

Capturing Architectural Posture - A Metrics-based Approach

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Approach

Def: A way of dealing or thinking about something

- *Merriam-Webster Learner's Dictionary*

~~ADVICE~~

~~ANSWER~~

UCLA – By the Numbers

Founded in 1919

Part of University of California: 10 campuses, 5 medical centers, 3 national labs

Enrollment: ~30,000 undergrad and ~15,000 graduate students

Faculty: ~4,600 non-medical; ~2,700 medical/clinical

Staff: ~30,000

UCLA Health system consists of 4 hospitals, 2 campuses, and 170 clinics

Budget: \$7.5 billion. State funding provides less than 7% of revenue.

Most applied to school in the U.S. with over 137,000 first-year and transfer undergraduate applicants for fall 2018

Rankings:

- U.S. News & World Report- #3 American public universities; #13 global best (Oct 2018)
- Times Higher Education/Wall Street Journal - #1 U.S. public university
- Forbes - #1 best-value public university (April 2018)

Information Technology at UCLA

- Culture of distributed systems and responsibilities
- Academic and Health Systems are predominantly separate
- Two major central campus IT units: IT Services and OIT; with IT Services being the larger unit with over 300 FTE
- Often observational “wait and see” relationship between IT units
- Some IT services are hosted for other campuses
- Some multi-campus and system-wide applications in place
- Coordination with UC-wide IT Architecture functions through the ITAC representative
- IT Services is one of several units under the Administrative Vice Chancellor who has combined 5,000 FTE

Timeline: Enterprise IT Architecture at UCLA

2012 IT Architecture directed unit with formation of ITAS group -
IT Architecture + Information Security

Focus on:

- Establishing EA Repository
- Training and adoption of TOGAF 9.1
- Implement Project Architecture Reviews to enforce best practices for security and architecture
- Technology Evaluations (R&D)
- Development of templates and references for technical architecture and security
- Governance - established Oversight Committee (AVC + selected IT Services directors)

