



KANDIDAT

5504

PRØVE

IS-407 1 Ledelse av IS-prosjekter

Emnekode	IS-407
Vurderingsform	Skriftlig eksamen
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Opprettet av	Digital Eksamen

IS-407, front page

Course code: IS-407

Course name: Management of IS Projects

Date: May 23rd

Duration: 4 hours

Resources allowed: None

Notes:

The professors sometimes ask for exam answers to be used for teaching purposes, but in order for this to take place, the university needs your consent.

Do you grant the University of Agder permission such permission?

Select one alternative

Yes

No

Besvart

1 Question 1

Task 1 (15%)

Answer the following questions. Base your answers to the lecture slides and the course book.

1a. Explain how a project's success can be defined.

1b. According to the PMBoK, "identifying stakeholders, understanding their relative degree of influence on a project, and balancing their demands, needs, and expectations are critical to the success of the project".

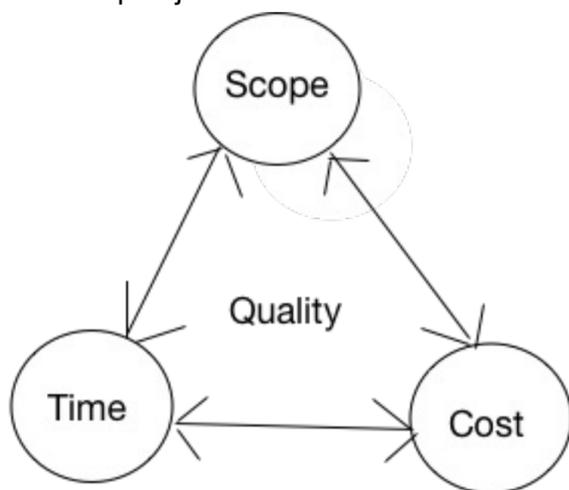
Explain who may be considered as stakeholder in a project.

1c. You are appointed as project manager for a new project within the University of Agder. The aim of the project is to develop and implement a new learning platform that will replace Fronter.

Who are the stakeholders for this specific project? How can they influence the project?

1a)

A project is a temporary endeavor undertaken to create a unique product or service. There can be many factors that play a role in the success of a project. In defining a project's success, you can evaluate if the scope has been met, if it was done within the budget constraints, and if the work was done within the time limit (project management triangle). Despite of this, a project can also be successful if the time limit and budget was to be extended. That is because the most important part of a project is to satisfy it's customers, and meet the stakeholders requirements and quality needs. So, if the project's outcome satisfies the stakeholders needs and expectations, and if the work was done approximately within the constraints, the project can be defined a success. Other success factors can be a good ROI, increased marked share e.g.



Project management triangle.

1b)

Stakeholders are everyone who affect the project, is affected by it, or perceive themselves to be affected by the project. It can be individuals, groups and/or organizations. A project's stakeholders typically include the team members, the project manager, the project management team, the project management office, the project's sponsors (the ones providing funds), the customers and end users, departments within the organization (HR, accounting, marketing), vendors/sellers/distributors, and other competing projects/organizations. In the start of the project (Initiating process), it is important to identify and address all the stakeholders needs. Their level of influence and requirements must be established early in order to proceed with planning.

1c)

The stakeholders in this project would be the project team (designers, programmers, testers etc.), the project manager (me), the University of Agder as an organization and its departments, the sponsors, the end users (students and teachers), the University's top management, the IT-department as they need to maintain it, Fronter and its employees, and the government (UH-sector).

The PM and the project team can influence it directly as they are the ones developing it and doing all the work. UiA's different departments might influence it by requesting needs, the end users might not influence it directly, but they can also request needs that they wish for in a new platform, as they are the ones actually using it every day. The sponsor and top management would be the main influencers, as they sit with most of the power and funds. Fronter might also contribute with already existing software, which could be altered and reused for this purpose. The project might also be constrained by laws and regulations provided by the government as it is a public school.

Besvart

2 Question 2

Task 2 (20%)

Answer the following questions. Base your answers to the lecture slides and the course book.

2a. Describe the differences between highly predictive approaches and highly adaptive approaches in software project lifecycles in terms of requirements, control of cost and risk, and stakeholder involvement.

