What it Takes to be Great in the Role of Enterprise Architect

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Introduction

- Organizing Models and Insights into the Role of the Enterprise Architect
  - Enterprise Architecture
  - Architectural Decisions
  - Value Contribution
  - Architecting Process
- Competencies of Great Architects
- Competency Development for Architects
Architecture
General Concepts

- Architecture is
  - the organizing structure of the system, comprised of the building blocks of the system, their externally visible properties, and their relationships to each other and the environment
  - purposively designed so that the system has integrity and the system structure enables the desired capabilities of the system
    - enables system functionality
    - addresses cross-cutting concerns or system-wide properties

➢ The people who do this are called architects
Business Capabilities
Connecting Enterprise Architecture to Strategy

Environmental Factors
- Competition
- Solution space
- Industry / Technology trends

Strategic Analysis
- What are the business drivers & objectives?

Strategic Objectives & Goals
- Specific Initiatives
- KPI

Business Capabilities
- People, Process, Technology & Facilities required

Business Environment
- Business Vision
- Business Objectives
- Value Chain
- Business Requirements

Action Plan
- Implementable strategic initiatives
- Means to accomplish the business objectives

Resources needed to realize the strategic plan
- Critical Business Processes
- Use of Technology

Enterprise Architecture

Business Architecture

EWITA
Enterprise-wide IT Architecture

EIA
Enterprise Information Architecture

EAA
Enterprise Application Architecture

ETA
Enterprise Technology Architecture

Business Capabilities
Enterprise Architecture
Implications for the Architect

Business Architecture
Best: architect participates in and influences the business strategy process
Minimum: architect understands the business strategy and business context well enough to translate business strategy into technical strategy

EWITA
Cross-cutting concerns (e.g., security) must be dealt with in the EWITA team.
Best: chief architect leads the consensus process, but has decision authority to ensure forward progress
Minimum: everyone on the architecture team is committed to the good of the whole, and committed to the team’s success, as evidenced by their decisions

Enterprise Architecture
System Perspective

Information
Business Processes
Org. Structure

EIA
EAA
ETA

Cross-cutting concerns
(business capabilities)
System Perspective
Implications for the Architect

- Architect needs to be good at
  - seeing the big-picture, abstracting
  - dealing with ambiguity
  - setting priorities
  - dealing with conflicting priorities, making compromises
  - analyzing tradeoffs
  - working across disciplines
  - leading, following and getting out of the way
  - persuading others
  - mediating conflicts

Architectural Decisions
A matter of scope
Implications for the Architect

- Architect needs to be credible and knowledgeable about areas within her decision scope
  - applications/products, technologies, market
  - at the global system level
  - build consensus

"I often describe the life of a software architect as a long and rapid succession of suboptimal design decisions. Taken together, these decisions satisfy (or build) consensus.

Kruchten, 2001

Architecture Decision Model

<table>
<thead>
<tr>
<th>Architectural Strategy</th>
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</thead>
<tbody>
<tr>
<td>- nical direction for the enterprise; establishes architectural vision, principles, philosophy</td>
<td></td>
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<tr>
<td>Focus: high-level decisions that will strongly influence the architecture of the system; rules certain choices out, and guides selection decisions and tradeoffs among others</td>
<td></td>
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<table>
<thead>
<tr>
<th>Architecture</th>
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</thead>
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<tr>
<td>- Structures and relationships; described in various views; documents assumptions and rationale</td>
<td></td>
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<tr>
<td>- Focus: provide overall enterprise system views, showing system building-blocks and their interrelationships; address cross-cutting concerns, taking an enterprise-wide view in setting priorities and making tradeoffs</td>
<td></td>
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<tr>
<th>Architectural Guidelines, Policies and Standards</th>
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<tr>
<td>- Use model and guidelines on applying the architecture; policies, mandates and standards to address architecture objectives; recommendations</td>
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<tr>
<td>- Focus: guide engineers in creating designs that maintain the integrity of the architecture; guide procurers in purchasing technologies and solutions</td>
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Architectural Decisions
Implications for the Architect

- Architect needs to
  - work at a high level of abstraction, yet go into detail where necessary
  - be good at modeling, rigorous in documenting decisions, and good at communicating them to various audiences
  - use different views to show how the architecture addresses various stakeholders’ concerns

Initial EA efforts often start here, to lay the necessary foundation to
- address complexity in the IT environment
- ease system integration
- allow shared information access
- reduce costs

Enterprise Architecture
“Consumers”

IT Investment Planning
-- Application Portfolio
-- Technology Purchases

EWITA
EIA  EAA  ETA

Development Projects
-- Application development
-- Infrastructure/services development

