Managing Change: Business/IS-Alignment and adaptability of information systems

ECIS 2007, St. Gallen

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Enterprise architecture - terms and beliefs

- Business models
- Organization
- Processes
- Information

- Enterprise Applications
- Portal & Information Management Platform
- Data Repositories
- EAI Services

Application Architecture

- Strategy

- Infrastructure Architecture

- Business Architecture

In practice there is little coherence between organizational development and IS planning.

Information system architecture

- Organisational architecture
- Information system architecture

- Hierarchy
- Business processes
- Elements
- Proceeding models

 Agoenda

- Enterprise architecture - terms and beliefs
- What is adaptability?
- Why (and when) do companies need adaptability?
- How adaptability can be measured?
- Outlook and further work
Building blocks of an information system architecture

- Proceeding models for analysis, planning, realization
- Organizational integration elements (groupware, workflows)
- Software integration elements (interfaces)
- Software construction elements (components)

▶ Most frameworks do not mention proceeding models. But they decide on success or failure.

Enterprise architecture - terms and beliefs

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Adaptability - different focus of definitions

- Business Management
  Adaptable (Agility) is the demand to act efficiently and economically under frequently changing and unforeseeable conditions [GoNa+95].

- Factory Planning
  A factory is considered adaptable if the system is able to conduct changes at low time and effort. As a consequence, continuous business process changes need to be anticipated [WiHe00].

- Information systems
  Adaptability is the ability of the system to adapt efficiently and fast to changing requirements. The system fulfills changeability if it offers suitable alternatives by itself [AnGr+05].

Differentiation of terms

- Who recognizes the demand for change?  Who develops suitable alternatives?
- Flexibility: externally  externally
- Adaptability: System  externally
- Changeability: System  System

▶ Changeability is a long-term-goal of IS development.
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Enterprise architecture - terms and beliefs

What is adaptability?

Why (and when) do companies need adaptability?

How adaptability can be measured?

Outlook and further work

Where does the demand for change come from?

Markets and customers

Economy and finance

Employees

Environment

Social and political influences

Products and technology

Competitors

Scientific improvements

Why (and when) do companies need adaptability?

The change hits the whole enterprise architecture

Changes

Enterprise architecture

Organisational architecture

Information system architecture

Hierarchy

Business processes

Elements

Proceeding models

Business/IS-Alignment means synchronization between two different velocities of adaptation.

When a consideration of more adaptability is necessary?

You should act when you are located within this zone!

Expected business turbulences

Critical zone

Ideal zone

Neutral zone

Transfer zone

Adaptability of information system architecture

But how can we measure or at least judge the degree of adaptability?
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Investigation of adaptability

Technical adaptability

Questions along a architectural model of enterprise systems

Business Adaptability

Estimating the system’s reaction to reorganization scenarios

Investigated enterprise systems

Technical adaptability

High

Commercial

System

LX-Office

Monitor

Low

Average

Process Advanced

Results from the two parts of investigation can be printed in a portfolio figure.

Criteria and paradigms fostering changeability

How adaptability can be measured?

Self explainability

Knowledge

Interoperability

Scalability

Autonomous information exchange

Distinct components or services

Capacity regulation (up and down)

Any time, any place

Modularity

Availability

Self similarity

Structure generated by system

Platform independence

Independence

Self organization

Continuous improvement

Dissolution of company borders

Subsystem generation

Process orientation

Scalesystem generation

Low

Commercial ERP system

Compiere w. monitor

LX-Office extended

Compiere

WepERP+

AvERP

LX-Office

High

Commercial

System

LX-Office

Monitor

Average

Process Advanced

Business specific adaptability
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Adaptability has to be considered in the whole development process.
Motivation
- Bringing Adaptability into Information Systems has become a market demand
- No Instruments to judge Information Systems for adaptability
- Lack of methodical support to design for adaptability
- Potential of Information Systems not fully used

Information systems and architectures
- Architecture
  - result of a planning process
  - master plan or a structural drawing for holistic realisations of future measures
- Information systems architecture
  - The general planning and development plan
  - Special arrangement of the enterprise-far IT, [Laud02, p. 26]
  - Collection of proceeding methods, models and elements to deploy and use information systems [Gron03]
- Enterprise systems
  - ERP systems link together business processes and application functionality
  - Core element of business information technology
  - Modular structured

Possible enhancements of adaptability
- Control layer: Executable modeling languages like BPEL, BPM+OMG
- Presentation layer: Java Server Faces, consequent use of Model-View-Controller-concepts
- Application layer: Middleware usage like CORBA
- Data layer: Object-relational databases
- Infrastructure layer: Super P2P

Andresen, Gronau, Lämmle, 2006