2b. Explain for which kinds of projects you would prefer to follow a predictive approach and for which kinds of projects you would prefer to follow an adaptive approach.

2a)

Projects can be run by following different types of approaches, varying from highly predictive to highly adaptive. Projects that follow a highly predictive approach are more strict and rigid, and require a lot of planning early in the project. Highly predictive approaches follow a linear model, so when one phase is done, there is no going back. A model that is typically used in such projects is the Waterfall model. The requirements are gathered early, as it is vital to have them before execution to prevent changes. The stakeholders are involved in the early stages to, in order to understand their needs and expectations. Further they are only involved periodically, typically in milestone deliverables. The costs are estimated early, as well as the risks in

order to minimize chances for unforeseen events or conditions during the project. These are so tightly monitored and controlled during the project.

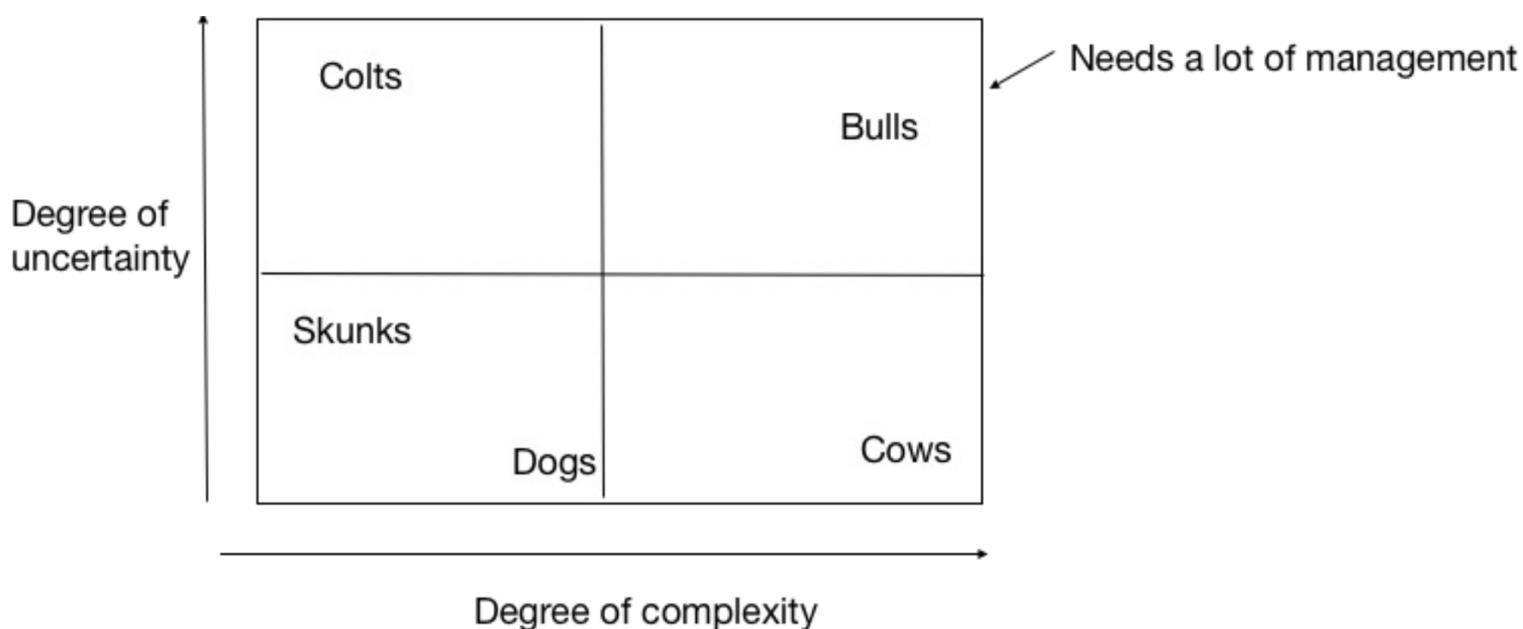
Highly adaptive approaches are more agile, and don't require a lot of planning in advance. These types of projects include iterations where requirements are continuously identified after each interval, and the project thereby changes based on the new "findings". The stakeholders are continuously involved, typically at daily/weekly meetings. Such projects require some planning in advance, such as cost estimating and risk identifying, but not as much as the highly predictive ones, as highly adaptive approaches deal better with changes. As new risks and costs occur after iterations, they are controlled and monitored. Scrum is an example of an adaptive approach.

