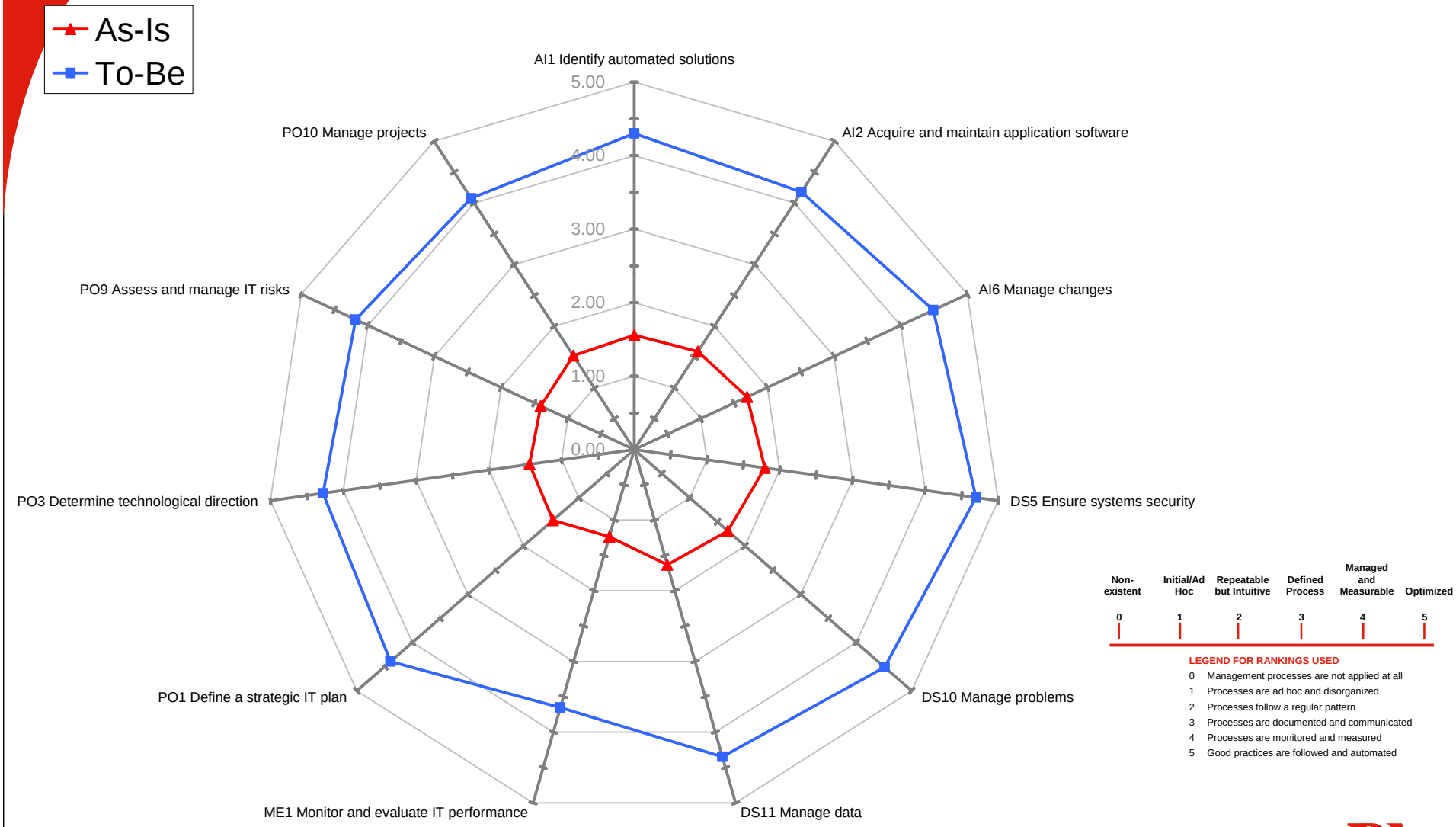
IT Governance – What we found

- The Leadership Team was ready and willing to openly discuss issues with current practices and share their ambitions for the future
- There is a strong desire to change, to become more effective as a group, expressed in conversations and in the recorded results

Extrapolating from the Benchmark:

- Current processes, could improve and should be institutionalized
- Definition and understanding of Roles and responsibilities could improve
- The group is striving for a structured environment where processes were monitored and measured
- There is reliance on some key staff to ensure things get done
- There is room to improve portfolio management
- There is a desire for more formalized and consistent monitoring and evaluation for performance improvement
- Information is not consistently shared amongst staff in a structured manner and therefore decision making cannot be optimal

IT Governance – Maturity Assessment Results



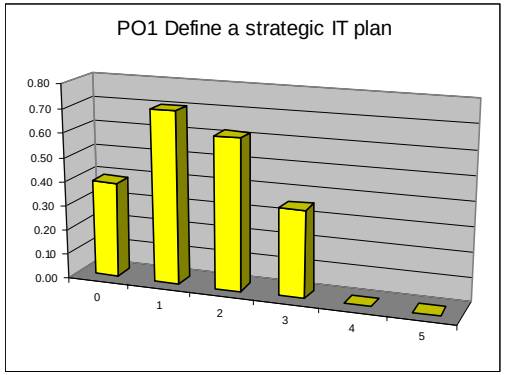
IT Governance – Maturity Assessment Findings

The following slide presents findings for 3 of the highest priority areas.