Procurement
-- Applications
-- Infrastructure
Processes the Architect Leads

<table>
<thead>
<tr>
<th>Process</th>
<th>System Envisioning</th>
<th>Architecting</th>
<th>Architecture Evolution</th>
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</thead>
<tbody>
<tr>
<td>Goal</td>
<td>Find new business/ product opportunities</td>
<td>Create a new architecture</td>
<td>Evolve an existing architecture</td>
</tr>
<tr>
<td>Brief overview of process</td>
<td>Activities include: • Conduct industry, market, customer and user analyses • Create technology roadmaps • Assess legal implications • Envision new applications • Select, model and prototype</td>
<td>Activities include: • Gain sponsorship and buy-in • Capture architectural requirements • Create architectural models and evaluate alternatives • Validate architecture against requirements</td>
<td>Activities include: • Update architecture documentation • Update requirements • Assess architecture against requirements (impact analysis) • Restructure architecture</td>
</tr>
<tr>
<td>Primary outputs</td>
<td>System Vision • system concept • value proposition, distinctive contribution • models and descriptions • prototypes</td>
<td>Architecture • architectural requirements • architecture models • component specifications • architecture guidelines and standards</td>
<td>Updated Architecture • updated requirements • impact analysis results • revised architecture models</td>
</tr>
</tbody>
</table>

Visual Architecting Process

Objectives

• Create an architecture that is
  • Good: technically sound, well documented
  • Right: meets its stakeholder needs (business, customers, developers, managers, etc.)
  • SUCCESSFUL: actually used in building systems
Visual Architecting Process

Good, Right and Successful!
Architecture as Business Competency
Good, Right and Successful! 
Architect Competencies

Init/Commit
Envision
Listen
Champion

Translation
Unpack ‘ilities’
Spot trends
Prioritize

Architecture
Requirements

Architecture
Validation
Critique
Prototype
Review/assess

Architecture
Specification

Conceptualize
Model
Design

Deploy
Consult
Educate
Police
Mediate

Lead, Communicate, Sell

Architect Competency Framework

<table>
<thead>
<tr>
<th>What you KNOW</th>
<th>What you DO</th>
<th>What you ARE</th>
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</thead>
<tbody>
<tr>
<td>Leadership</td>
<td></td>
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<tr>
<td>Business Strategy</td>
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<tr>
<td>Technology</td>
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</table>
## Domains of Competency
### Technology

<table>
<thead>
<tr>
<th>What you KNOW</th>
<th>What you DO</th>
<th>What you ARE</th>
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</thead>
<tbody>
<tr>
<td>In depth understanding of the domain and pertinent technologies</td>
<td>Modeling, Tradeoff analysis, Prototype / experiment / simulate, Prepare architectural documents and presentations, Technology trend analysis / roadmaps, Take a system viewpoint</td>
<td>Creative, Investigative, Practical / Pragmatic, Insightful, Tolerant of ambiguity, willing to backtrack, seek multiple solutions, Good at working at an abstract level</td>
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</table>

### Business Strategy

<table>
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<tr>
<th>What you KNOW</th>
<th>What you DO</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Your organization’s business strategy and rationale</td>
<td>Influence business strategy, Translate business strategy into technical vision and strategy, Understand customer and market trends</td>
<td>Visionary, Entrepreneurial</td>
</tr>
<tr>
<td>Your competition (products, strategies, processes)</td>
<td></td>
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<tr>
<td>Your organization’s business practices</td>
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### Domains of Competency

#### Organizational Politics

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<tr>
<th>What you KNOW</th>
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<tbody>
<tr>
<td>Who the key players are in your organization</td>
<td>Communicate, communicate, communicate!</td>
<td>Able to see from and sell to multiple viewpoints</td>
</tr>
<tr>
<td>What they want, both business and personal</td>
<td>Listen, network, influence</td>
<td>Confident and articulate</td>
</tr>
<tr>
<td></td>
<td>Sell the vision, keep the vision alive</td>
<td>Ambitious and driven</td>
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<tr>
<td></td>
<td>Take and retake the pulse of all critical influencers of the architecture project</td>
<td>Patient and not</td>
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<tr>
<td></td>
<td></td>
<td>Resilient</td>
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<td></td>
<td></td>
<td>Sensitive to where power is and how it flows in your organization</td>
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#### Consulting

