ENTERPRISE ARCHITECTURE AT THE UNIVERSITY OF HELSINKI

TANGIBLE RESULTS AT A REASONABLE COST

JUSSI KOSKIVAARA

EUNIS 2014, UMEÅ
ENTERPRISE ARCHITECTURE AT THE UNIVERSITY OF HELSINKI

• THE UNIVERSITY IN BRIEF
• ENTERPRISE ARCHITECTURE
• EA PROGRAM AT THE UNIVERSITY OF HELSINKI
  • EA Program Focus and Short History
  • Architecture Board and Architecture Principles
  • EA and Project Management
  • Master Data Management
  • EA Costs
  • Future EA Work
• LESSONS LEARNED AND RECOMMENDATIONS

UNIVERSITY OF HELSINKI
University of Helsinki in Brief
THE UNIVERSITY IN BRIEF

1640
ESTABLISHED

600+
MEUR BUDGET

300
SUBJECTS

5,800
DEGREES AWarded Annually

8,300
STAFF

35,000
DEGREE STUDENTS

28,000
STUDENTS IN OPEN AND CONTINUING EDUCATION

180,000
ALUMNI THROUGHOUT THE WORLD

http://www.helsinki.fi/university/
4 CAMPUSES
11 FACULTIES

CITY CENTRE CAMPUS
21,000 STUDENTS
HUMANITIES AND SOCIAL SCIENCES
FACULTY OF ARTS
FACULTY OF BEHAVIOURAL SCIENCES
FACULTY OF LAW
FACULTY OF THEOLOGY
FACULTY OF SOCIAL SCIENCES

MEILAHTI CAMPUS
3,000 STUDENTS
TOP-LEVEL RESEARCH IN MEDICINE
FACULTY OF MEDICINE

VIKKI CAMPUS
6,500 STUDENTS
TOP-LEVEL RESEARCH IN THE BIOSCIENCES
FACULTY OF BIOLOGICAL AND ENVIRONMENTAL SCIENCES
FACULTY OF VETERINARY MEDICINE
FACULTY OF PHARMACY
FACULTY OF AGRICULTURE AND FORESTRY

KUMPULA CAMPUS
6,000 STUDENTS
THE LARGEST SCIENCE HUB IN THE NORDIC COUNTRIES
FACULTY OF SCIENCE
IT VOLUMES AT THE UNIVERSITY OF HELSINKI

- Personnel (FTE)
  - 217 person-years (IT Center) + other IT Staff 134 = 351 total
  - 4.4% of all personnel
- IT Budget
  - ca. 34 million €, whereof ca. 50% in IT Center)
  - 4.9% of Total Budget
- IT Environment
  - 17,700 workstations
  - Active User Id’s: 76,200
  - Opened Helpdesk Tickets: 75,000
Enterprise Architecture
Enterprise Architecture (EA) describes how an organization’s processes, information, systems, and technology work together.

- EA is a method for operational development that ensures that IT development is based on the needs of the organization’s core functions and strategy.

EA Models: TOGAF, Kartturi, JHS-179
EA FRAMEWORK 'KARTTURI'

Principle Level - WHY, ON WHAT CONDITIONS?
- Architecture Guidelines, Reference Architectures
- Architecture Principles
- Information Security and Data Protection Policy and Principles

Conceptual Level - WHAT?
- Business Architecture
  - Strategy
  - Business Needs, Challenges, Goals
  - Services
  - Interest Groups
- Information Architecture
  - Concepts
  - Roles
- System Architecture
  - Systems Services
- Technology Architecture
  - Technology Requirements

Logical Level - HOW?
- Organization
- Process List / Map
- Process Documents
- Data
  - Logical Data Reserves
  - Systems–Data Reserve Matrix
- Logical Categorization of Information Systems
- Data flows
- System–Process Matrix
- Control & Management Architecture
- Logical Network Schema

Physical Level - WITH WHAT?
- Interfaces & Connections
- Technology Choices
- Physical Data Reserves
- System Portfolio
- Code System
- Physical Network Schema
- Service Level Goals
EA VS. DEVELOPMENT NEEDS

We must develop X

Compatibility Needs
- What does it change?
- What do we have already?
- National, regional constraints?

Information Needs
- Operational Needs
  - How does it support strategy?
  - Who needs what?
  - How does it support core processes?