2b)

Predictive approaches are best suited for projects with a lot of complexity. This approach can only be used if the scope and requirements can be defined early in the project, as it does not deal with changes well. I would prefer to use a predictive approach in projects with little uncertainty and much complexity such as upgrading software used in hospitals. Such projects are complex because of government regulations, the many stakeholders, and the risks tied to leak of confidential information. But because such projects have been done many times before you can learn from previous projects, look at what went wrong, make the needed actions and changes, and plan thereafter.

Projects that deal with a lot of uncertainty need to follow more adaptive approaches. Uncertainty drives such as scope flexibility, marked changes and technical changes (Little, 2005) require the room for change, as projects might be affected by them. In some projects it is hard or impossible to do proper planning and collect requirements in advance. Such a project could be developing a new gadget/technology, where feedback and continuous improvement is vital for delivering a unique product. In this approach there is more room for continuous marked research and input from stakeholders, as well as developing different kinds of prototypes in iterations, test them, and make necessary changes based on actual stakeholder and end user feedback.

The model beneath shows projects categorized by animals in a matrix with different degrees of complexity and uncertainty. Colt-projects that include a lot of uncertainty need to follow an adaptive approach, in order to be flexible and deal with changes (continuously include stakeholders, daily stand-up meetings). Skunks and dogs need less management and not so strict approaches, as they are more simple projects. Cows are projects with a lot of complexity, and need to be managed accordingly by following a predictive approach to prevent changes, and deal with all the factors. Bulls are the most complex type of projects, and require a lot of management as they have a high degree of both complexity and uncertainty. They need to follow an adaptive approach to be able to handle changes, but because of much complexity they also need strict management and defined actions, activities and processes.



Model from Little, 2005

3 QUESTION 3

Task 3 (30%)

Answer the following questions. Base your answers to the lecture slides and the course book.

3a. What is a Work Breakdown Structure (WBS)? Why is it useful to create a WBS for a project?

3b. What is a Responsibility Assignment Matrix? Why is it useful to have such a matrix in a project?

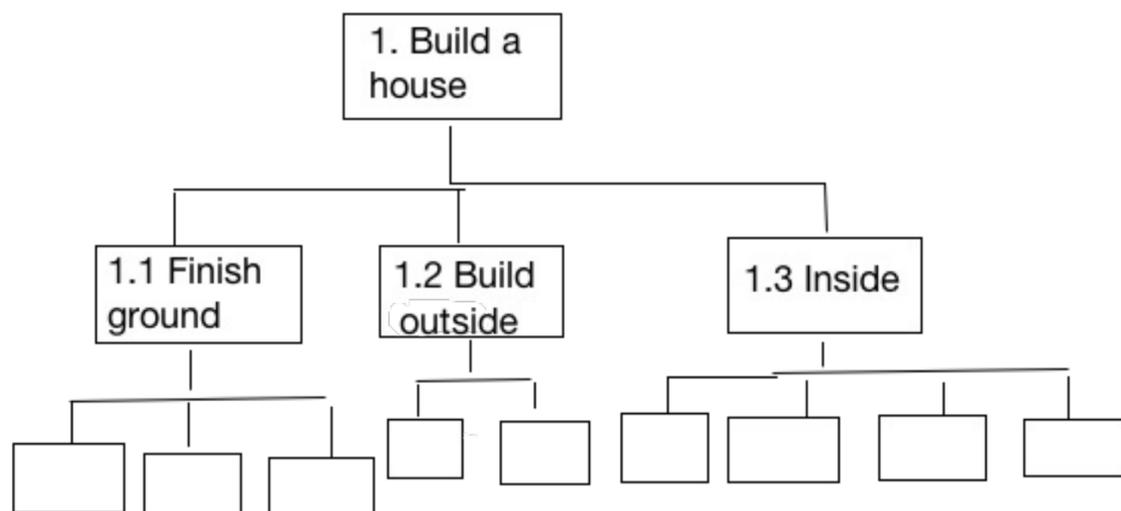
3c. Explain the meaning of the term “Cost of quality”. Give two examples of costs of Conformance and two examples of costs of Nonconformance.

