
CASE 5

QUESTION 1

Office

Office is a Norwegian firm that develops, manufactures, markets and distributes office furniture. Their products mainly include chairs, tables, writing pads, bookshelves, cabinets and lamps. The products are offered primarily in the Nordic market, but in recent years there has also been a demand from customers in the European and American markets. At the same time, competition has become tougher, primarily from foreign competitors. For this reason, the company has been through several processes to become more cost effective. Since the Office was established in the 1960s, there has been a major development in the products that the firm offers. In addition to various trends from time to time, the products have become more flexible and adjustable. In recent years they have specialized in offering highly ergonomic products.

In August, the Board of Office decided to initiate the development of an office chair with new ergonomic solutions. The project started in September this year and the Board decided September 30, next year as a deadline for completion. Project Manager is Karen, and in her project, she has four full-time employees - Peter, a physiotherapist, Anne who has design and form as her specialization, William, an engineer and technical specialist, and Ben, the creative idea generator. It has been decided that the development should follow the Agile PM/Scrum method. That is, developments will take place in sprints; initially solutions on the drawing board, later as physical models. Within the deadline, the team will have developed a complete prototype of an office chair that can be put into production. The Board of the Office has stated that they are confident that project manager Karen and her team are capable of developing a new best-selling office chair that they expect will improve company earnings by 5%.

- a) Describe briefly what a mandate is and what it should include. What is the purpose and goal for this project? Discuss the role and importance of a clearly defined and understood project goal.
- b) The project team has chosen to work according to the Agile PM/Scrum method. Explain what this method is about. Discuss what benefits this method gives.
- c) Project manager Karen will start a stakeholder management process. Describe briefly the several stages of the stakeholder management process. Identify four (4) stakeholders and perform a stakeholder analysis of these four. Suppose a stakeholder suddenly becomes strongly negative to the project, what would you recommend Karen to do to handle such a stakeholder?
- d) Discuss three (3) things project manager Karen should emphasize to make the project a success.
- e) In the course literature, several internal team structures are presented. Describe the one you think will be mostly applied in this project and argue why. Discuss also the advantages and disadvantages of this team structure.

- f) Discuss what project control is and why it is important. Describe briefly five (5) control factors/criteria that should be reported on. Suppose project manager Karen realizes that it is not possible to finish the project according to the completion date, what are the possible alternatives she can implement?

QUESTION 2

The following information is given for a project:

Activity	Predecessor	Duration (weeks)
A	-	3
B	A	4
C	A	3
D	B	5
E	B; C	4
G	D	4
H	E	4

- a) Develop a network (plan) for the project. When is the project finished, what is the critical line (path) and slack? Explain what a critical activity is. Explain also what slack is.
- b) Create a Gantt-diagram for the project assuming that each activity starts as late as possible. Mark the critical activities.
- c) The client wishes to reduce (crash) the total project duration with three (3) weeks. Information about activities that can be reduced is given in the table below. Which activities will you reduce (crash)? Explain your answer. How much will this acceleration of the project cost a minimum. Find critical path(s) and activities with slack after the acceleration of the plan.

Activity	Normal time	Crash time	Normal cost	Crash cost
A	3	2	20.000	40.000
B	4	2	35.000	50.000
C	3	2	25.000	45.000
D	5	3	40.000	50.000
E	4	2	15.000	35.000
H	4	3	30.000	45.000

QUESTION 3

A project has the following work-packages, schedule and budgeted. Assume that costs are linear for each work-package.

Work-package	Months												Budget
	1	2	3	4	5	6	7	8	9	10	11	12	
Start-up	■												100
Design		■	■	■									450
Development					■	■	■	■					800
Tests									■	■			300
Implement											■	■	200

The project is being cost controlled after 8 months. Then 25% of the development work remains. Actual costs are 1400.

- Summarize the total costs for each month and calculate the accumulated costs. What is the total planned costs for this project (the budget)?
- What is EV, AC and PC after 8 months?
- What is CV, BV and SV after 8 months? Describe the project's status after 8 months.
- How much work remains after 8 months? Calculate CPI, SPI, and new ECAC and ETAC. What is the crucial assumption this calculation of new total cost and duration is based on?
- What must CPI be during the rest of the project to not exceed the original budget?

CASE 6

QUESTION 1

PAX is a thriving company specializing in the manufacture and distribution of technical products and transportation solutions for various industries. The foundation of the business lies in delivering intelligent and cost-effective solutions. Currently, PAX boasts a team of 55 employees and is situated just outside Oslo. In the previous year, the company achieved a turnover of approximately NOK 90 million.

Recently, the Oslo Traffic Administration unveiled a project that entails the provision of 200 electric vehicle charging stations within Oslo. The allocated budget for this contract is 5.2 million NOK. According to the stipulations set forth by the Oslo Traffic Administration, the delivery of these charging stations must be concluded by May 1st of the following year.

Historically, PAX has successfully undertaken multiple projects involving the installation of charging stations across Norway. The company has collaborated with the Swedish technology supplier SEC to develop a distinctive charging station tailored for electric cars. This model is not only user-friendly and modular, but also equipped to handle functions such as payment processing, data analysis, and updates to future charging capabilities. Users can conveniently manage the charging station through a dedicated mobile app. While the standard model accommodates two charging contacts, there is also an option available with four charging contacts. Boasting stainless steel construction and a contemporary design, these charging stations are poised for the urban environment of the future.

Steve, an integral member of PAX for the past five years, has primarily held technical roles. Though he has participated in various projects at PAX, he has not previously held managerial responsibilities. Following a recent meeting with his superior, Jill, Steve has been tasked with the role of project management for the company's newly secured project.