Timeline: Enterprise IT Architecture at UCLA

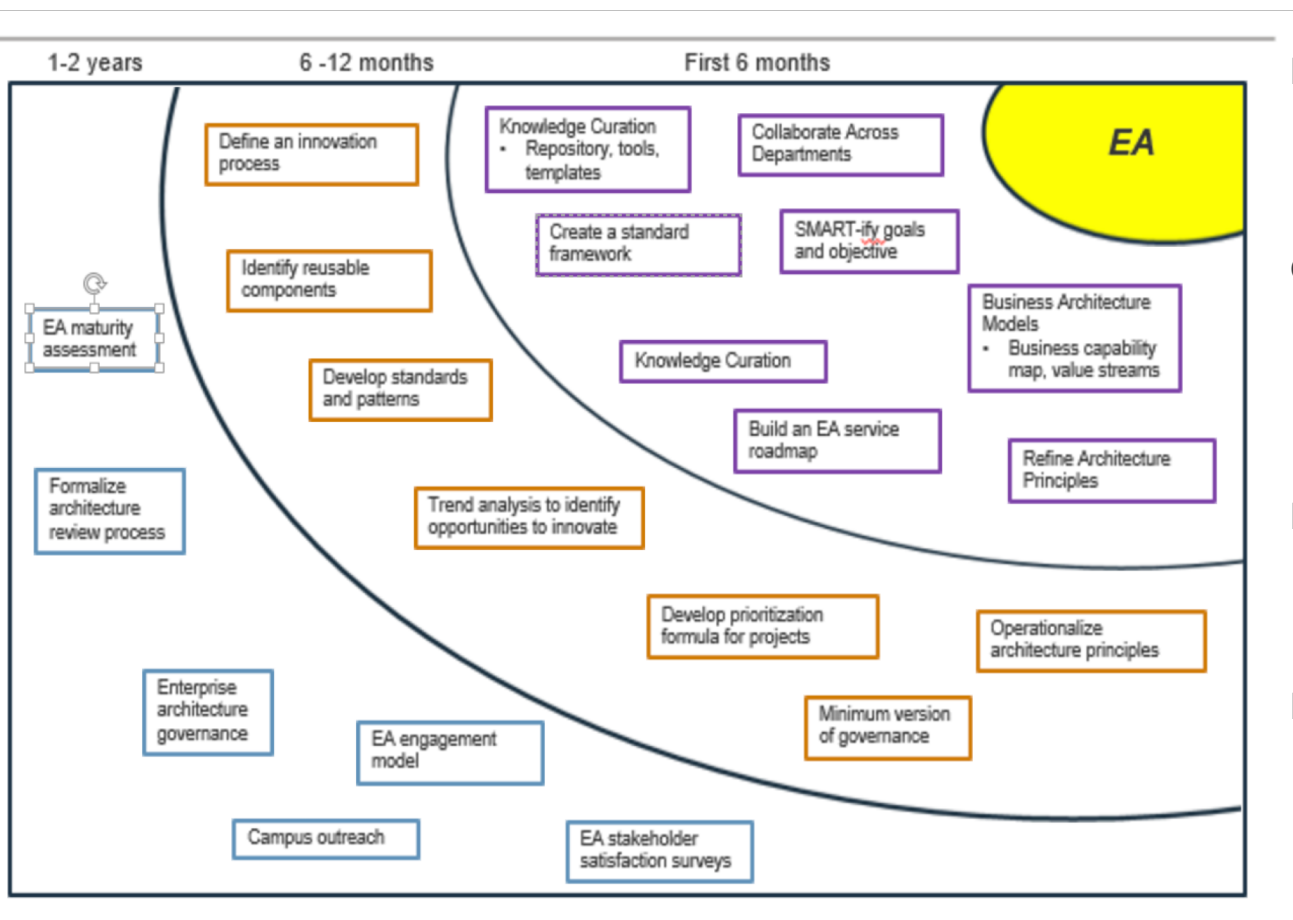
2016 IT Architecture relaunched under the director of Information Management Services (IMS)

- No longer conduct Architecture Reviews
- Restricted R&D and reduced operational support
- Restricted engagement with entities outside of UCLA

Focus on:

- Establish Enterprise IT Architecture Steering Committee - AVC, a few select directors, a few other campus IT leaders
- Review materials and consolidate online content
- Establish collaborative working groups for architecture aids
- Rotated team leadership quarterly until supervisor position posted and filled in October 2017

2018 State of Enterprise IT Architecture



Engagements

- Hiring BP modeling with College
- IT Services Application Portfolio
- IT Services Data Inventory

Governance

- Formalize Arch Review Board
- Review/refine adoption processes
- Refresh ITAC @ UCLA processes
- Architecture Repository Curation

