



Enterprise Architecture Maturity Assessment - An ARC-compliant Approach

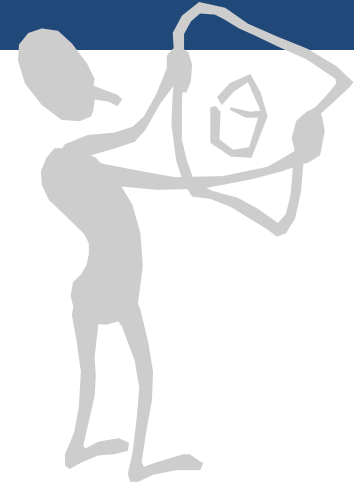
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& User Group: 12-15 Nov 2007*

Agenda

- Introduction to the Presenter
- Context of the Appraisal
- Appraisal Design
- Appraisal Execution
- Appraisal Results Presentation (illustrations)
- Concluding Remarks

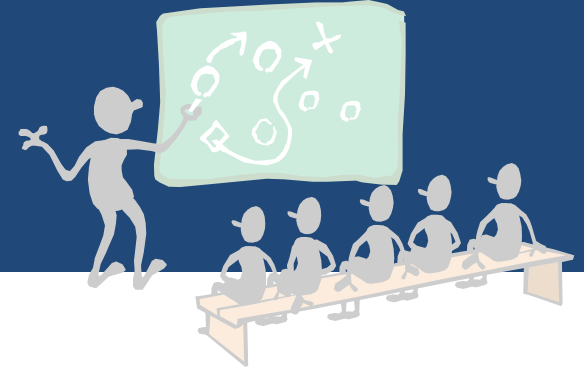


The Presenter



- Currently Consulting Deputy to CTO @ a City of London Institution leading in Europe in its specialty
 - *Enterprise Architecture Practice Lead*
 - *Responsible for corporate IT Policy definition*
- Background
 - *Key roles*
 - Chief Designer / Design Authority
 - System Engineering & Enterprise Architecture
 - *Chief / Lead / Principal*
 - *Strategist*
 - *Mentor*
 - *Auditor*
 - *CMM-CMMI adoption background in high-maturity (3-5) organizations*
 - Predominantly in India
 - *Worked on / advised resources in*
 - a number of Public sector programs (principally in the UK)
 - Commercial sector (principally financial and ancillary services)
 - *Regular and recognized speaker and writer on Enterprise Architecture and Systems Engineering Strategy*

The Context



- I was approached
 - *By a leading IT research and strategy consulting firm*
 - *In early 2007*
 - *As EA strategist, TOGAF expert and auditor aware of the concepts of Capability and Maturity*
 - *To plan and lead Architecture Maturity Appraisal in a large UK public sector organization*
 - The organization
 - *Endeavored to follow TOGAF as its EA framework*
 - *Had 'heard the sound' of CMM*
 - *Was aware of the Architecture-CMM referred in context of US DoC and some state government bodies*

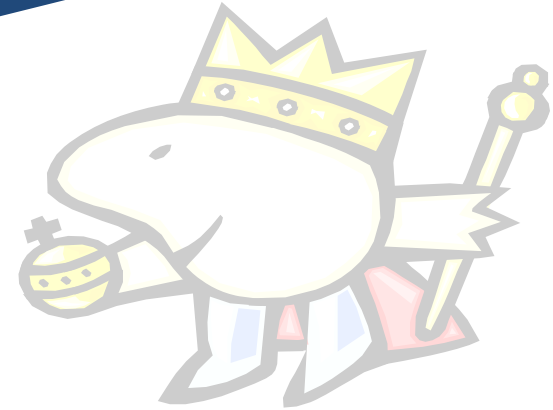
The Appraisal Team



- Self (acted as Lead Appraiser)
- A Subject Matter Manager from the research and consultancy organization (referred to as *the Director*)
- A Sector Lead from the research and consultancy organization (referred to as *the Managing Partner - MP*)
- Quality Assurance Manager of the public sector organization, deputy to the CTO
- A senior Enterprise Architect with consulting and SI background, freshly recruited in the public sector organization

Key Stakeholders

- CIO
- CTO
- Functional Unit Heads (DCEO)
- Functional Units IT Heads (DCIO)