- What data is required?
- Master Data sources?
- What Data for Management?
- Data Protection Needs?

System Needs
- What Support Systems are needed?
- How to integrate solutions?

Technology Needs
- Availability, Usability?
- Maintenance, Service
Implementation of the EA Model at the University of Helsinki
EA WORK AT THE UNIVERSITY OF HELSINKI

- The Big Picture
- EA Focus
- A Short History
- EA Board
- EA Principles
- EA Maturity Assessment
- EA vs. Project Management
- Architecture Reviews
- Master Data Management
- EA Costs
- Wrap-Up: the Big Picture of EA at Uni. Helsinki
## EA Work Focus in the University Organisation

### The University Collequium
- **The Chancellor**
- **The Board**
- **The Rector**

### Central Administration
- **Rektor's Office**
- **University Services**

### Facilities and Institutes

#### City Centre Campus
- **Faculty of Theology**
- **Faculty of Law**
- **Faculty of Arts**
  - Suomen kielen, suomalais-uutis-ugrialian ja polihistorian kielen ja -kielien tutkimuskeskus
  - Nykykien laitos
- **Faculty of Behavioural Sciences**
  - Opettajankoulutuslaitos
  - Käytäntöympäristöteosten laitos
  - Harjoittelukoulu
- **Faculty of Social Sciences**
  - Sosiaalitekniikan laitos
  - Poliittisen ja talouden tutkimuksen laitos
  - Helsingin taloustieteellinen tutkimuskeskus HELCAS

#### Kumpula Campus
- **Faculty of Science**
  - Geofysikaalinen laitos
  - Geologian laitos
  - Matemaattinen ja tilastotieteen laitos
  - Dept. of Computer Science

#### Viikki Campus
- **Faculty of Biological and Environmental Sciences**
  - Lammin biologinen asema
  - Verkot

#### Mekilahti Campus
- **Faculty of Medicine**
  - Kliininen laitos
  - Hjelt Instituutti
  - Tutkimusohjelmayksikkö

### Independent Institutes
- **Helsinki University Library**
- **Open University**
- **The National Library of Finland**
- **Suomen molekyyliaatteetieteen instituutti FHM**
  - Kehityskoulu
  - Luomuntuotteellinen keskus
  - Neurofyysikko
  - Helsinki University Library
## EA Implementation Phases at the University of Helsinki

<table>
<thead>
<tr>
<th>Year</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>Architect / Project Manager</td>
</tr>
<tr>
<td>2010</td>
<td>National-level EA Cooperation of HE Institutions (Raketti Project)</td>
</tr>
<tr>
<td></td>
<td>EA Project: Architecture Vision of the University's Central Administration</td>
</tr>
<tr>
<td></td>
<td>EA Work and EA Group of the Education Services</td>
</tr>
<tr>
<td></td>
<td>IT Center’s EA Board, <strong>University-level EA Board started.</strong></td>
</tr>
<tr>
<td></td>
<td>Implementing the EA model within IT Projects</td>
</tr>
<tr>
<td>2012</td>
<td>Use of Kartturi Model. National-level EA Special Interest Group (KA-SIG) for HE Organisations started</td>
</tr>
<tr>
<td></td>
<td>Enterprise Architecture Principles. EA Maturity Check.</td>
</tr>
<tr>
<td>2015</td>
<td>New EA Board, Revised EA Principles, EA Modeling, Target Architectures etc.</td>
</tr>
</tbody>
</table>
The EA Board
THE EA BOARD

Members:

- Chair: Head of Administration Antti Savolainen
- Central Administration Sectors: 7 Representatives
- IT Center, Center for Properties and Facilities, 3 Representatives
- 3 Faculty Members, 2 Professors
- Meetings 10 times per year

Tasks:

- University-level EA governance
- Preparation of EA guidelines and principles to be ratified by the Rector
- Assessment of the conformity of development projects to EA principles and guidelines
- Follow-up of IT projects and their conformity to EA goals
- Coordination of national and international EA cooperation
- Quality management of EA documentation
EA GOVERNANCE