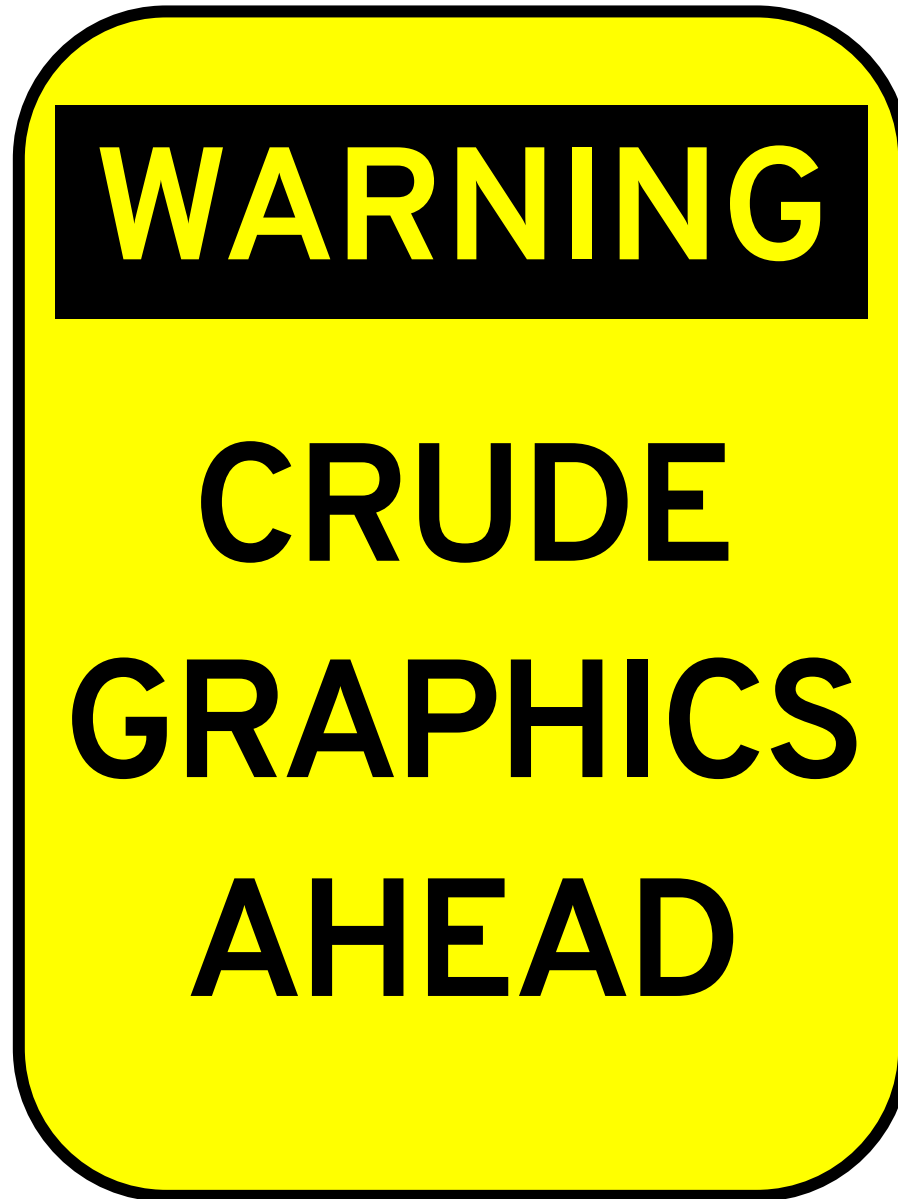
Presence & Outreach

- Develop public site for ITA
- Engagement with campus policy groups and committees