Background Work



- DoC and other Architecture CMM(?) approaches (including those obtained from three leading IT research and strategy consulting organizations)
 - *Had EA-relevant subject list (like Process Areas)*
 - *Had a subject-based capability rating scale*
 - *Individual ratings were associated with adjectives (like CMMI levels)*
- However
 - *Ratings were subjective*
 - *Did not look for PIs*
 - *Concept of Maturity as an 'evolutionary plateau building on characteristics of lower levels' was absent*
 - *It was usually either average or weighted average of subject scores*
 - *Dependence of subjects (PAs) on other subjects was not considered, though usually obvious to EA practitioners*
 - *Scores (usually being averages) ended up being fractional thus not giving any real meaning or clear adjective, to focus improvement*

Appraisal Purpose - Stakeholders' View

- To
 - *Understand strength and weakness across areas of the EA practice*
 - *Obtain advice on EA strategy*
 - *Plan EA improvement over the next 12 months*
 - *Be able to make year-on-year comparison*
 - *Gain greater self-confidence in operations and delivery*
- Not to
 - *Be industry-wide exemplar*
 - *Serve as prestige point for the stakeholders*
 - *Satisfy specific industry assessment framework*
 - *Achieve / exhibit credibility in others' eyes*



Appraisal Design - Key Decisions



- Make Appraisal Objective - Record Type A, and Type B or C PII's
- Decide relevant Subjects (PAs) through consensus among appraisers and stakeholders (with subject matter background) and present individual subject rating
- Decide relevant PA capability levels and associate each level with meaningful adjective through consensus among appraisers and stakeholders (with subject matter background)
- Where meaningful, use adjectives/levels used in the wider industry
- Create lucid practice statements for PAs to correlate with capability level adjectives
- Design an appraisal framework that a competent team of appraisers can reliably repeat to obtain results that may be compared
- Keep ARC 1.2 compliance in mind in Appraisal Method Design

Appraisal Execution – Key Decisions

- A PA is deemed to be at a capability level when practice statements associated with that level and all the levels below are remarked to be true and verified as such by all 'relevant' samples appraised
 - *E.g. Business unit customers groups could be spared providing type A PII on Applications Architecture Development, but not on Architecture Communication*
- Cover different groups (Business Units IT Functions, IT Strategy Function, IT Common Services Function, Business Unit Customers) adequately and provide their trends
- Provide PA-based capabilities in the form of relevant adjectives, noting key weaknesses (and improvement recommendations) for each PA
- Conduct appraisal with rigor of ARC Class B, or greater
 - *Typical team size 4 (minimum 2)*
 - *Evidence as type A and B or C*
 - *All organization units in context covered*

Implementation - PAs

- Process Areas / Subjects (inspired from various federal sources, including DoC, and TOGAF)
 - *Architecture Process*
 - *Architecture Development*
 - *Business Linkage*
 - *Senior Management Involvement*
 - *Operating Unit Understanding and Acceptance of EA*
 - *EA Consistency, Representativeness, Contribution across Operating Units*
 - *Architecture Communication seeded through Process and Framework Documentation*
 - *Architecture Communication actuated through Passive Broadcasting Mechanisms*
 - *Active diffusion of EA ideas through Education and Communities*
 - *IT Security*
 - *EA Governance*
 - *IT Investment and Acquisition Strategy*
 - *IT Transformational Governance - Impact, Change and Migration*

Implementation - Levels

- Levels and their adjectives (inspired from various federal sources, including DoC, and TOGAF)
 - *0 = None*
 - *1 = Initial*
 - *2 = Under Development*
 - *3 = Defined*
 - *4 = Managed*
 - *5 = Measured (therefore Quantitatively Managed and Predictable - important qualifiers, else Measured can be vague or misinterpreted)*
 - *6 = Optimizing*

Implementation

- Each interviewee is shown the statements characterizing Practices Implementation for a PA and asked to state
 - *Which statements are true at the moment, provide evidence*
 - Statements are so worded that the next level statement would not be true without the previous level
 - *What subset of consecutive practice statements would they like (and realistically consider possible) to be true in the next 12 months, how*
 - *What priority (on a scale of 0-5, 5 being highest priority) would they give to improvement work on a process area in the next 12 months (this answer was also normalized for relative priority, un-normalized answers gave relative importance across groups)*