EA BOARD AND GROUPS

University Level

EA Board

reporting

Board of Directors

Steering Group of Administrative Services

EA Work within Common Solutions

Boarding Group of Academic Services

IT Center Management Group

Research Affairs Management Group

Target Architectures

IT Center's EA Group

reporting

IT Center Board

IT Center Management Group

Education Services' EA Group

Education Services' EA board

Research Affairs' EA Group

Research Affairs Management Group
Enterprise Architecture Principles
Architecture principles define the underlying general rules and guidelines for the use and deployment of all IT resources and assets across the enterprise. They reflect a level of consensus among the various elements of the enterprise, and form the basis for making future IT decisions. *(TOGAF).*

- EA Principles can be seen as an organisation’s internal EA legislation. All EA development is based on the principles.
- EA principles describe a common view of measures that can be used to develop ICT solutions to support the University’s core activities and strategy.
- EA principles are mandatory; any exceptions must be justified.
- UH’s set of EA Principles are based on those of the Finnish public sector and Higher Education sector.
- Format from TOGAF: Name, Statement, Rational, Implications
- No prioritization of EA principles.
## Enterprise Architecture Principles at the University of Helsinki

<table>
<thead>
<tr>
<th>Group</th>
<th>Principle</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td>1. Enterprise Architecture methodology is used in all IT development</td>
</tr>
<tr>
<td></td>
<td>2. The development of IT systems is based on openness</td>
</tr>
<tr>
<td><strong>Business</strong></td>
<td>3. Enterprise Architecture serves the University’s core activities</td>
</tr>
<tr>
<td></td>
<td>4. Enterprise Architecture serves the University’s strategy</td>
</tr>
<tr>
<td></td>
<td>5. Unified methods and solutions are used in common functions all over the university</td>
</tr>
<tr>
<td><strong>Information</strong></td>
<td>6. Information management and IT systems are based on common concepts and vocabulary</td>
</tr>
<tr>
<td></td>
<td>7. Data is shared</td>
</tr>
<tr>
<td></td>
<td>8. Data security and data protection during the whole life cycle of the data/system</td>
</tr>
<tr>
<td></td>
<td>9. Data trustees accountable for data quality</td>
</tr>
<tr>
<td><strong>System</strong></td>
<td>10. Interoperability of systems</td>
</tr>
<tr>
<td></td>
<td>11. System compatibility</td>
</tr>
<tr>
<td></td>
<td>12. Ease-of-use of applications</td>
</tr>
<tr>
<td></td>
<td>13. Technology independence of systems</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>14. Consistent technology architecture</td>
</tr>
<tr>
<td></td>
<td>15. Technology choices are based on the maturity of technologies</td>
</tr>
<tr>
<td></td>
<td>16. Technology choices are based on environmental sustainability requirements</td>
</tr>
</tbody>
</table>
Enterprise Architecture principles: experiences

+ EA principles are a necessary, if not a sufficient tool to enable EA work
+ EA principle creation process is a good way to start EA Governance and EA Board's work
+ A good method to get management support
+ EA principles enable introduction of EA, enhances communication
+ EA principles help the assessment of development projects’ conformity to strategy, core processes etc.

- Might seem a bit theoretical; what are the real benefits?
- Some principles have proven somewhat problematic/far-fetched:
  - Technology independence
  - Consistent technology architecture
  - Environmental sustainability
EA Maturity Assessment
- Government EA assessment model
- Based on the common Capability Maturity Model (CMM). Also Nascio Architecture maturity model has been applied (*National Association of State Chief Information Officers)

**Level 5: Strategic/Optimized:** Architecture is a strategic tool for management and planning.

**Level 4: Managed:** Architecture and EA Governance is measured regularly, the results are analyzed and corrective steps are taken.

**Level 3: Defined:** Standard procedures and models are used in EA development. EA activities are organized.

**Level 2: Repeatable:** Some EA Governance processes, organisation, and tools are used.

**Level 1: Initial:** EA Governance processes or organisation are not defined.
Excel Spreadsheet

Eight areas, five levels (1-5), 97 items total:

- 1: Architecture Documentation, 13 items
- 2: EA method 13
- 3: Governance Processes, 12
- 4: Development and Implementation, 13
- 5: Organisation, 11
- 6: EA Skills, 9
- 7: Support for Core Operations, 15
- 8: Compatibility, 11