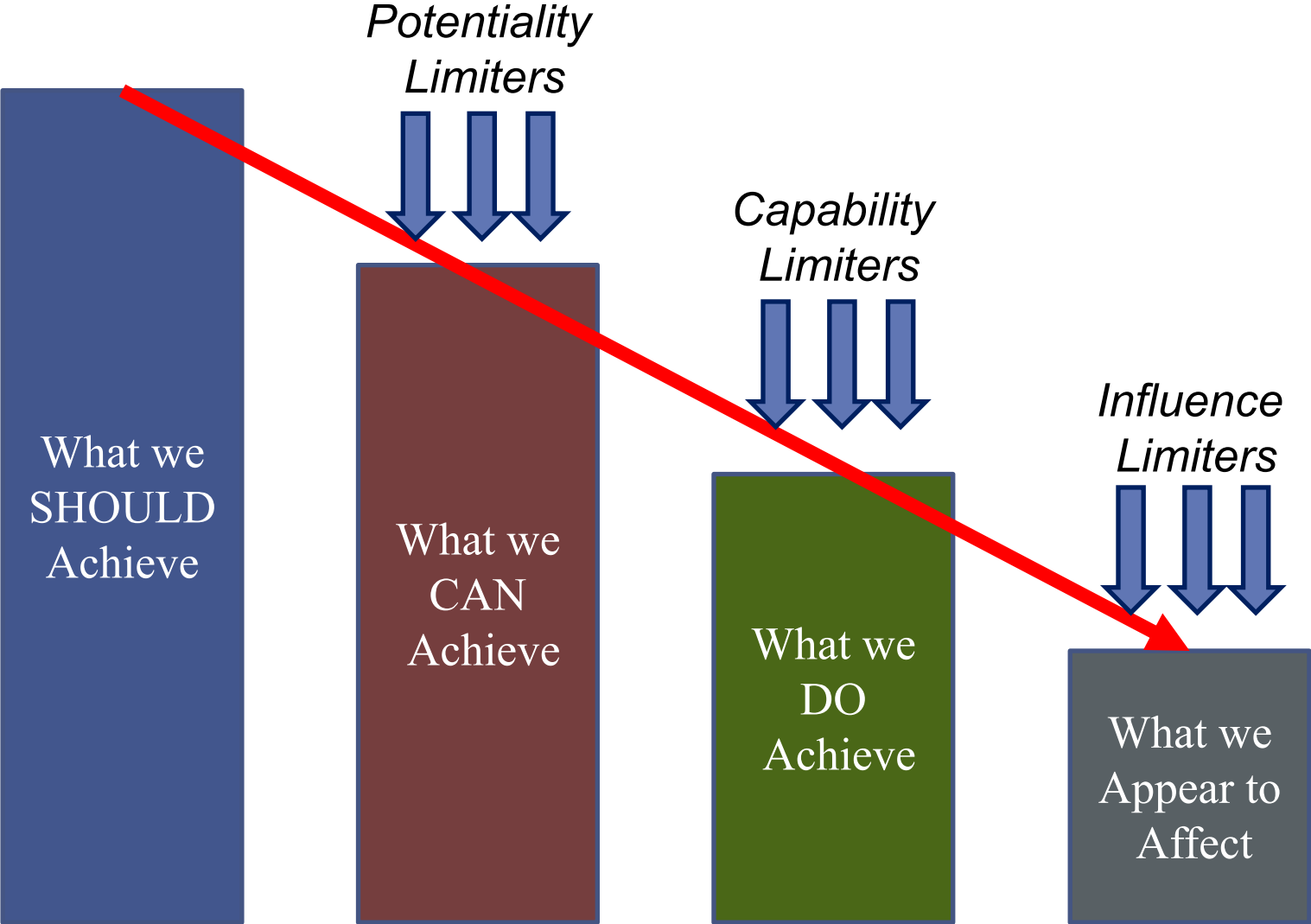
Developing Excellence

- Assess EA maturity with model
- Determine EA metrics
- Determine training needs

Challenge: Demonstrate Value



The "Valuation Decline"

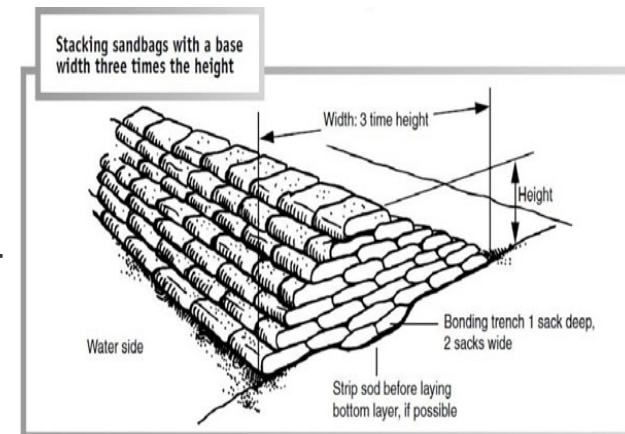


Consider: Vanguard and Foundational Activities



Vanguard architects focus on innovation and disruptive technologies. They seek to exploit disruptive trends.