Procedure

- Practice statements were rated for their implementation as:
 - *Fully Implemented (FI)*
 - Direct artifacts present and appropriate
 - Supported by indirect artifact and/or affirmation
 - No weaknesses noted
 - *Largely Implemented (LI)*
 - Direct artifacts present and appropriate
 - Supported by indirect artifact and/or affirmation
 - One or more weaknesses noted
 - *Partially Implemented (PI)*
 - Direct artifacts absent or judged inadequate
 - Artifacts or affirmations indicate some aspects of the practice are implemented
 - One or more weaknesses noted
 - *Not Implemented (NI)*
- A capability level was considered achieved when all Practice statements under that Process Area that represented all levels, up to and including that level, were fully implemented
- A level was considered achieved conditionally when all Practice statements under that Process Area that represent all levels, up to and including that level, were fully or largely implemented; the condition being that weaknesses, noted in the verdict *Largely Implemented*, were eliminated



Results

Presentation Approach

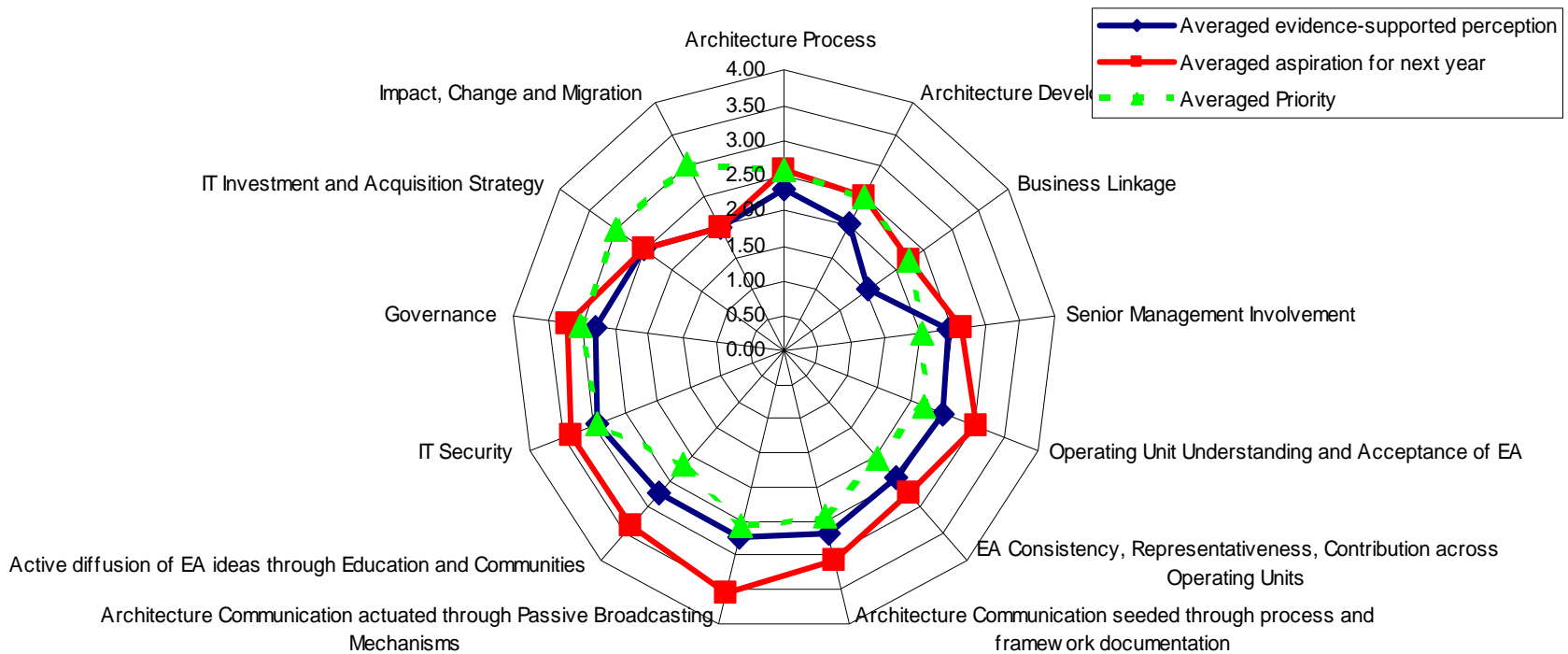
(All examples used here are illustrative and do not reflect actual results which are confidential)