3d. Within the context of project management, what is “quality control”? Why is it performed in projects?

3e. Within the context of project management, what is “quality assurance”? Why is it performed in projects?

3a)

A WBS is a hierarchical decomposition of the total scope in a project. It divides work into smaller sub-components, where the lowest level is called work packages. The sub-levels sum up the work to be done in the higher level, and shows relations between the different activities. It is done in the scope planning process, and it serves many purposes. It is useful to create in order to get a better overview of the actual work to be done. It does not specify when or where, but what needs to be done in order to deliver the total scope. After breaking the work down in smaller components it is also easier to plan the schedule, and estimate resources needed for each activity. As it shows relations between the work to be done, after creating a WBS you can specify more precisely in which order they should be performed by sequencing them, and assigning them different logical relationships (finish to start, start to start, finish to finish, and start to finish).



Example of a WBS for building a house. Further the work packages could be 1.2.1 Set up walls, 1.2.2 Doors and windows etc.

3b)

A RAM is a matrix with the purpose to assign different human resources to specified activities. The columns include the different names involved in the activities, and the rows is a description of the activities. The matrix is then typically filled in by using a RACI format, where the different people get assigned roles and responsibilities: Responsible - for doing the work, Accountable- the one in charge who signs it off (can only be one), Consult - the ones whom you have a two-way communication with, and Inform - the ones that only get informed.

It is very important that both the project manager and the project team knows what they should do at all time, what work they are responsible for, and not. The RAM shows this, and helps to prevent double work and/or misconceptions. Also, if something is not done or not done right, it is easy for the PM to see who were responsible and accountable for that specific task, and thereby go directly to them to fix the mistakes, and not blame the whole team.

Activity	Stian	Lisa	Thomas	Heidi

Project charter	R	A	R	I
Testing	C	R	R	A

Example of a RAM.

3c)

Cost of Quality includes all the cost involved in making a product that meets the intended degree and level of quality standards and requirements. There are two types of cost of quality: cost of conformance (coc) and cost of non-conformance (conc). Coc is all the costs used during the project to prevent the product from failing to meet its requirements. This includes training, to have enough time, documentation, and testing during developing it. Conc is all the cost used during and after because of failures. These can be internal (found by the organization) like re-work and scrap, or external (found by the customer) like warranty work.

3d)

Quality control is the process where inspections are used in order to verify that the stakeholders requirements have been met. You use reliable data and test the product according to specifications, and it is used in projects to see if it does and acts like intended, and ensures that this was the product the customers actually wanted. This process is done during execution and monitoring and controlling.

3e)

Quality assurance is the process where the PM checks if the stakeholders requirements will be met. It is used in projects to ensure that they are on the right track, and to see if there are any necessary changes that needs to be done. Quality audits are performed, and includes observation of the processes to ensure that they are performed by organizational rules and procedures, and follows specific standards. This process is also good for finding room for process improvement. This process is done during execution.

Besvart

4 Question 4

Task 4 (15%)

You are the project manager for the development and implementation of a new learning platform for the University of Agder. The project team cannot develop internally a software module needed for checking plagiarism. It is decided to acquire this module from an external company. You are discussing with the team if you will use a "fixed price contract" or a "cost reimbursable contract" for this procurement. Based on the knowledge you got from the lectures and the course book, answer the following:

4a: Describe two advantages and two disadvantages for the project as a buyer if it is decided to use a "fixed price contract" for this procurement.

4b: Describe two advantages and two disadvantages for the project as a buyer if it is decided to use a "cost reimbursable contract" for this procurement.

4c. Which type of contract do you think will be better for this particular procurement and why? Justify your answer.

4a)

A fixed price contract is the most used type of contract, and includes less risk for the buyer. Advantages of this type of contract is that it has a fixed price - you get what you pay for, and won't be surprised with any additional charges or fees. Also, as the scope and details are specified on beforehand, it is easier to plan when it will be delivered, and the team can therefore plan other work to be performed during that time.