Foundational architects maintain enterprise technology and strive to ensure that core systems are resilient in the face of disruption caused by market trends and technology shifts.



Gartner

Consider: EA Focus - Drivers and Implementations

Focus on **drivers** – *Why, What, Who, How Much, ...*

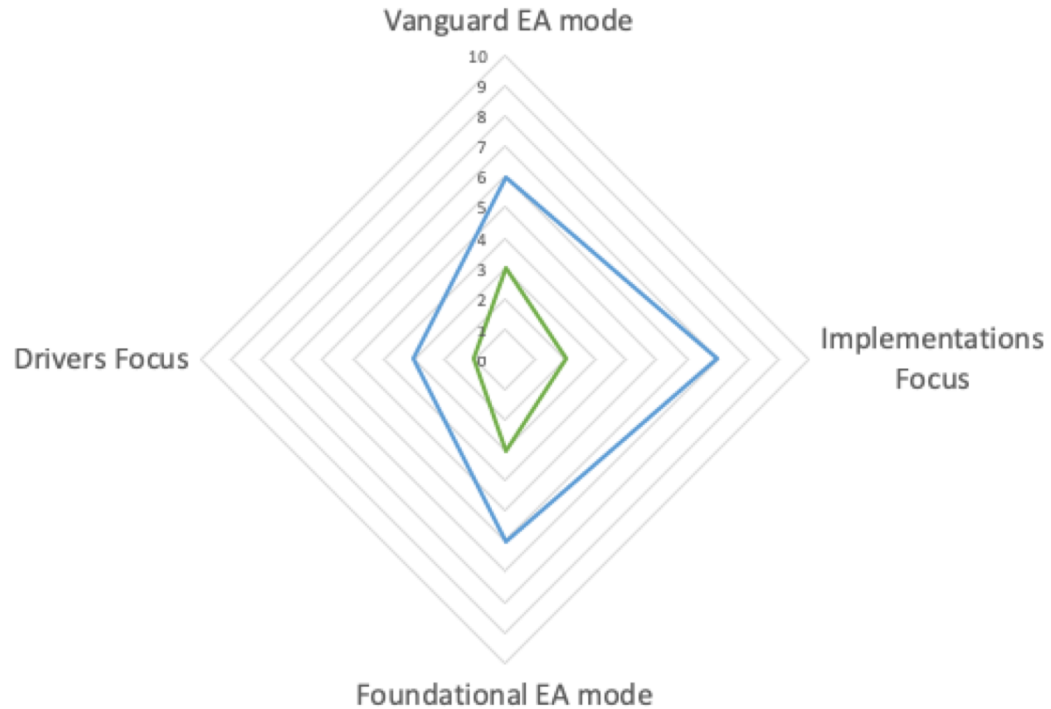
- EA = Architecting the Enterprise
- Business Architecture plays an important role
- Product lifecycle decisions
- Financial decisions such as product licensing
- Resource management, readiness, etc.
- High business acumen applied to determine what technology portfolios and posture best serves the business.

Focus on **implementations** – *Where, How, How Well, ...*

- EA = The enterprise's architects = Our dedicated IT architecture unit
- Technical Architecture focused on specific solutions
- Systems efficiency, effectiveness, security, etc.
- Capture and communicate technical understanding
- Ensure compliance with adopted architectural standards

UCLA Enterprise IT Architecture Program Value Gap

— Current Score — Desired Score



Vanguard Activities	Foundational Activities	Drivers Focus Activities	Implementations Focus Activities
AWS involvement	Artifact review	EA Steering Committee	Architecture Review
DevOps & ALM	Repository curation	CSG	Artifact promotion and adoption
API involvement	Portfolio management		IT Portfolio curation
	TOGAF training		Application re-architecture for AWS
	Business Continuity		