Results were presented as

- Grouped, PII-backed, averaged perception, aspiration and priority
 - *This was presented as indicator of self-discovery*
 - *This was emphasized as*
 - Only to be used for finding trends and level of self-understanding
 - Averaged fractional numbers not to be mistaken for 'fuzzy capability level'
- PII-backed verdict on capability of each PA along with summary of key weaknesses w.r.t. achieving next capability level, as presented by SME appraisers
- Dependency map across PAs
- A verdict on overall maturity, taking into account capability scores and PA dependencies
- Detailed improvement recommendations and priorities for each PA
- A roadmap detailing temporal progression through improvements across various aspects of PA
- Detailed steps for each roadmap section
- Recommendations on future EA appraisal

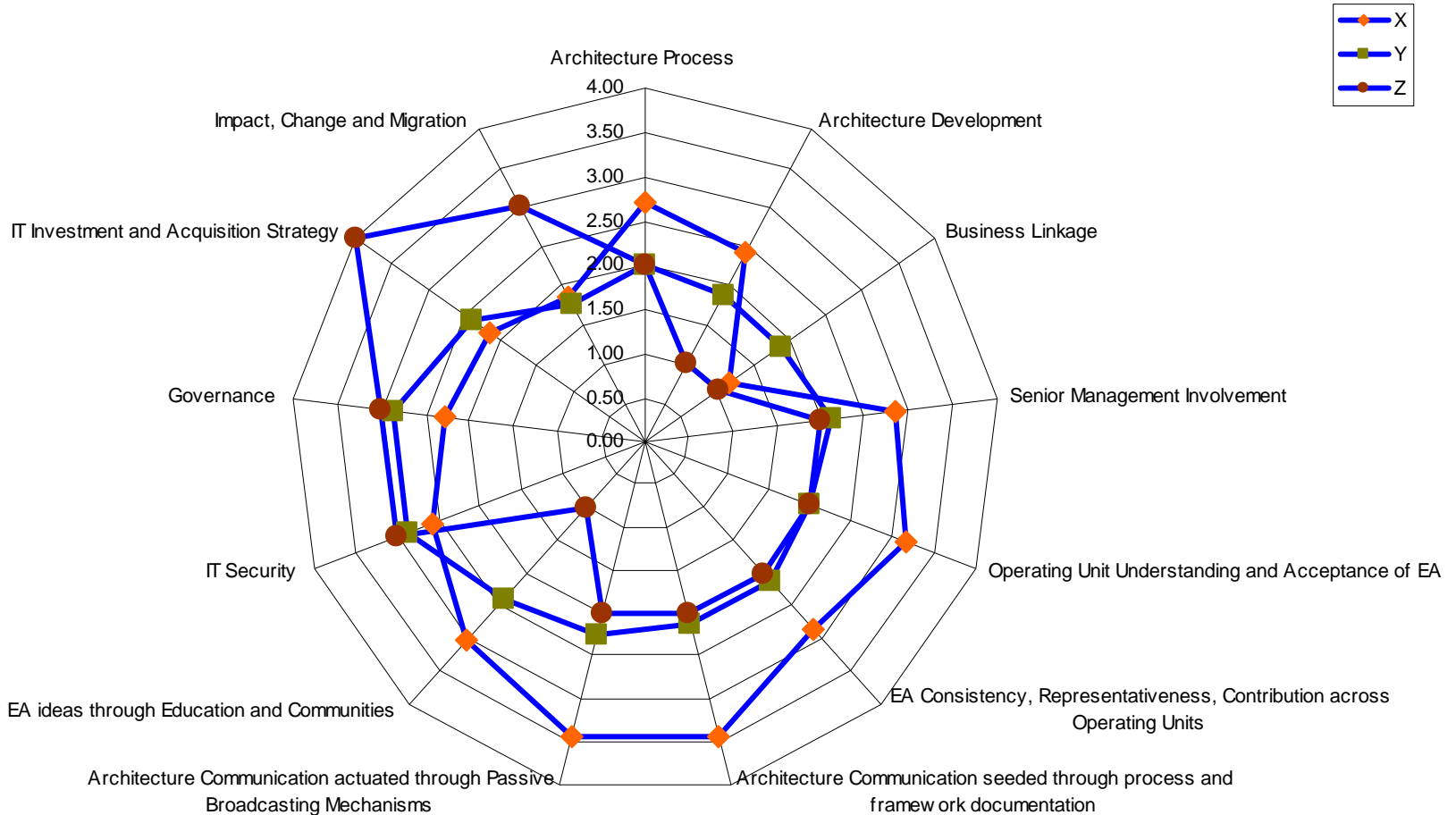
Grouped, PII-backed, averaged perception, aspiration and priority (illustration, not actual)

