



**EXAMINATION IN COURSE TMM4225 ENGINEERING COLLABORATION
IN DISTRIBUTED TEAMS: MANAGEMENT AND SMART USE**

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Date : 7 December 2010

Time : 4 hours

Weighting : 7,5

Aids allowed : D: No written or handwritten examination support materials are permitted.
Certain, specified calculator** are permitted.

** "Certain, specified calculator" means a calculator with simple, numerical and trigonometrical functions such as +, -, sine, cosine etc. The type of calculator is to be easy for examination invigilators to recognize.

All tasks are to be answered. Each answer has to be marked with the corresponding task-number and index. The answers must be clearly and nicely written. It will be emphasized that the text is clear and concise. Sketches should be made in such a scale that they are easily understood.

Language : English

Number of pages : 4

All problems have equal weight. Use your time wisely.

The exam can be answered in either English or Norwegian.

To be subjected to censorship by 3 January 2011.

Problem 1: Knowledge work, benefits & success factors for collaboration

Most knowledge intensive businesses (such as engineering companies) today collaborate extensively within departments, across departments and in extended networks that also includes customers, suppliers and business partners. To an increasing extent, knowledge professionals must also collaborate over geographical distance, often across different time zones. The knowledge exchange taking place in these networks is complex and unpredictable, and it can be difficult to support.

Answer the following points:

- A. Provide an overview of the most important characteristics of knowledge work in engineering companies the way you see it – how do people spend their time, what types of knowledge exchange(s) takes place?
- B. Explain some possible business benefits companies can realize from improving the way they collaborate internally and with external partners. Be specific.
- C. Provide an overview of non-technology related success factors for collaboration – what competencies, attitudes and approaches are needed to make it work the way it should?

Problem 2: Improving collaboration & concept development

Engineering Services AS is an engineering company that delivers engineering and mechatronic design services to a range of international companies, mostly large and medium-sized. The company HQ is located in Bergen, with satellite offices in Oslo, Stockholm, London and Hamburg. The company CEO has hired a consulting company to recommend ways of improving the way the company operates, and the consulting company has provided a report with a number of recommended improvements, including a new Unified Communications & Collaboration (UC&C) platform. The recommendations are rather high-level, without much detail. The management group supports the high-level recommendations outlined in the report, and you have been appointed as the internal project manager responsible for implementing the recommendations and realising benefits from the new platform and related improvement initiatives. You have read the report and are concerned that the recommendations (although high-level) are too technology-driven, and not necessarily address the specific collaboration challenges and barriers that can be observed in the company. You have discussed this with the CEO, and you have been authorized to challenge the content in the report to make it fit better with the company's specific business context. Refer to the descriptions in Problem 1 where (if) relevant.

Answer the following points:

- A. Describe what you would do to check if the recommendations in the report are well aligned with the overall objectives (business goals) of the business, the internal way of working and existing collaboration challenges and barriers. Use literature references where appropriate.

- B. Describe how you would carry out a set of investigation activities in the company to define a set of precise requirements that can be used to develop a solution that is fit for purpose, including how you would collect and analyse the data.
- C. Provide an overview of how the company can define a new collaboration concept, based on a description of the elements or dimensions that should be a part of such a collaboration concept. Include technology as well as non-technology elements or dimensions.

Problem 3: Return on Investment & collaboration management

The CEO of the company described in Problem 2 is interested in maximising the return on investment (ROI) of the new collaboration solutions, and has asked you to provide an overall framework for ROI assessment. The company is also interested in how they can manage collaboration better, including both costs and benefits related to collaboration.

Answer the following points:

- A. Provide a structured approach for an ROI evaluation in the form of a sequence (list) of activities that you would carry out or recommend to arrive at a solid basis for comparison of costs and benefits between the current situation and the new situation (post implementation) respectively.
- B. Provide a list of common cost elements that should be included in the analysis.
- C. Provide a list of common benefit elements that should be included in the analysis, and relate these to the cost elements where possible.
- D. Describe factors related to collaboration management, how to organise for collaboration, awareness and training issues and attitude / motivational issues.

Problem 4: Reflection exercise

Reflect on the topic *task identification* (Norwegian: oppgaveidentifisering) in projects. Peter Drucker has suggested that task identification is the number one driver of productivity knowledge work; Knowledge-worker productivity demands that we ask the question: “What is the task?” (Peter F. Drucker: Knowledge-Worker Productivity: The Biggest Challenge, California Management Review, Vol. 41, No. 2).

Answer the following points:

- A. Today’s tasks are often complex, and knowing exactly what to do to produce a task output that is aligned with task objectives (if these are known) often represents a challenge. Describe why and how collaboration often plays a crucial role in task identification in today’s complex projects.

B. Collaboration is often referred to as a key component of effective decision making; collaborative decision making. Extending on your response in 4A), describe why task identification is one of the key drivers of decision making effectiveness and efficiency.

GOOD LUCK!