Comparison to earlier assessment(s)
## EA MATURITY ASSESSMENT

### Results 2012-2013

<table>
<thead>
<tr>
<th>Area</th>
<th>2013</th>
<th>2012</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation</td>
<td>2.07</td>
<td>1.97</td>
<td>0.1</td>
</tr>
<tr>
<td>Method</td>
<td>1.87</td>
<td>1.73</td>
<td>0.15</td>
</tr>
<tr>
<td>Processes</td>
<td>1.70</td>
<td>1.53</td>
<td>0.17</td>
</tr>
<tr>
<td>Development</td>
<td>1.33</td>
<td>1.37</td>
<td>0.04</td>
</tr>
<tr>
<td>Organisation</td>
<td>1.61</td>
<td>1.53</td>
<td>0.08</td>
</tr>
<tr>
<td>EA Skills</td>
<td>2.00</td>
<td>1.5</td>
<td>0.50</td>
</tr>
<tr>
<td>Core oper. support</td>
<td>2.08</td>
<td>1.98</td>
<td>0.10</td>
</tr>
<tr>
<td>Compatibility</td>
<td>2.08</td>
<td>1.73</td>
<td>0.35</td>
</tr>
<tr>
<td>Average</td>
<td>1.85</td>
<td>1.67</td>
<td>0.18</td>
</tr>
</tbody>
</table>
EA and Project Management
Six evaluation points during the IT projects’ life span have been defined to assess their EA compliance.

- Different questions are asked in different phases, for example compliance to EA principles or the defined target architecture.

- The assessment is made by neutral reviewers outside the project organisation.

- The University’s EA Board will accept the results of the EA reviews.

- Other project features can be reviewed, such as project management, data security, usability, reporting needs.
Project Phases

- Project Idea
- Proposal
- Planning, Project Lifecycle
- Project Results

EA Reviews

- TP1: Project Idea
- TP2: Project Proposal
- TP3: Project Plan
- TP4: RFP Evaluation
- TP5: Project Results
- TP6: Implementation
## EA Reviews: Project Proposals vs. EA Principles

<table>
<thead>
<tr>
<th>Nro</th>
<th>Project</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project 1</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project 2</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Project 3</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Project 4</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Project 5</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Project 6</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Project 7</td>
<td>M</td>
<td>E</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>V</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>Project n</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>E</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>

**E** = promotes the EA principle  
**M** = supports the EA principle  
**V** = does not support the EA principle
### EA Reviews: Project Proposals vs. Strategy

**Projects 2014**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project 1</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E</td>
<td>E</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>M&lt;br&gt;26,28 also 27?</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Project 2</td>
<td>M</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16-18, 19-21</td>
</tr>
<tr>
<td>3</td>
<td>Project 3</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10, 28</td>
</tr>
<tr>
<td>4</td>
<td>Project 4</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
<td></td>
<td>E</td>
<td>E</td>
<td>E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4, 8, 11, 16, 18, 19, 21, 22, 26, 27, 28</td>
</tr>
<tr>
<td>5</td>
<td>Project 5</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1, 2</td>
</tr>
<tr>
<td>6</td>
<td>Project 6</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26, 35</td>
</tr>
<tr>
<td>7</td>
<td>Project 7</td>
<td>M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26, 27, 28</td>
</tr>
<tr>
<td>n</td>
<td>Project n</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **E** = develops the strategic development area
- **M** = supports the strategic development area
- **V** = negative effect to the strategic development area

9.6.2014
Master Data Management
• Master data represents the business objects which are agreed on and shared across the enterprise
• Master data is the most widely used and important data within the organisation and its processes
• Typical features of master data
  • Contains necessary data of the whole organisation
  • There should be a consistent view to master data throughout the organisation
  • Master data is used by a number of different processes and organisation units
  • Master data is typically updated at a slow frequency
  • Poor quality or many distributed copies of master data will cause problems in reporting etc.
**As-Is:**

- **System X**
  - Kimi Räikkönen
  - 171079-9999

- **System Y**
  - KimiRaikkonen
  - 17.10.79

- **System Z**
  - Kimi-Matias Räikkönen
  - 171079-XXXX

- **System n**
  - Kimi Raikkonen
  - Soc.sec.nr??