Averaged Scores



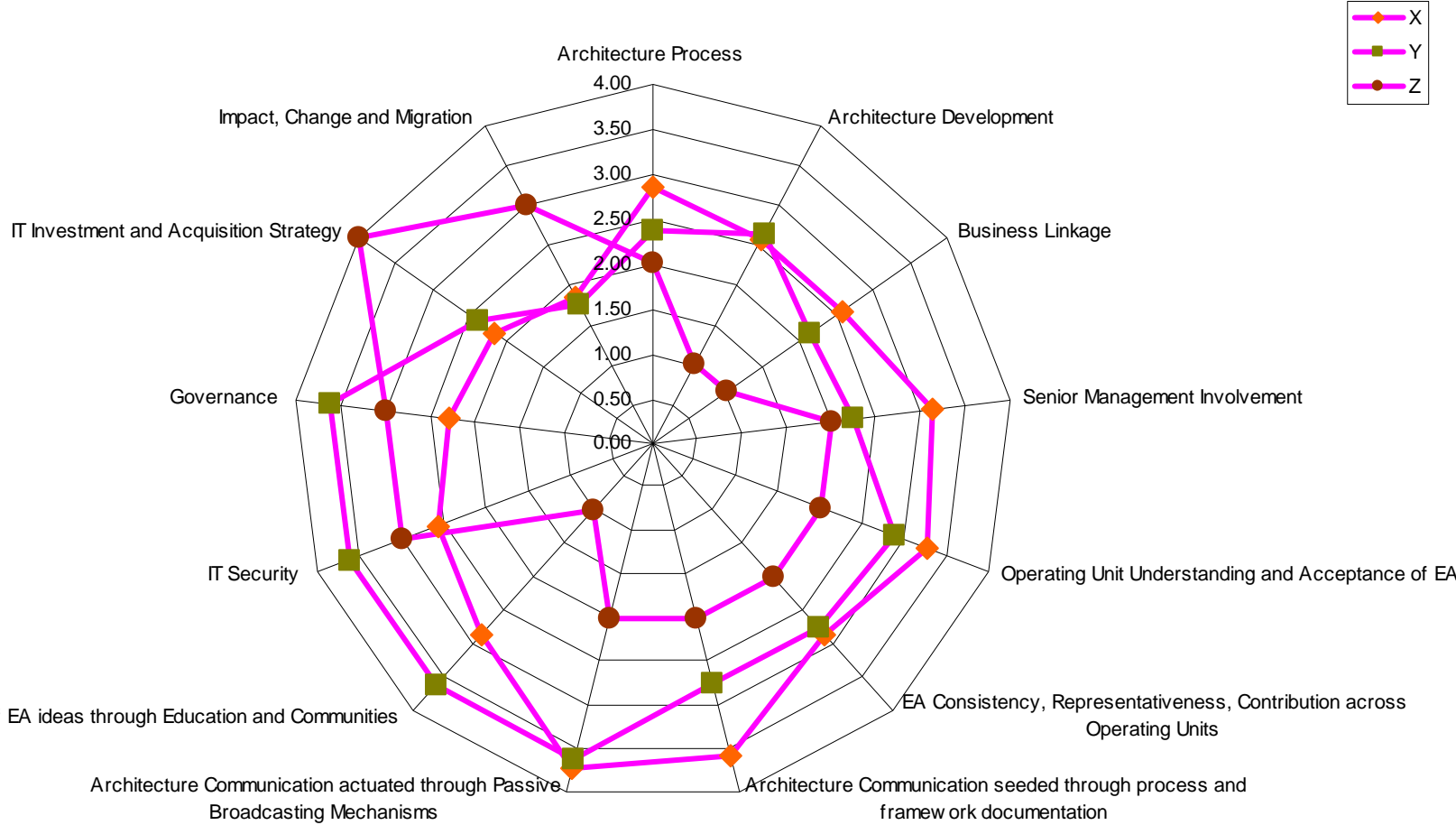
Perception by Groups (illustration, not actual)

