Architecturally Focused Techniques for Managing System Evolution

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Introduction

Reproduced from http://chestofbooks.com/
Agenda

• Context Setting
  • Architecture, the Environment, and Change

• (3) Techniques when Preparing & Managing Change
  • Overview
  • Steps
  • Various details

• Continuing and Future Work
Techniques for Managing System Evolution – An Overview

Objectives

1. Understand potential changes to the environment
2. Manage Relationships between the environment & the architecture
3. Minimize Risk of implementing the change

Techniques for Managing System Evolution – Objectives and Steps

<table>
<thead>
<tr>
<th>Objective:</th>
<th>Steps:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Understand Potential Changes to the Environment</td>
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</tr>
<tr>
<td>2. Manage Relationships</td>
<td>Know Alternative Operating Models</td>
</tr>
<tr>
<td>3. Minimize Risk</td>
<td>Elicit the Operating Model</td>
</tr>
</tbody>
</table>

Understand the Environment

- Understand the Business Strategy
- Identify Stable and Sensitive Areas
- Assess and Understand Impact

Develop Architecture Plans

- Control Design Risk
- Define “Architecture Ports”
Understand the Environment - Understand the Business Strategy

- Understand the Environment
- Understand the Business Strategy
- Know Alternative Operating Models

- Insert the Architect Earlier in the Lifecycle

- Typical Placement

- Strategies
- Code
- Requirements
- Architecture
- Drivers
- Operating Model
- System Concepts
- Constraining

- Typical Placement

- Develop Architecture Plans

- Business Process Standardization
- Business Process Integration

- high
- Coordinating
- Unifying

- low
- Diversifying
- Replicating

Understand the Environment – Elicit the Operating Model using a Modified QAW

Objectives:
1) Understand the business units involved
2) Determine the desired level of independence among business unit(s)

Modified Quality Attribute Workshop for Business Processes
1. Presentation and Introductions
2. Business Presentation
3. Identification of Architecture Drivers
4. Business Process Brainstorming
5. Business Process Consolidation
6. Business Process Prioritization
7. Scenario Brainstorming

Develop Architecture Plans – Define “Architecture Ports” and Stable/Sensitive Areas

Architecture Plans
Decide how the system will interact with its environment (i.e. “Architecture Ports”)
Influences – functionality, infrastructure, architecture designs, changes to other systems, etc…
Develop Architecture Plans – Define “Architecture Ports” and Stable/Sensitive Areas

- Define “Architecture Ports” and Stable/Sensitive Areas
- Assess and Understand Impact
- Control Design Risk
- Understand the Environment
  - Understand the Business Strategy
  - Know Alternative Operating Models
  - Elect the Operating Model
- Develop Architecture Plans
  - Define Architecture Plans
  - Identify Stable and Sensitive Areas
  - Assess and Understand Impact
  - Control Design Risk
- Understand the Business Strategy
- Know Alternative Operating Models
- Elect the Operating Model

Architecture Plans

- Decide how the system will interact with its environment (i.e. “Architecture Ports”)
- Influences – functionality, infrastructure, architecture designs, changes to other systems, etc…

Business Process Interactions

- People
- Systems

Develop Architecture Plans – Sidebar: Work in Progress

Work in Progress: Started a Taxonomy of Architecture Plans based on the Operating Model

- Usability
- Security
- Maintainability
- etc…

- Integrated User Experience
- Integrated Security Model
- Versioning & Backward Compatibility
- Data Models

- Portal
- Single Sign On
- Role Based Access Control
- Negotiate
- Shared Services
- Limit Supported Versions

Coordinating

- Independent
- Shared
Develop Architecture Plans – Assess and Understand the Impact

- Develop Architecture Plans
- Define "Architecture Ports"
- Identify Stable and Sensitive Areas
- Assess and Understand Impact
- Control Design Risk
- Understand the Environment
- Understand the Business Strategy
- Know Alternative Operating Models
- Elicit the Operating Model
- Operating Model
- Architecture
- Stable
- Sensitive
- is the start of
- aligned
- conflicting or neutral
- Architecture Plans
- develops according to
- identifies
- input to
- Business Processes
- High-Level QA Scenarios
- modified QAW

Develop Architecture Plans – Control Design Risk

- Assess Risk
- Report Risk
- C1
- C1.1
- C1.2
- C1.3
- C1.1.1
- C1.1.2
- C1.3.1
- C1.3.2
- C1.1.2.1
- C1.1.2.2
- C1.1.2.3
Continuing and Future Work

1. Continue defining taxonomies of architecture plans for each operating model organized by quality attribute scenarios.

2. Expand the architecture ports concept and its interplay with enterprise architecture.