Consider: Inward and Outward Facing

3Q2017 - 2018 Activities	Inward	Outward
Develop Repository for Reference Architecture <ul style="list-style-type: none"> - Identify Customers - New artifact development - Consolidate/review existing artifacts - Develop curation processes - Develop access policies 	✓	
Develop Architecture Framework <ul style="list-style-type: none"> - Develop standing committee charters, mission, roles 	✓	
Establish standing committees	✓	
Major IT Initiatives (Application Portfolio & Data Inventory, Financial System Replacement, AWS Migration, DevOps, etc.)		✓
Campus Engagement (Town Halls, Brown Bag Lunches, etc.)		✓
UC System Engagement (ITAC, UCTrust, etc.)		✓
External Engagement (ITANA, Internet2, EDUCAUSE, InCommon, Gartner, etc.)		✓

Consider: EA Metrics developed for Corporate IT

Appendix Table 5 — EA Metrics

Scorecard Categories	Foundational Metrics	Mature Metrics
Financial Performance	<ul style="list-style-type: none"> • TCO savings from systems retirement • Annual savings from standardized purchasing agreements • Percentage of IT spend on strategic projects • Percentage of revenue and transactions processed through enterprise standard platforms • Annual savings from digitization and enhanced process efficiency • Percentage of technology assets still in use beyond depreciation schedules 	<ul style="list-style-type: none"> • Revenue generated per week in faster time-to-market from new initiatives • Annual revenue from new IT-enabled business capabilities
Project Performance	<ul style="list-style-type: none"> • Percentage of projects compliant with technology standards and architecture • Number of new applications using declining/not permitted technology • Percentage of projects with assigned architects 	<ul style="list-style-type: none"> • Percentage of high-risk driver projects • Percentage of innovation projects evolving into full projects • Percentage of projects aligned with corporate strategic goals • Percentage of applications in production supporting each enterprise capability
Operational Performance	<ul style="list-style-type: none"> • Number of systems retired • Number of applications reused by more than one business • Complexity and redundancy by technology stack layer • Percentage of applications mapped to business processes • Percentage of applications purchased vs. built • Percentage of BUs with updated EA roadmaps • Percentage of technology assets out of support by vendor 	<ul style="list-style-type: none"> • Percentage of business capabilities realized in the target state • Number of applications supporting each business process/capability • Technology standardization index
Talent Management	<ul style="list-style-type: none"> • Ratio of EA headcount (number of full-time EA staff) vs. all IT employees • Ratio of contractor headcount vs. full-time EA staff headcount • Employee morale/satisfaction (multiple point scale, low to high) • Staff turnover rate 	<ul style="list-style-type: none"> • Employee engagement level • Percentage of roles exhibiting skill gaps
User Satisfaction	<ul style="list-style-type: none"> • Average end-user satisfaction rating • Average executive satisfaction rating 	<ul style="list-style-type: none"> • Percentage of IT architectural plans approved, reviewed, and accepted by business

<https://www.cutter.com/sites/default/files/architecture/fulltext/reports/2015/02/index/ear1502.pdf>

How Applicable are Corporate KPI's to HiEd?

- Is cost reduction a primary driver for EA in higher-ed?
- Are IT projects typically expected to increase revenue?
- Is speed to implement a key factor for higher-ed?
- What are the key risk factors that EA can address for higher-ed?
- What is a reasonable scope for Architecture in higher-ed? Especially in highly distributed environments and silos.
- *Insert your own.*

2018 Maturity Model Work Group Timeline

- Spring - examination of existing EA Maturity Models
- Summer - focus on the ITANA EAMM-edu model (version 0.9)
- Fall - Metrics development and mapping to EAMM-edu model attributes:
 - Scope
 - Engagement
 - Impact Assessment
 - Delivery
 - Management

Proposed Metrics for EA – 10/2018

The following proposed metrics have not yet been vetted for fitness for purpose, effectiveness, or feasibility and should be adapted to local conditions as needed.

Caveat emptor.