Average Perceived Scores by Groups



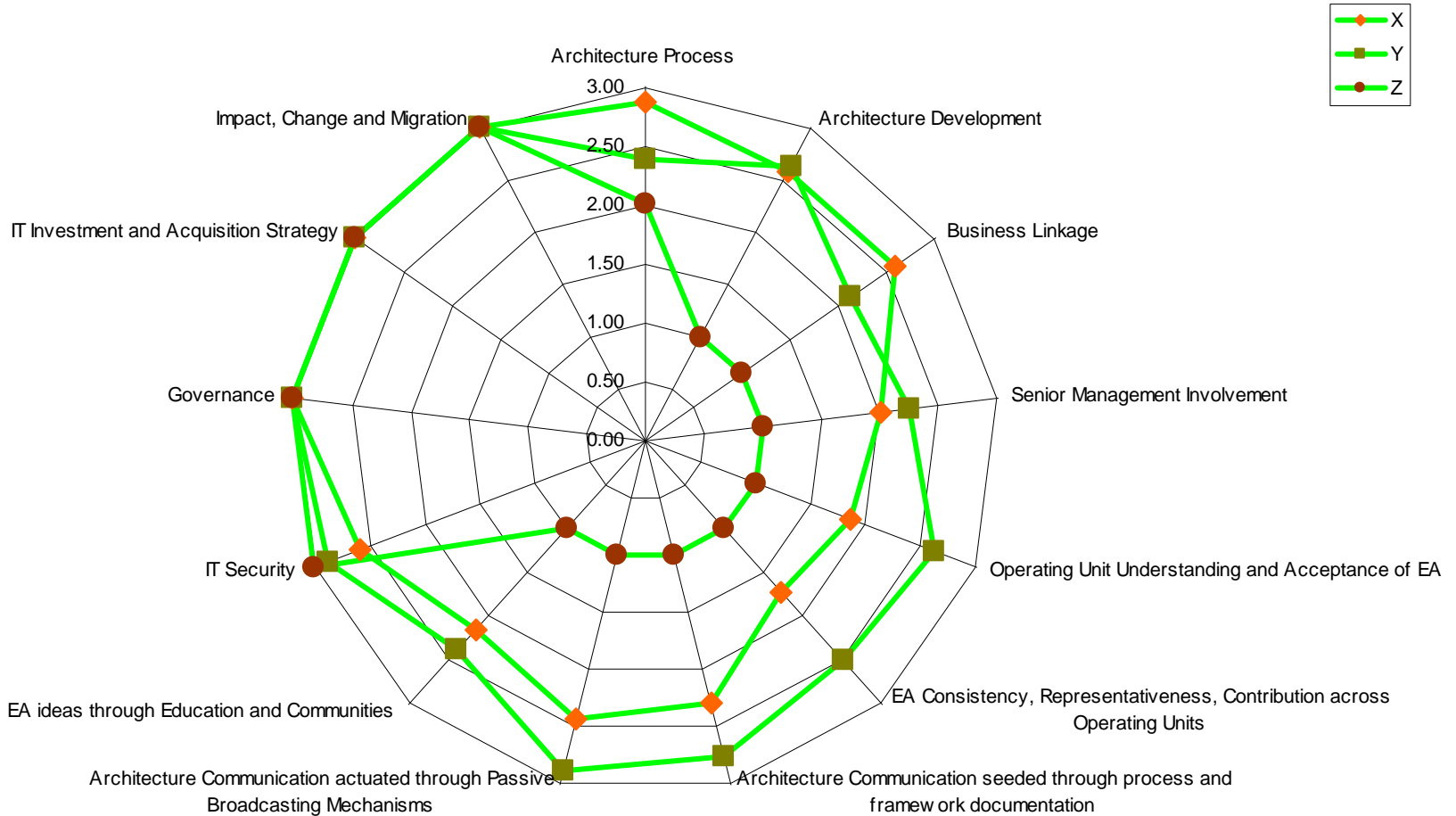
Aspiration by Groups (illustration, not actual)

