

**SPM4340IA: Design of Innovative ICT infrastructures and Services
(ICT-systems engineering)**

Thursday, April 11, 2013

9.00-12.00h

Answers should be formulated in English

In total 100 points can be earned for this exam

This exam consists of 3 questions, make sure that you answer all questions

Good luck!!

Question 1: General questions (30 points)

The use of the term services is often confusing as it can be used for depicting to all kinds of services. Furthermore different persons give different meaning to it. Nevertheless there are some generic elements in the services concept.

- a) Why can the use of the term services be confusing? What are the basic characteristics of the services concept? (8)?
- b) Web services can be used for creating process flexibility. Explain how web services can result in process flexibility? (7)

Open government data represent the opening of data to the public which in turn can make use of the data for all kinds of purposes. To open data there are at least two parties involved, i.e. the open data provider and open data user. Often it is not clear for which purposes open data can be used in advance. This makes the benefits of open data difficult to predict.

- c) What are the potential benefits of the opening of data? Motivate the benefits based on the so-called *open data process* of data publishers and users. (8)
- d) What are the current challenges (or barriers) of open data infrastructures which makes it difficult to accomplish the benefits (7).

Question 2: Enterprise architecture (EA) and governance (45 points)

An insurance company consist of many subdivisions and provides various types of insurance products. There is a vast amount of processes that are supported by disparate systems. The processes often contain a mixture of manual and automated processes. The insurance company wants to have more automated processes as this will save costs.

The application for an insurance policy by customers starts with asking questions about the type of product (the insurance) and additional insurances required. Once these choices are made, the price of the product can be calculated. The application for an insurance policy requires considerable information from clients. Often (part of) this information is already available within the company. Ideally, this information is reused and filled in the application form. Thereafter customers can check this information and update it if necessary and finally submit their request.

IT-investment decisions are often made decentrally in the insurance company. There is hardly any overview of the systems that are developed, under development or sourced. The systems landscape needs to be rationalized and the idea is to have only one system for each of the functionalities. Furthermore, the company wants to organize its information based on the

information stewardship principles. The idea is that these functionalities and information will be provided as shared services.

The insurance company closely collaborates with a number of partners. The insurance company wants to be flexible and has embraced the concept of enterprise architecture (EA) in to ensure that the company is able to adapt quickly to changing customer needs, new or updated legislation and technology developments and at the same time reduce costs. For this purpose they consider the development of an own or selection of an existing Enterprise Architecture Framework (EAF).

- a) What is enterprise architecture (5)? Why should the company make use of enterprise architecture? (5)
- b) What elements of EA are relevant for the insurance company? Make use of the *meta-architecture framework* to explain your answer. (8)
- c) What is information stewardship (4)? What is the relationship between information stewardship and EA? (5)
- d) What is architectural governance? (5) What are the benefits of architectural governance? (5)

The company is considering introducing an EA function within the company. EA might become part of the ICT-department, part of the staff department or part of the business-departments.

- e) What would you recommend the company to do? Provide clear arguments for your recommendation (8).

Question 3: Information and process architecture (25 points)

Workflow Management Systems (WFMS) can be used to support the execution of business processes. WFMS are based on the difference between control and execution. WFMS can employ various ways of supporting business processes.

- a) What are the reasons for WFMS to separate control from execution? (5)
- b) What are the differences between case-based and rule-based workflow management system ? (tip: draw a picture) (10)
- c) Which factors influence the decision to make use of a certain type of workflow management system? Which type of WFMS (case-based or rule-based) would you recommend the insurance company to use? (10)