Business Requirements as the Basis for Enterprise Architecture and Project Architectures

Harmen van den Berg
And the speaker is...

- Harmen van den Berg
  - Manager BiZZdesign International
  - Trainer for ArchiMate and TOGAF training courses
  - Speaker at conferences like LAC, EAC, EAM, Open Group
Let’s get to know each other!

Raise your hand:

• Who is familiar with TOGAF?
• Who is TOGAF certified?
• Who is familiar with ArchiMate?
• Who is using ArchiMate?
• Who is ArchiMate certified?
• Who just discovered he or she is in the wrong room?....
Proposed schedule

- Introduction
- The need for BRM
- EA and ArchiMate
- Modeling BRM
- Analyzing BRM
- The process for BRM
- Conclusions
BIZZdesign: BUILDING STRONG ORGANIZATIONS!
• Organizations increasingly need to deal with business improvements and transformations in a complex business reality. BiZZdesign believes that organizations should have the change capabilities to improve their business to realize their mission.
• BiZZdesign enables these improvements and improvement capabilities by providing integrated solutions consisting of design tools, training, business consultancy, and best practices.
• Our integrated solutions are based on community-based innovation and open standards, and are executed by experienced BiZZdesign professionals who are passionate about improving and empowering organizations.
Service lines BiZZdesign

Drive improvements with better decisions aligned on strategy, design, and implementation level:

- Business Model Management
- Enterprise Architecture Management
- Business Process Management
- Lean Management
- Governance, Risk and Compliance

Each service line consists of proven and easy to use software tools, best practice models and methods, training, and business consultancy

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• Modules for modeling, visualizing and analyzing
  – Business models based on the *Business Model Canvas*
  – Enterprise architecture based on *ArchiMate* and *TOGAF*
  – Requirements based on *ArchiMate*
  – Process models based on *BPMN* and *Amber*
  – Process logic based on *The Decision Model*
  – Process improvement based on *Lean*
  – Data modeling based on *UML* and *ERD*
• With one underlying repository
  – Including relations between the various models
• With various publication possibilities
  – Publication to Html, Word, pdf, publication portal InSite, Wiki
WHY BUSINESS REQUIREMENTS MANAGEMENT?
Requirements...

DID I REMEMBER TO TELL YOU BEFORE YOU FINISHED THE CODING THAT THE USER'S SPECIFICATIONS CHANGED?

AAAIII-YIIII-YIIII-YIIIIII!!!!!

SO, NO-ISH?

BAM! BAM! BAM!

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Why BRM?

• Actually we know it is important
  – But do we make a (serious) effort?
  – And is this effort done right?
“Why” is the reason!

• In general, only the solution (architecture, process, ..) is modeled, and not the underlying intentions, like goals and requirements ...
  – Why do we need this change, what is the real problem?
  – Who are the stakeholders, what do they want?
  – How do different stakeholder goals influence each other?
  – How are goals translated into requirements?
  – Can we support all business requirements?
  – Why this solution and not another one?
The Standish Group: CHAOS REPORT

Impaired projects

Project *Impaired* Factors
1. Incomplete Requirements 13.1%
2. Lack of User Involvement 12.4%
3. Lack of Resources 10.6%
4. Unrealistic Expectations 9.9%
5. Lack of Executive Support 9.3%
6. Changing Requirements & Specifications 8.7%
7. Lack of Planning 8.1%
8. Didn’t Need It Any Longer 7.5%
9. Lack of IT Management 6.2%
10. Technology Illiteracy 4.3%
Project **Challenged** Factors

1. Lack of User Input 12.8%
2. Incomplete Requirements & Specifications 12.3%
3. Changing Requirements & Specifications 11.8%
4. Lack of Executive Support 7.5%
5. Technology Incompetence 7.0%
6. Lack of Resources 6.4%
7. Unrealistic Expectations 5.9%
8. Unclear Objectives 5.3%
9. Unrealistic Time Frames 4.3%
10. New Technology 3.7%
Project **Success** Factors

1. User Involvement 15.9%
2. Executive Management Support 13.9%
3. Clear Statement of Requirements 13.0%
4. Proper Planning 9.6%
5. Realistic Expectations 8.2%
6. Smaller Project Milestones 7.7%
7. Competent Staff 7.2%
8. Ownership 5.3%
9. Clear Vision & Objectives 2.9%
10. Hard-Working, Focused Staff 2.4%
“No other part of the work so cripples the resulting system if done wrong.”