Average Aspired Scores by Groups



Priority by Groups (illustration, not actual)

Average Perceived Priorities by Groups





Results

Substantiated Levels
(illustration, not actual)

PIIs Indicate (illustration, not actual)

| Process Area | Verdict | Most Notable Aspect to Focus on |
|--|--------------------------|---|
| Architecture Process | Defined, with weaknesses | Process flows, client group processes |
| Architecture Development | Under Development | Requirements |
| ... | ... | ... |
| IT Security | Defined, with weaknesses | Staffing and cross-unit dialogue |
| Governance | Defined, with weaknesses | Make policies and dispensation transparent |
| IT Investment and Acquisition Strategy | Under Development | Business process analysis, portfolio approach |
| Impact, Change and Migration | Initial | Role definition and Infrastructure |



Results

Process Areas

(illustration, not actual)

Architecture Process (illustration, not actual)

- Key weaknesses
 - *Whereas a framework and compliance structure exists, the framework is not necessarily realized / extended into each business unit*
 - *Documentation wordy and representations Lego-based, thus limited sense of interaction / process*
- Areas to focus on through the next 12 months
 - *Go beyond Architecture building block blueprint and try to model functional flows in and across business unit systems*
 - *Create more specific checkpoints as part of the compliance regime to help business units deliver on non-functional requirements. Consider developing non-functional specializations (similar to security, already in place though under-resourced)*
 - *Work with business and associated client IT groups to model business and identify patterns in business processes*
 - *Develop full-fledged architecture process relevant to specific business units while keeping a mapping with the EA framework*

Architecture Development (illustration, not actual)

- Key weaknesses
 - *The axel of the ADM wheel - requirement (definition, management, development) is weak and does not always link to Architecture Development*
- Areas to focus on through the next 12 months
 - *Requirement Management (granularity, quantification, traceability, hierarchy, dependency)*
 - *Requirement to Architecture Linkage*
 - Requirement modeling & development
 - *Requirement to Governance Linkage*

Impact, Change and Migration (illustration, not actual)

- This area is at Initial level, thus weak overall
- Areas to focus on through the next 12 months
 - *Define roles associated with Configuration and Change Management*
 - *Establish Impact assessment (which may involve ADM for architecturally significant changes) and CCM processes*
 - *Establish dependable CCM infrastructure*
 - *Identify configurable items*

