Enterprise and Business Architecture – European views
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Themes

• Background of business and enterprise architecture
• The need for high level architectures
• Architectural metaphors as a way forward
Matti’s background

• Professor of information systems at Aalto University School of Economics
• One year visits to Georgia State Univ., RSM Erasmus and Claremont Graduate College
• All studies at University of Jyväskylä
• Research on ERP implementations and architecture last 10 years -> several PhD theses and articles
• Minority owner and former board member of MetaCase Consulting (www.metacase.com) a spin off of the thesis project
Aalto University
- Where Science and Art meet Technology and Business
Aalto University at a glance

Created from the merger of three leading Finnish universities on 1 January 2010.

Three Schools:
• School of Economics
• School of Art and Design
• School of Science and Technology

Second biggest university in Finland

Total Annual budget: € 368 million (2009)

Composition (2009)
• 4,500 Staff (300 professors)
• 20,000 Students
• 75,000 Alumni
• 1600 master’s degrees
• 180 doctoral degrees
• 473 MBA/EMBA degrees
Enterprise Architecture

• The process of translating business vision and strategy into effective enterprise change by creating, communicating and improving key requirements, principles and models that describe the enterprise’s future state and enable its evolution. (Gartner)

• The practice of documenting the elements of business strategy, business case, business model and supporting technologies, policies and infrastructures that make up an enterprise. (Wikipedia)
Business Architecture

• Business Architecture is a definition of what the business must produce to satisfy its customers, compete in a market, deal with its suppliers, sustain operations, and care for its employees. It is composed of architectures, workflows, and events.

• A Business Architecture defines the business value streams and their relationships to all external entities and other enterprise value streams and the events that trigger value development.
Business Architecture and enterprise architecture

Original: Jaakko Riihinen, Head Architect, Nokia Siemens Networks
European themes and concerns

Contextual
• Outsourcing
• Losing to US and Asia in software and cloud
• Inability to transfer research to innovation to products

Architectural issues
• Process modeling, tools and execution
• Monolithic architectures (SAP etc)
• Need for business agility
Our study on meanings of architecture: Research process and data collection

- Based on Kari Smolander’s PhD thesis
- Observations in three software organizations
  - How is architecture used and communicated in practice by those who participate in its creation and use?
- Grounded theory selected as the research method
  - Qualitative content analysis
  - Construction of a theory grounded in the data
- Group meetings with architects from three organizations
- Written material used for triangulation
  - Process descriptions, sample architecture descriptions
Human focus

• Traditional view of architecture concentrates on description of technical systems and their interconnections

• However, there is a need to communicate architecture widely across organizations
  – Software engineers,
  – Architects,
  – Data administration
  – Master data managers
  – Customers
  – Suppliers
  – General management
Engaging stakeholders

- A chance to understand the choices that architects need to make
- An opportunity to influence those choices
- Key to continuous support for architecture work
Architecture is an organizational concept

Meanings of architecture in practice

• Varying meanings between organizations and stakeholders
  – Each group satisfies its informational requirements with architecture

• Meaning of architecture in practice: architecture can be “deconstructed” to four metaphors:
  – Architecture as blueprint: architecture is the structure of the system to be implemented.
  – Architecture as decision: architecture is the decision and basis for decisions about the system to be implemented.
  – Architecture as language: architecture is the language for achieving a common conception about the system.
  – Architecture as literature: architecture resides at the documentation and frames of reference for readers.
Architecture as blueprint

- Architecture description is the high-level implementation of the system: guides the detailed implementation work.
- Architecture can be seen from the working implementation.
- Properties:
  - Time orientation: future
  - Formality: high
  - Detail level: high
  - Typical activity: implementing
  - Objective: artefact building
- Emphasized by designers and typically co-occurs with low customer and business orientation and low diversity of stakeholders.
Example

- Business process models that can be executed in e.g. SAP
- High-level descriptions of infrastructure
Architecture as decision

- Architecture description is rational decision making concerning resources (like people or money) and strategies
- Architecture is the decision about the structure of the system
- Properties:
  - Time orientation: future
  - Formality: usually low
  - Detail level: usually low
  - Typical activity: evaluating and deciding
  - Objective: planning resources
- Emphasized by managers and resource planners
Architectural decisions

- Have a broad scope and high impact
  - Priorities of the system
    - Business strategies, resources, opportunities, partners,
  - Decomposition and composition of the system
    - Structural elements, component responsibilities, configurations, …
  - Fit to context
    - Interoperability, consistency, interfaces, …
  - Fit to organizational policies
    - Style, technology, principles, skills, design patterns, …
Example

• Nokia’s decision to go with Windows Phone 7
• Abandoning own smart phone operating system
• What is this?
  • A decision about infrastructure
  • A decision about ecosystem
  • A decision about developer community
  • A decision about revenue split
Mobile Devices Net Sales Mix

(Note: MeeGo net sales not illustrated)

Symbian

Windows Phone

Mobile Phones

For illustrative purposes only; Not a forecast

Time

Source: Nokia 11.2.11
Architecture as language

- Architecture description is the communication device between different stakeholders about high-level structures and solutions.
- Architecture is the common understanding about the structure of the system.
- Properties:
  - Time orientation: present/future
  - Formality: low
  - Detail level: low
  - Typical activity: communicating
  - Objective: understanding between people at present
- Associated with high customer or business orientation and high diversity of stakeholders.
Example: Telecom manufacturer’s delivery process

Variations of process per product

Source: Nandhakumar et al. 2005
Target delivery process

- Overall vision
- Strategic direction and governing principles for supply

PU (BU) responsibility
Order fulfillment

Account organization
Contract fulfillment

Corporate role

First-tier suppliers
Make to order

Supply unit
Direct order

Direct delivery

Customer

Site/delivery point

KAM

Order copy

Aalto University
School of Economics
Architecture as literature

• Architecture description is the documentation for future readers
• Architecture is seen as the solution or a collection of solutions made in the past
• Properties:
  – Time orientation: past
  – Formality: varies
  – Detail level: high
  – Typical activity: reading and analysing
  – Objective: documentation, understanding over time
• Not especially specific to any stakeholder group nor orientation
Architecture as literature: The Mall
Conclusions

• Meaning of architecture changes over time and varies
  – By different tasks
  – By needs of different stakeholders
  – different business environments

• One size does not fit all
  – Formal and detailed vs. rich and easy-to-interpret descriptions
  – Quality of descriptions vs. quality of interpretations

• Architecture is a communication device!
Why you should be interested in this?

• Developing approaches and tools for truly engaging business representatives in architectural decision making

• Being able to communicate the importance and ramifications of architectural decisions to management

• Identifying right channels and mediums of communicating across stakeholder groups
Possible co-operation?

• Identifying how different groups in your company use architecture
  – For what purposes?
  – What mediums?
  – Do current means work?

• Proposing tools and methods for enhancing use and communication
  – Engaging users
  – Perhaps some method development?
Mening?
¿Commentar?
Kommentteja?
Opinions?
Comments?

Frågor?
¿Preguntas?
Kysymyksiä?
Vragen?
Questions?
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References