[F.P. Brooks, No silver bullet: Essence and accidents of software engineering]

Costs of Correcting Defects

Issue: Long requirements lists

- Large documents
- Lack of structure – hidden relationships
- Lack of overview and insight
- Difficult to analyse
  - Is the set of requirements complete?
  - Do I have the right requirements?
Issue: ‘Anchor’ requirements in architecture

- How can I relate business requirements to architecture and business processes?
  - Methodological support
  - Modelling support

- How can I show that the architecture and its processes satisfy the concerns and goals of the stakeholders?
Issue: Impact of change

- What is the impact of changing business goals and requirements on the architecture?
- What is the impact of changes in the architecture on the business goals and stakeholders?
Business Requirements Management

- **Business Requirements**
  - The (business) goals of the stakeholders in an organization
  - The requirements for the organization (processes, people, IT) in order to achieve these goals

- **Business Requirements Management**
  - All activities
  - To identify, analyze, specify and validate business requirements
  - To realize traceability between stakeholders, goals, requirements and artifacts of the organization (described in architectures and processes)
  - To share and communicate business requirements

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ENTERPRISE ARCHITECTURE AND ARCHIMEDE
Architectures and design models

- **Strategic management:** How are we positioned with respect to our environment?
- **Enterprise Architecture:** How should we organize ourselves?
- **Process, data, system design:** How do we do our work?

**Business models**

**Architecture models**

**Design models**
BRM, EA and portfolio management

Implements strategy
- What is the contribution of IT?
- In which processes, applications or infrastructure to invest?
- ...

Implements strategy
- What is the contribution of some project?
- In which projects to invest?
- ...

What dependencies among projects and IT artefacts do exist?
What is Enterprise Architecture?

• A discipline, with the objective of steering changes

• A product
  – A design that shows the coherence between products, processes, organisation, information supply and infrastructure, based on a vision and certain explicit starting points, principles and preferences

• A process
  – Way of working
  – Aimed at the development and use of enterprise architectures within an enterprise
  – With people and resources
Summary of the TOGAF ADM

1. “Getting the organization committed & involved”

2. “Getting the architecture right”

3. “Making the architecture work”

4. “Keep the process running”
ArchiMate

- Language for describing enterprise architecture
- Covers business, application and technology
  - With relations between these layers
- Extensions for
  - Motivation
  - Migration and implementation
- Graphical language with formal semantics, enabling analysis and tool support
- Techniques for visualization and analysis, aimed at various stakeholders
- Open standard maintained by The Open Group
# ArchiMate Motivation Extension

<table>
<thead>
<tr>
<th>Concept</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder</td>
<td>The role of an individual, team or organization that represents their interests in, or concerns relative to the outcome of the architecture</td>
<td>Customer</td>
</tr>
<tr>
<td>Driver</td>
<td>Something that creates motivates and fuels the change in an organization</td>
<td>Profit</td>
</tr>
<tr>
<td>Assessment</td>
<td>The outcome of some analysis of some driver</td>
<td>Profit is low</td>
</tr>
<tr>
<td>Goal</td>
<td>An end state that a stakeholder wants to achieve</td>
<td>Increase profit</td>
</tr>
<tr>
<td>Requirement</td>
<td>A statement of need that must be realized by a system</td>
<td>Provide online portfolio service</td>
</tr>
<tr>
<td>Principle</td>
<td>A normative property of all systems in a given context or the way in which they are realized</td>
<td>Systems should be customer facing</td>
</tr>
</tbody>
</table>
# Relationships

<table>
<thead>
<tr>
<th>Relation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt=" Increase sales " /> <img src="image2.png" alt=" Increase sales " /> <img src="image3.png" alt=" Increase sales " /> <img src="image4.png" alt=" Increase sales " /> <img src="image5.png" alt=" Increase sales " /></td>
<td>The decomposition relationship models that some goal or requirement is divided into multiple intentions</td>
</tr>
<tr>
<td><img src="image6.png" alt=" Facilitate self-service " /> <img src="image7.png" alt=" Provide on-line portfolio service " /></td>
<td>The realization relationship models that some end is realized by some means</td>
</tr>
<tr>
<td><img src="image8.png" alt=" Increase profit " /> <img src="image9.png" alt=" Increase sales " /></td>
<td>The influence relationship models that some goal or requirement has a positive or negative influence on another goal or requirement</td>
</tr>
</tbody>
</table>
Modeling and analyzing requirements
Modeling stakeholders

Board
Customer
Insurance department
Product design
Modeling goal refinement

- Realize traceability between stakeholders, business goals and business requirements
Modeling requirement realization

Car Insurance
- Claim Registration
- Claims Payment

Exposure
"Exposing insurers over the internet"

Internet

Insurance department
Some examples of analysis of BRM and EA

• Traceability
  – Between stakeholders and requirements
  – Between requirements and stakeholders
  – Between requirements and enterprise architecture
  – Between enterprise architecture and requirements

• Compliance
  – Is the architecture compliant with business requirements and concerns of stakeholders

• Completeness
  – Is every requirement realized in the architecture
  – Can every architecture artifact related to a requirement
THE PROCESS FOR BRM
BRM – the process

Problem

Requirements Engineering

Solution

Trigger

Problem investigation

Solution investigation

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• Starting point for requirements engineering
• Result of requirements engineering
Problem chains

“The solution for one, is the problem for another one”
Requirements and Architecture process

**WHY**
- Improve customer satisfaction
- Coordinate portfolio services
- Support on-line premium payment

**WHAT/HOW**
- Portfolio management service
- Portfolio management process
- Claim handling process
- Sales process
- Premium payment service
- Claim registration service
Requirements Management Process