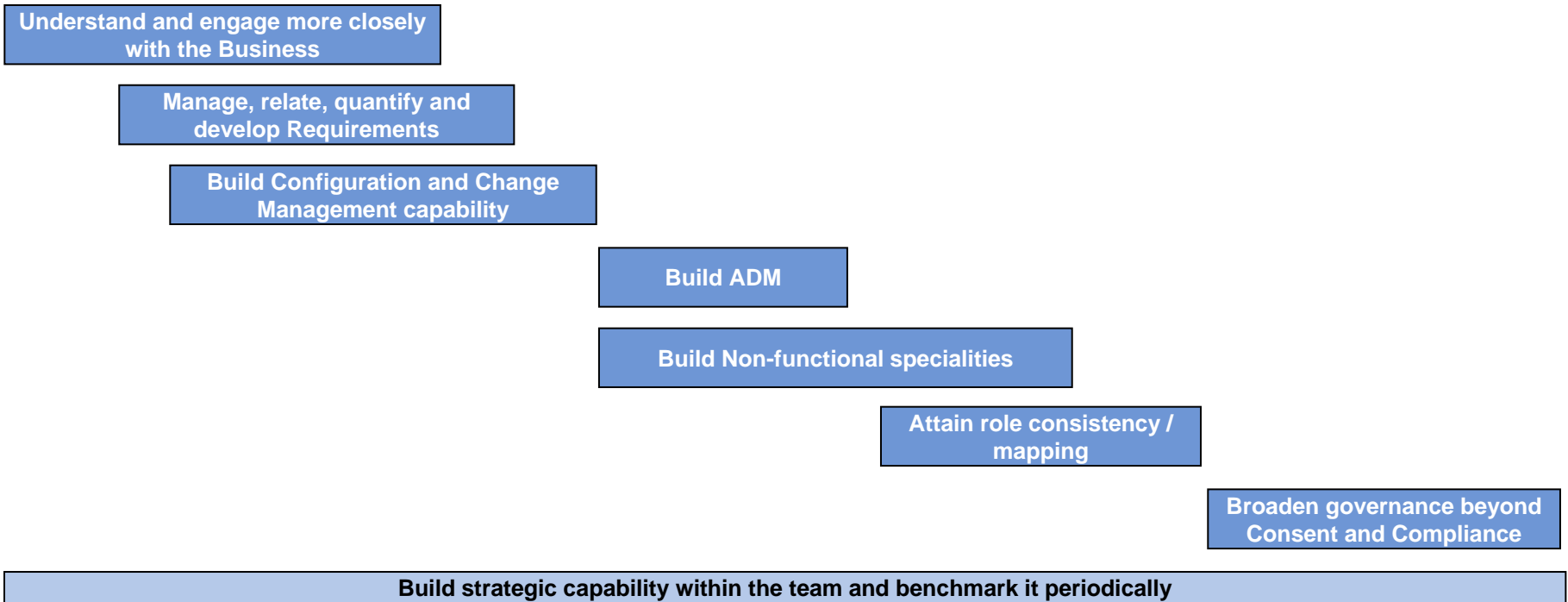


Results

Roadmap & Priorities
(illustration, not actual)

Roadmap (illustration, not actual)

- Way Forward
 - *E.g.*



Understand and Engage more closely with the Business (illustration, not actual)

- Observations
 - *The assessment indicates significant change in perception across groups (X, Y, Z)*
 - *Business is deeply federated and susceptible to changes effected by volatile political will*
 - *Architecture groups are thin on business / system behavior engineering and NFRs*
 - *Architecture teams are business-enablers, but can lead structured analysis*
 - ...
- Actions
 - *Engage more closely with the business on Architecture Communication, including Education and Communities*
 - ...
 - *Look for patterns in business processes and be willing to develop cloned services owned by business units (where budget will come more readily for the α prototype), rather than common services with central ownership*

Business Architecture (illustration, not actual)

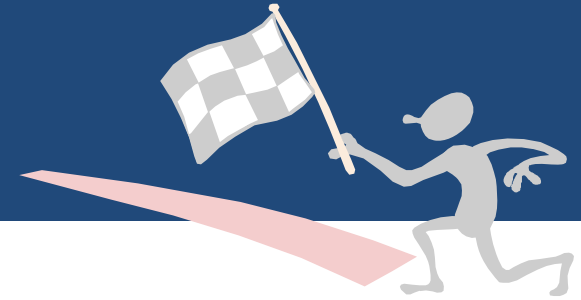
- Consider
 - *How the business (or various business lines) is used by its user*
 - *What improvements / additional facilities are likely in this usage*
- Define and own jointly with the Business
 - *Key business abstraction - boundaries, entities, processors*
 - *Business scenarios*
 - *Business patterns*
 - *Business component & services*
- Analyze
 - *How what the business is for, maps to how it does what it does*
- Consider with the Business scope for
 - *Business Reengineering*
 - *Business Automation*
 - *Business process Reusability*
 - *Improved Governance*

Conclusion



- Effectiveness of Appraisal depends on
 - *Clear objectives communicated and owned across the organization being appraised*
 - *Clarity, sufficiency of definition and repeatability of the appraisal mechanism*
 - *Objectivity coupled with pragmatism*
 - *Dependencies across Process Areas and Practices and their cumulative effect taken into account*
 - *Results presented with different perspectives, purposes and granularity*
 - *Results fed into strategy and reflected in improvement roadmap*

Comments and Questions



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