- IT Strategy Planning
- Project Management
- Monitor and Control IT Performance

PO1 Define a Strategic IT Plan

IT strategic planning is required to manage and direct all IT resources in line with the business strategy and priorities. The IT function and business stakeholders are responsible for ensuring that optimal value is realized from project and service portfolios. The strategic plan improves key stakeholders' understanding of IT opportunities and limitations, assesses current performance, identifies capacity and human resource requirements, and clarifies the level of investment required. The business strategy and priorities are to be reflected in portfolios and executed by the IT tactical plan(s), which specifies concise objectives, action plans and tasks that are understood and accepted by both business and IT.



Opportunities

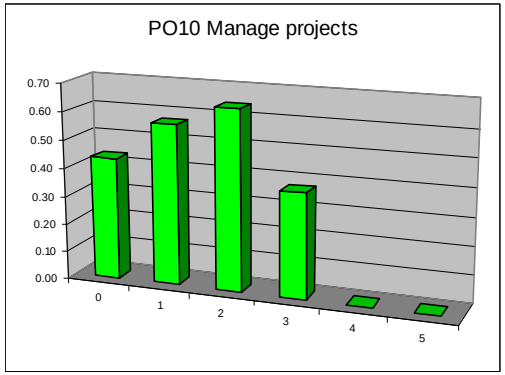
- The need for IT strategic planning is recognized
- Strategic decisions are made on project by project basis

Weakness

- There is no policy defining when and how to perform IT strategic planning
- There is no structured, documented approach to IT strategic planning
- There is no overall view of risk as part of an IT strategy
- The alignment of business requirements, applications and technology takes place reactively rather than by an organization wide strategy

PO10 Manage Projects

A program and project management framework for the management of all IT projects is established. The framework ensures the correct prioritization and co-ordination of all projects. The framework includes a master plan, assignment of resources, definition of deliverables, approval by users, a phased approach to delivery, QA, a formal test plan, and testing and post-implementation review after installation to ensure project risk management and value delivery to the business. This approach reduces the risk of unexpected costs and project cancellations, improves communications to and involvement of business and end users, ensures the value and quality of project deliverables, and maximizes their contribution to IT-enabled investment programs.



Opportunities

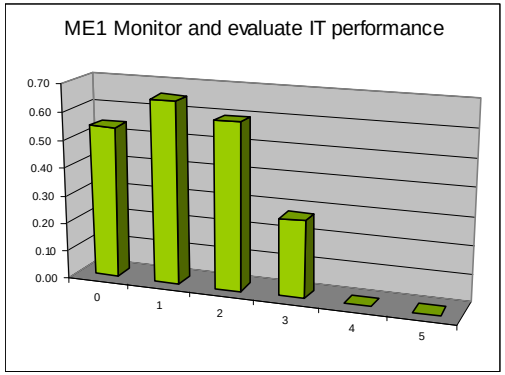
- The organization is in the process of developing and utilizing some techniques and methods to manage projects
- Initial guidelines have been developed for many aspects of project management
- Application of project management guidelines is left to the discretion of the individual project manager
- There is customer involvement in defining IT projects

Weakness

- There is no clear organization within IT for the management of projects
- Project staff time and expenses are not tracked at any level of detail (specifically developer hours) and compared to budgets
- IT project management processes and methodology are not established and communicated
- There is no established PMO within IT with clear roles and responsibilities
- Projects are not managed as part of a portfolio

ME1 Monitor and Evaluate IT Performance

Effective IT performance management requires a monitoring process. This process includes defining relevant performance indicators, systematic and timely reporting of performance, and prompt acting upon deviations. Monitoring is needed to make sure that the right things are done and are in line with the set directions and policies.



Opportunities

- Collection and assessment methods exist but the processes are not adopted across the whole organization
- Monitoring is generally as a reaction to an incident that has caused some loss or embarrassment to IT

Weakness

- Basic measurements to be monitored are not defined
- Interpretation of existing results depends upon the expertise of a few
- There is limited tools support and the gathering is not based on a planned approach

OTDA EA Program Status

- Raise awareness - Largely complete but ongoing
- Assess OTDA EA Maturity periodically - Complete, will review
- Select an EA Framework - Complete (TOGAF)
- Develop governance model - Draft complete, adoption pending
- Select supporting tools - Complete
- Pilot SDLC integration - eFS pilot in progress
- Implement EA Framework - In progress
- Develop Architectures - Ongoing
- Continuously Improve - Ongoing

What's Next?

- Implement selected tool
- Customize TOGAF
- Begin developing Business, Information & Application, and Technical architectures.
- Continue awareness raising and securing organizational support
- Measure value of EA program
- Continue to improve organizational maturity
- Implement the Governance Model

Discussion