Empowerment of egovernment development through advanced software engineering techniques

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### Content

- Research question and objectives
- Rationale for the research
  - Success/failure rates of e-government projects
  - Role of software process tailoring in the development of socio-technical systems

□ State-of-art of e-government projects in Lithuania

- Current research of e-government systems development
- Research methodology

### **Research** question

What methodological principles could be used to assess and select the relevant software process model for the particular e-government project which aim to develop electronic public services for citizens?

Assess which SE methods are used and how it affects the success and failure?

### **Research objectives**

- Examine how and which software process models were selected and used in current front-office egovernment projects
- Identify the relationship between the appropriate choice of software process model and the success rate of every e-government project studied
- Identify the methodological principles for the assessment of software process model relevancy to the particular front-office e-government project

### Success/failure rates of egovernment projects





Standish Group (1996), OECD (2001), Hardie A. (2008)

### Main concepts of software process

- Software process is a set of activities whose goal is the development or evolution of software
- Fundamental software process activities:
  - □ Software specification
  - □ Sofware development (design and programming)
  - □ Software validation
  - □ Software evolution
- Software process model:
  - A simplified representation of a software process, presented from a specific perspective
  - □ Characterizes how software is or should be developed

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# Traditional software process models



### Agile software development

#### Main principles of agile software development:

- Satisfy the customer through early and continuous delivery of valuable software
- □ Welcome changing requirements, even late in development
- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale
- Business people and developers must work together daily throughout the project

#### Some of agile software process models:

- □ SCRUM
- □ Extreme Programming (XP)
- Dynamic System Development
- □ Microsoft Solution Framework

#### □ ...

Agile Manifesto (2001), Somervile (2007)

## Current research in software process and e-government systems development

- Research in software processes:
  - Carried out more in the private sector than public
  - Large scale agile software development remains an active research area
- Research in e-government systems development:
  - Addresses either managerial or the implementation aspects
  - Focuses on the separate software process activities, but does not capture the whole picture of software engineering process

### Research methodology (1)

No.	Research objective	Research method (-s)	Outcome
1.	Examine how and which software process models were selected and used in current front-office e-government projects	Literature review	<ul> <li>The specification for every software process model.</li> <li>The list of criteria used to select the relevant software process model.</li> </ul>
		Case study	<ul> <li>Report on every studied project:</li> <li>the software process model chosen,</li> <li>the rationale of the software process model choice,</li> <li>detailed analysis of every software process step.</li> </ul>

### Research methodology (2)

No.	Research objective	Research method (-s)	Outcome								
2.	Identify the relationship between the appropriate choice of software process model and the success rate of every e- government project studied	Case study	<ul> <li>Results of measuring project success factors in terms of budget, resources used, time schedule, adoption by the final users, etc.</li> <li>Drawing the relationship between the appropriate choice of software process model and the success of analysed e-Government project</li> </ul>								
3.	Identify the methodological principles for the assessment of software process model relevancyto the particular front- office e-government project	Methodology design, focus group, interviews	Methodology of selecting the appropriate software process model for the case of front-office e- Government solutions development								

### Any questions and/or suggestions?

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Thank you! eglemal@mruni.lt