Metrics for **Scope**

Metrics should describe how EA resources are expended in order to provide benefit for what the EA discipline is intended to influence.

Quantitative Metrics to measure scoping of activities:

- Foundational EA mode / Vanguard EA mode spectrum:
 - Number of hours on Foundational EA mode activities (by quarter)
 - Number of hours on Vanguard EA mode activities (by quarter)
- Drivers-focused / Implementations-focused spectrum:
 - Number of hours on Drivers-focused activities (by quarter)
 - Number of hours on Implementations-focused activities (by quarter)

Metrics for **Engagement**

Metrics should describe frequency of use of EA artifacts and services available to stakeholders.

Quantitative Metrics to measure utilization of resources:

- Number of page views to Repository (by quarter)
- Number of EA artifacts viewed (by artifact by quarter)
- Number of EA artifacts viewed (by artifact by quarter)
- Number of campus IT Services IT events attended (by quarter)
- Number of campus non-IT Services IT events attended (by quarter)
- Number of campus IT Architecture presentations (by quarter)
- Number of off-campus IT Architecture presentations (by quarter)
- Number of IT Architecture Service consulting requests (by quarter)
- Number of Project Architecture Reviews conducted (by quarter)

Metrics for **Impact Assessment**

Metrics should describe effects of stakeholder utilization of EA discipline artifacts and services.

Quantitative Metrics to measure impact of EA:

Project Performance:

- Percentage of projects compliant with technology standards and architecture
- Number of new applications using constrained/not permitted technology
- Percentage of projects with assigned architecture resource

Metrics for **Impact Assessment** (cont.)

Operational Performance and Risk:

- Ratio of end-user facing applications to back-end applications
- Percentage of OTS applications
- Percentage of built applications
- Percentage of IT Services BUs with updated EA roadmaps
- Number of OTS technology assets out of vendor support (ie., not possible to get support)
- Percentage of OTS technology assets out of vendor support (ie., not possible to get support)
- Number of OTS technology assets without vendor support (ie., no support for whatever reason)
- Percentage of OTS technology assets out of vendor support (ie., no support for whatever reason)

Metrics for **Impact Assessment** (cont.)

Operational Performance and Risk (cont.):

- Number of applications using constrained/not permitted technology
- Percentage of applications using constrained/not permitted technology
- Number of applications with updated technology blueprint
- Percentage of applications with updated technology blueprint
- Number of Services with Service Maturity Assessment updated/reviewed within past 12 months
- Percentage of Services with Service Maturity Assessment updated/reviewed within past 12 months

Metrics for **Delivery**

Metrics should describe frequency and currency of activities related to EA delivery.

Quantitative Metrics to measure currency of EA Delivery
Mechanisms:

Repository Curation:

- Number of EA artifact RFC's (total reported quarterly)
- Number of EA artifacts published in repository (total reported quarterly)
- Number of EA artifacts adopted by campus (total reported quarterly)
- Number of EA artifacts rejected by campus (total reported quarterly)
- Number of EA artifacts modified (by quarter)
- Number of EA artifacts retired (by quarter)

Metrics for **Delivery** (cont.)

Portfolio Management:

- Number of Application Assets defined in portfolio
- Number of Information/Data Assets defined in portfolio
- Number of Application Assets updated/reviewed within past 12 months
- Number of Information/Data Assets updated/reviewed within past 12 months

Metrics for **Management**

Metrics should describe perceived effectiveness and value of the EA practice for the stakeholders.

Qualitative Metrics to measure overall assessment of the EA Business Unit :

Client Satisfaction:

- Average practitioner satisfaction rating
- Average executive satisfaction rating
- Average score from post engagement surveys completed by partners (total scores over total number of engagements)

Next Steps ...

- Use appropriate criteria to vet metrics
 - Can be collected easily - automated if possible
 - Provides value for IT Leadership
 - Can be trusted
- Implement platform to share metrics securely
- Consider additional metrics
- Begin collecting

Thank You