

EXAM SOFTWARE MANAGEMENT (192340041)

Date: June 20, 2016, 8:45 – 11.45

Instructions:

This is an open book exam regarding the slides in this course – it is allowed to consult any slides provided by the teacher. Be sure to switch mobile phones off and store them in a closed bag. Be sure to indicate name, program and student number on each sheet. Grade for the exam is Round and is calculated as follows:

(Sum of Points / 10)+1.

Concise yet complete answers are better than long-winded answers.

Note: whenever you have to motivate your answer, 1 point goes for simply writing the answer and the rest of the points go for writing the motivation. **Do not forget the motivation!!**

Success!!

Question 1 (25 points)

1.1 Assume an outsourcing project between the bank ABN Amro (one of Netherland's biggest banks) and Topicus, a software development company. ABN Amro is the client and Topicus is the supplier. Topicus worked with other banks before and has domain knowledge in the banking sector. The particular solution to be developed in this project is an online banking application for personal investment management. The application would have functionality that allows people who have accounts with ABN Amro and use their online services, to choose investment options, to switch money from one investment to another, and to cash their investments and move the money in their saving accounts. Topicus that was created as a software company that develops projects by using agile methods. Agile software development is their strength and their software delivery approach. On the other side, ABN Amro is an organization with a long history of using waterfall project management practices. ABN Amro and Topicus have to decide on a process that would be used for this project.

Using your knowledge of generic software process models, suggest the most appropriate generic software process model that might be used as a basis for managing the development of this system. **Motivate your answer.** (12 points)

1.2 Topicus and ABN Amro are designing their contract for the project that will deliver the system discussed in Question 1. Both companies know that in the software industry, fixed-price contracts are very common. Such a contract is generally used to move project risk from client to contractor.

- Would it be meaningful for ABN Amro to insist on a fixed-price contract, where Topicus offers a fixed price to complete the development of the system (discussed in Question 1)? (7 points)
- Consider the fixed price contract from a risk perspective. How may the use of such a contract increase the likelihood that product risks will arise? (6 points)

Question 2 (20 points)

2.1 As already indicated, Topicus is an agile company. However, they use some well-established standards in the Netherlands to show compliance to software quality management and to best-in-class security practices. Imagine Topicus wants to further improve their software development process when working with client companies in contract-based projects. Would Topicus consider CMM as a framework for software process improvement? Motivate your answer. (6 points)

2.2 ABN Amro wants to improve its internal software development processes and the processes of managing projects with outsourcing partners. What approach to software process improvement (among those approaches that we discussed in this course) would you suggest for ABN Amro? Write your assumptions and motivation. **Hint:** There are important differences between e.g. the agile approach to software process improvement and the process maturity approach to software process improvement. Think what these differences mean for ABN Amro. (8 points)

2.3 Explain why the rapid delivery and deployment of new systems is often more important to businesses than the detailed functionality of these systems (6 points).

Question 3 (37 points)

3.1 You are the Project Manager at Topicus responsible to form the team for the project with ABN Amro. You have to put on the same team two of the brightest specialist having solid development experience in the banking sector. However, you are well aware of a deep inter-personal issue between them which sometimes interferes with their work. When one makes an important decision, the other is always questioning it. This often slows down the speed of project execution. You need to come up with an estimation for the project with ABN Amro. What model (algorithmic versus expert judgment-based model) would you consider for estimating this project? Motivate your choice. (10 points)

3.2. AMN Amro is a member of NESMA. In around 60% of all their software projects they use the NESMA Function Point counting method to estimate size. Topicus needs to offer a price and needs to provide some reasoning about their effort estimation. Would ABN Amro want to ask Topicus to use the NESMA functional size method when preparing the offer? Write your motivation. Write any assumptions you made. (15 points).

3.3. Imagine you are the project management specialist at ABM Amro who receives the offer from Topicus. You see the price: it meets your budget, but you are interested in getting the development work done as cheaply as possible. You are asking yourself, if the offer of Topicus is overpriced. You invite a few experts in the ABN Amro organization and ask them to come up with their own estimation – based on the knowledge that they as ABN Amro employees have about the project. Would you ask them to use expert-based estimation or algorithmic estimation models? Motivate your answer. (12 points).

Question 4 (8 points)

4. ABN Amro has a very detailed specification of the features of the system to be delivered. They counted the Function Points by using this specification, in order to estimate the size of the project. They have a calibrated algorithmic model that could compute the project effort for the project. In this model, size is expressed in Source Lines of Code. ABN Amro knows what programming language will be used for the development of the system and now they want to convert the Function Points number to the number of the lines of codes that it would take to implement the functionality by using that language. For this conversion, ABN Amro will use a factor received from a benchmarking agency (that analyses data from hundreds of projects done in various organization). What are the disadvantages of using this conversion approach? Motivate your answer. (8 points)