**Architecture process**

**Requirements process**
- Need for change
- Requirements for architecture
- Architecture design
- Requirements for solution
- Design of solution

**Requirements Traceability & Impact of change**

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‘Solution investigation’ in two steps

1. Problem investigation
2. Investigate alternative solutions
3. Solution validation

Goal model
Requirements model
Requirements model
Goal model
Requirements engineering cycle

1. Problem investigation
2. Investigate alternative solutions
3. Solution validation

Change

Requirements process

Architecture process

Model M1

Architecture As-is
Architecture A1
Architecture An
Architecture To-be
Support for BRM - Method

• Method
  – Requirements Engineering Cycle
  – Relation to TOGAF

1. Problem investigation
2. Investigate alternative solutions
3. Solution validation
Support for BRM - Method

• Method
  – Requirements Engineering Cycle
  – Relation to TOGAF

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Summary BRM – the method

- **Method**
  - Requirements Engineering Cycle
  - Related to EA process
Conclusions

- Business requirements are very important
- Model your business requirements with ArchiMate
- Relate your business requirements to EA
- Distinguish business requirements from solution requirements
- Analyze your business requirements
ADDITIONAL INFORMATION ABOUT BIZZDESIGN
How can BiZZdesign help you?

• For midsized and large organizations that
  – need to deal with many and/or complex business and IT changes, within an environment with significant cost constraints and risk considerations
  – need to drive improvements in their business with better decisions
  – want to empower their organization to manage these improvements

• BiZZdesign
  – offers an integrated business improvement approach consisting of design tools, training, business consultancy, and best practices
  – helps businesses identify, plan, and execute improvements across business and IT at the lowest possible cost with a complete understanding of the risks to manage
  – enables your organization to take control of its improvement efforts, without permanently relying on expensive consultants
Empowerment by training: BiZZdesign Academy

Empower your organization to manage and execute improvements!

• Excellent training / coaching to effectively use methods and tools
  – Master classes
  – Foundation training (1-2 days)
  – Practitioner training (2-6 days)
  – Certification and coaching
  – Games and booth camps

• Topics: Business Models, EA, TOGAF, ArchiMate, Infrastructure Architecture, BPM, BPMN, Lean, Data management, Business Logic, etc.
Empower your organization to manage and execute improvements!

• BiZZdesign gathers and disseminates its knowledge and experiences in easy accessible formats
  – Blogs
  – Webinars
  – White papers
  – Books and e-books
  – Invited events and conferences
Business Consultancy to support you

We help identify, plan, and execute improvements in your organization

• Experts in the areas of
  – Business Models
  – TOGAF
  – ArchiMate
  – Business Requirements
  – Infrastructure architecture
  – Process design / optimization
  – The Decision Model
  – Lean

• We help you solve your problems
• We enable you to take control of your improvement efforts!
How did BiZZdesign help organizations

- Developing new business models for a university
- Implementing the EA-function in a telecom organization
- Develop a security architecture for a municipality
- Defining the future work space for a university
- Defining the future infrastructure landscape
- Redesigning the process landscape for ERP-implementation
- Create consistent and insightful business logic
- Optimize processes at a municipality
- Implement Lean in organization (training and coaching)
Community-based innovation with open standards

- BiZZdesign improves and develops tools and methods with
  - Universities
  - Research institutions
  - Clients
  - Partners

- BiZZdesign is active member of various consortia
  - The Open Group, BPM Forum, National Architecture Forum

- InnoValor: innovation-based consultancy
  - BiZZdesign has acquired a dedicated business unit for innovation-based consultancy
Innovation for continuous improvement

Our innovation supports the improvement and development of tools and methods to facilitate your improvements initiatives.

Current BiZZdesign research themes:

- Strategy management
- Capability-based planning
- Enterprise Portfolio Management
- Enterprise Risk and Security
- Data management
- Business Logic
• The BiZZdesign Tool Suite
  – helps to identify, plan, and execute improvements across business and IT at the lowest possible cost with a complete understanding of the risks to manage
  – is providing efficient analyses of business and IT architectures
  – is providing efficient analyses of enterprise portfolios
  – is easy to use, flexible, configurable and scalable
  – is based on open standards
  – is delivered with effective training and expert consultancy
  – enables your organization to take control of its improvement efforts
Government
Health care
Utilities, Energy and Telco’s

RWE stroom en gas

Waterschap Rivierenland
dunea duin & water

Hunze en Aa’s

ebn

Gasterra

ENEXIS

Ymere

Waterschap Velt en Vecht

Hoogheemraadschap van Rijnland

Cyclus

-essent

Waterschap Roer en Overmaas

Waterschap Rijn en IJssel

Groot Salland Waterschap

Reest-Wieden waterschap

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Education

Universiteit van Tilburg
INHOLLAND
SURF
STAFFORDSHIRE UNIVERSITY
TU/e
TU Delft
Saxon
Haagse Hogeschool
Imperial College London
University of Greenwich
Hogeschool van Amsterdam
Twente
deur ondernemende universiteit
Open Universiteit
Universiteit Leiden
University of Oxford
Roehampton University
University of Leeds

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