**To-Be:**

- **Person Data master**
  - Kimi Räikkönen
  - 171079-1234

- **Integration Service**

  - **System X**
  - **System Y**
  - **System Z**
  - **System Å**
  - **System n**
# MASTER DATA MODEL

Master Data Governance; Responsibilities and MDS Systems

<table>
<thead>
<tr>
<th>Main Class</th>
<th>Master Data</th>
<th>Owner</th>
<th>Responsible</th>
<th>Master Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Finance Data</td>
<td>Financial Affairs</td>
<td>[n.n.]</td>
<td>[system]</td>
</tr>
<tr>
<td></td>
<td>Indicator</td>
<td>Strategic Planning and Quality Assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Administrative Decision</td>
<td>Administrative Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contract</td>
<td>Administrative Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Codes</td>
<td>IT Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facility</td>
<td>Center for Properties and Facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Authority</td>
<td>IT Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation</td>
<td>Internal Organisation</td>
<td>Administrative Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partner</td>
<td>Communications and Community Relations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Person</td>
<td>Person Basic Data</td>
<td>IT Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personnel</td>
<td>Human Resources and Legal Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>IT Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Person Role</td>
<td>IT Center</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studying</td>
<td>Study Options</td>
<td>Education Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curriculum</td>
<td>Education Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Course Option</td>
<td>Education Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Study Record</td>
<td>Education Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Qualification Record</td>
<td>Education Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research</td>
<td>Research Project</td>
<td>Financial Affairs / Research Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Research Result</td>
<td>Research Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Publication</td>
<td>Library / Research Affairs</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Research Infrastructure</td>
<td>Research Affairs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Master Data Card

<table>
<thead>
<tr>
<th>Name</th>
<th>[Name of Master Data Item]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td>[Organisational Unit]</td>
</tr>
<tr>
<td>Responsible</td>
<td>[Person]</td>
</tr>
<tr>
<td>Data</td>
<td>[Description of Data]</td>
</tr>
<tr>
<td>Data Security</td>
<td></td>
</tr>
<tr>
<td>Data Lifecycle</td>
<td>Initiative</td>
</tr>
<tr>
<td></td>
<td>Use</td>
</tr>
<tr>
<td></td>
<td>Deletion</td>
</tr>
<tr>
<td>Data Quality Management</td>
<td></td>
</tr>
<tr>
<td>Master Data Source (MDS)</td>
<td>[System]</td>
</tr>
<tr>
<td>Notes</td>
<td></td>
</tr>
</tbody>
</table>
EA Costs
Difficult to define, as much of the work would have been done anyway

Some Cost Items:
- Own Work: ca. 1 FTE from start + 20 % increase a year, currently max. 3 FTE (???)
- EA Consulting, € 15k p.a.
- EA Courses and Training, € 5k p.a.
- QPR EA Tool, € 20k + Some License/Support Fees
What’s Next?
CURRENT AND FUTURE EA WORK

- Research Affairs: Target Architecture
- Societal Interaction: Target Architecture
- Technology Architecture; As-Is, To-Be Architectures
- QPR Enterprise Architect Tool: Implementation + Conversion of Excels, Powerpoints etc.
- New EA Board 2015-
- Revision of EA Principles?
- EA vs. Strategy Work 2015-2016
- ...

9.6.2014
EA AT THE UNIVERSITY OF HELSINKI
LESSONS LEARNED

- EA = A method aiming at the best possible IT system solution to support the University’s core functions
- EA is a target-oriented ‘way of life’ and a mindset
- EA itself is not a project, but rather a process
- EA program requires skilled resources
- EA modeling requires time and resources
- EA does not offer ready answers but helps to ask the right questions at the right time.
- EA is a protocol, a communication tool that enables different organisational unit to develop operations and IT systems together
- The use of the EA method should not increase workload because the work should be done anyway. EA just brings about a sophisticated method to do it.
STARTING EA WORK IN A HE INSTITUTION; RECOMMENDATIONS

- Define EA Goals; Short/Long Term
- Communicate; Emphasize Results, Not Concept
- Get Sponsors/Commitment from:
  - IT, IT Management
  - Administration
  - Business Management
- Organise; EA Board, EA Governance etc.
- Get EA Skills, Training
- Get Support; Consultancy, Peer Support
- Create EA Principles
- Measure Progress with Regular EA Maturity Checks
- Document
- Define The 'EA Big Picture'
- Get Networked
THANK YOU

Jussi Koskivaara
Development Manager
UNIVERSITY OF HELSINKI
Center for Information Technology
IT Management
P.O. Box 28, Koetilantie 3
FI-00014 University of Helsinki, Finland
Mobile +358 50 4055036
jussi.koskivaara@helsinki.fi