Disadvantages include that the product/service to be purchased needs to be specified in very detail on beforehand, which can sometimes be a problem. Since the project team is lacking knowledge on the specific area, it can be hard to write in detail what they want, and misconceptions can therefore occur. Even though this contract includes less risk for the buyer, there will always be risks that can threaten the project, and changes may apply, and with this kind of contract it can be hard and expensive to make changes in the specifications defined in the contract.

4b)

A cost reimbursable contract includes less risk for the seller. This type of contract indicates that the buyer pays for the actual costs tied to developing/performing the work, plus an additional fee representing the seller's profit. Advantages of this contract is that it is more flexible and need a lower level of detail in the beginning. The project team can say we want a software module for checking plagiarism, and include some specifications, but they do not need to be very detailed and specific at start. As this type of contract have more room for changes, the seller can periodically verify the product with the buyer, and make appropriate changes after feedback.

Disadvantages is that this can be an expensive choice for the project, and that the buyer has less control. The longer the seller works on it, and the more resources and changes they apply, the more it will cost them. They can risk that they work very slow just to ensure an income for a longer period, and that the contracting organization use more expensive material than needed (gold plating) because they are not paying for it.

4c)

I think there is a reason that the fixed price contract is most used. As it is less risk for the buyer, I would say this is the safest choice in this project. If they manage to gather requirements properly, and specify the product they want, this contract could use fine. They can easier plan the cost for procurement in the budget in advance, and therefore minimize the risk of exceeding the budget.

Besvart

5 Question 5

Task 5 (20%)

For each of the questions that follow, choose the answer that you think that is correct from the options provided. Explain your choice and provide reasons that make you think that the other options are not correct.

5a: You are project manager running a project but you discover that the time needed to complete the project is longer than the time available. What is the best thing to do?

- 1) Reduce project scope.
- 2) Determine options for schedule compression and present recommendations to management.
- 3) Ask the team to work overtime.

5b: You are a project manager in a project which is about to start. The project charter is developed but not approved yet. Your boss is asking you to start the project immediately. What is the best thing to do?

- 1) Start work on only the critical path activities.
- 2) Set up an integrated change control process.
- 3) Show your boss the possible negative impact of proceeding without a project charter approval.

5c: You are a project manager. During project execution a team member points to a risk which is not in the risk register. What is the best thing to do?

- 1) Analyze the risk.
- 2) Disregard the risk because it was not identified during risk identification.
- 3) Inform the customer about the risk.

5a)

The best option in this case is number 2.

If the project manager discovers that the project will not be able to be completed within the time available, options for schedule compression should be determined and presented to the management. As a project manager you should never ask the team to work overtime. This requires a lot of extra costs for staffing hours which most likely will result in budget exceeding. Reduction of project scope should neither be a choice here, because it is not the project manager who determines it, it is the stakeholders and sponsor. If after consulting

the management, the only way to finish within time were shown to be scope reduction, a meeting with the most critical stakeholders would be necessary in order to find the least critical aspects of the product/service, and cut them.

5b)

The best option in this case is number 3.

A project should never be started if the project charter is not approved. The project charter formalizes the project, and without an approved charter, there is no approved project. This is therefore the first thing you need to do in order to proceed with the project. The project manager should not start to work on the critical path activities as this requires planning, which has not been performed at this point. An integrated change control process would neither help for progress. If the charter were to be declined, all the work would be waste.

5c)

The best option in this case is number 1.

Identifying risks should be a continuous process during the project, as not all risks are clear in the start. If someone were to find a risk which was not in the risk register, the best thing would be to analyze it. As risks can be both positive (opportunities) and negative (threats), the first thing you need to do is find out what kind of risk it is, and how, and in what degree it would impact/influence the project. If the risk is of little importance, and will have little or none impact, there is no need to inform the customer/stakeholder about it. But if it had potential to have great impact, it is very important to inform the customers (number 3). Risks should never be disregarded if they are not in the register, all the risks should be there, and new ones need to be included.

Besvart