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<td>Elicitation techniques</td>
<td>Build ‘trusted advisor’ relationships</td>
<td>Committed to others’ success</td>
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<tr>
<td>Consulting frameworks</td>
<td>Understand what developers want and need from the architecture</td>
<td>Empathic, approachable</td>
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<td>Help developers see the value of the architecture and understand how to use it successfully</td>
<td>A effective change agent, process savvy</td>
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<td>A good mentor, teacher</td>
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<td>Mentor junior architects</td>
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## Domains of Competency

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<tr>
<td>Yourself</td>
<td>Set team context (vision)</td>
<td>You and others see you as a leader</td>
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<tr>
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<td>Make decisions (stick)</td>
<td>Charismatic and credible</td>
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<td>Build teams</td>
<td>You believe it can and should be done, and that you can lead the effort</td>
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<td></td>
<td>Motivate</td>
<td>You are committed, dedicated, passionate</td>
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<td></td>
<td>You see the entire effort in a broader business and personal context</td>
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### Framework

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Risks/Rewards of the Role

• Risks
  ▪ you don’t enjoy the non-technical work
  ▪ more responsibility / less control
  ▪ insufficient drive to overcome resistance
  ▪ poor odds of success
  ▪ everyone has a better idea

• Rewards
  ▪ more interesting and complex problems
  ▪ career advancement and recognition
  ▪ greater scope of activities, influence, contribution

Self Assessment
How I am Perceived

• How am I perceived
  ▪ By management?
  ▪ By architect peers?
  ▪ By developers?

• For each group, ask
  ▪ Am I credible?
  ▪ Do they think I’m in touch with their problems?
  ▪ Am I influential?
Self Assessment
Talents and Skills

Manager/Lead Architect
Team Assessment
Self Assessment Worksheet

Competency Elaboration

- Goal: provide an objective set of levels to assess competencies and guidance on developing targeted competencies
  - To be used for:
    - Establishing architect career path
    - Architect candidate selection
      - interviews and hiring
      - promotion to architect, or up the architect career ladder
    - Performance evaluation
    - Self-assessment to steer personal development objectives
Competency Elaboration
Structure

- Context and Motivation
- Competency Levels
  - What You Know/Do/Are
- Assessment Questions
- Development Guidance
  - On-the-job
  - Training
  - Reading and other resources

Politics: What You Know

Level I
Recognizes the need for buy-in and support for decisions.

Level II
Understands processes for getting results. Understands stakeholder concerns and values. Responds appropriately to political situations and issues.

Level III
Understands that politics, not technology, establishes the limits on what can be achieved. Knows that the best engineering solutions are not necessarily the best political solutions. Knows who to influence and when.

Level IV
Understands the political process and the networks of influence across the business. Knows who the key players are, and what they care about. Understands the organization’s culture and core values. Recognizes where power is focused and how it flows in the organization.
Politics: What You Do

Level I
Establishes good working relationships. Keeps relevant people informed of actions, decisions and progress.

Level II
Proactively builds a network of relationships. Provides timely information on progress and issues. Effectively communicates the value of the architecture to stakeholders.

Level III
Listens and networks; builds relationships across groups. Works well across groups, achieving support for broader goals. Influences without authority. Actively and effectively “sells” the architecture to multiple groups.

Level IV
Builds internal/external coalitions to work on shared outcomes. Takes and retakes the “pulse” of the critical influencers who can impact the success of the architecture. Influences business leaders at the highest level in the organization.

Politics: What You Are

Level I
Sees what needs to be done and does it without being told.

Level II
Displays drive, energy and initiative. Is good at technical communication. Has strong writing skills.

Level III
Insightful into people dynamics. Intuitively grasps practical implications. Has strong interpersonal skills, and is able to gain support and get things done. Is comfortable and skillful working with diverse stakeholder groups.

Level IV
Sees a bigger outcome for the organization, and is passionate about it. Is a role model, upholding high standards of personal and technical integrity. Perceptive and shrewd, with a good sense of what, practically, can be achieved.
Find Out More

- The following Competency Elaborations are available at http://www.bredemeyer.com/papers.htm
  - Architecture Strategy
  - Organizational Politics
  - Leadership
- Others will be added in the next week or so
- We welcome feedback and input

References

Books

- World-wide Institute of Software Architects (WWISA) web site: www.wwisa.org
- SEI web site: www.sei.cmu.edu/technology/architecture
References

Papers


References

Web Sites

- Enterprise-wide IT Architecture (EWITA) site: http://www.ewita.com
- Resources for Software Architects site: http://www.bredemeyer.com
- SEI web site: http://www.sei.cmu.edu/technology/architecture
- Philips Gaudi project site: http://www.extra.research.philips.com/natlab/sysarch/index.html