For this endeavor, a fresh project team has been assembled, comprising five members from PAX. Alongside Steve, Sara will serve as the assistant project manager, overseeing the relationship with SEC. Marco and Celene are onboard as technical specialists, while Marion assumes responsibility for administrative and legal matters. Steve is dedicated full-time to this project, whereas the others are part-time contributors due to their concurrent involvement in multiple projects.

- a) Use project management theory and discuss why this is a project.
- b) Discuss Steve's responsibilities as a project manager.
- c) When Steve starts working with his team, the members go through several stages as they change from being a collection of strangers to a united and effective group with common goals. Describe the different stages of a project team's development. What characterizes an effective project team?

- d) Describe what a milestone is. Develop a milestone plan consisting of five (5) milestones for this project. Develop a milestone responsibility matrix using the five milestones where you also explain and apply the most common types of responsibilities/roles.
- e) Steve will implement uncertainty (risk) management in his project. Describe briefly the several stages of the uncertainty (risk) management process. Identify four (4) uncertainties and perform an uncertainty (risk) analysis of these four uncertainties. Describe briefly the four general actions Steve can apply in response to the uncertainties.
- f) Discuss the success criteria that should be considered when evaluating the project after it is finished. Explain what benefits management is. What can be done to maximize the benefits from the project?

QUESTION 2

The following information is given about a project:

Activity	Pre-activity	Duration (days)	Resources/worker	Can be reduced by	Extra cost per day the activity is reduced
A	None	4	Anna	2 days	10 000
B	None	5	Peter	2 days	10 000
C	A, B	3	Anna	1 day	5 000
D	B	2	Peter	1 day	5 000
E	B	1	Fred	-	
F	C, D	4	Anna	1 day	5 000
G	D, E	6	Fred	3 days	5 000

Extra information: Activity C can start 3 days after activity A is finished.

- a) Develop a network (plan) for the project. When is the project finished, what is the critical line (path) and slack?
- b) Create a Gantt-diagram for the project assuming that each activity starts as late as possible. Mark the critical activities.
- c) The client wishes to reduce (crash) the total project duration by three (3) days. What are the minimum costs? Find critical path(s) and activities with slack.
- d) Disregard the information in question c). After 5 days Peter gets ill and cannot continue his work in the project. Both Fred and Anna argue that they are competent and can do Peter's work. What are the consequences regarding project duration, critical activities and slack:
 1. If Fred does Peter's work.
 2. If Anna does Peter's work.

QUESTION 3

A project consists of activity 1-4 and is given the following budget and schedule (assume that costs are linear for each activity).

	Budget	Week							
		1	2	3	4	5	6	7	8
Activity 1	300	■	■	■	■				
Activity 2	400			■	■	■			
Activity 3	600				■	■	■		
Activity 4	300						■	■	■

- Summarize the total costs for each week and calculate the accumulated cost. What is the total planned costs for this project (the budget)?
- The project is cost-controlled after 4 weeks. Then activity 1 is 100% completed, activity 2 is 75% completed and 1/3 of activity 3 is done. Actual costs are 900. What are PC, AC and EV after 4 weeks? Calculate CV, BV, and SV. Describe the project's status after 4 weeks.
- How much work remains after 4 weeks? Calculate CPI, SPI, and new ECAC and ETAC. What is the crucial assumption this calculation of new total cost and duration is based on?

CASE 7

QUESTION 1

ZIZAX is a production company specializing in the supply of specialized paint products to the maritime industry. The company is structured into distinct departments, including product development, production, sales, finance, IT, and HR. Currently employing 80 individuals, ZIZAX achieved a turnover of 90 million NOK last year, accompanied by a profit margin of approximately 10%. Over the past few months, the organization has been strategically planning a project aimed at developing an advanced IT solution to streamline and enhance internal workflows. The overarching objective is to bolster annual profitability by 20% through the reduction of administrative costs and the implementation of more effective marketing strategies.

ZIZAX's aspiration is to create a cutting-edge technological solution that is equally adaptable and customizable to accommodate evolving needs. The task of crafting the solution's specifications has been entrusted to the company's IT department, although participation from all departments is envisaged. The specification will encompass functional requirements, integration with other systems, as well as projected timeframes and cost estimates. The subsequent development and integration efforts will be contracted to an external supplier, selected through a competitive tendering process.

- a) Explain what a mandate is and what a mandate usually contains? Develop a mandate for the project with emphasis on the formulation of the project name, purpose (outcome) and goals (objectives) for the project.
- b) Identify four (4) stakeholders of the project and perform a stakeholder analysis of these four. Explain what we mean by stakeholders, and why stakeholder analysis is important in projects. Discuss also briefly what the project can do to strengthen the trust of the stakeholders?
- c) What characterizes a milestone? Create a milestone plan consisting of five (5) milestones for this project. Why is it appropriate to start with a milestone plan and then create an activity plan?
- d) ZIZAX must choose a project manager for the project. Discuss what qualities should be emphasized when choosing the project manager. Managing such a project can be challenging. Discuss some of the project manager's pitfalls that can occur on the road to a successful project.
- e) Discuss how the project should be tied to the base organization (external organizational structure). Draw an illustration showing the structure. What are the main advantages and disadvantages of using the suggested organizational structure?

QUESTION 2

The following information is given for a project. The work includes activity A-I.

Act.	Predecessor	Duration (days)	Resources
A	None	4	Smith
B	A	2	Smith
C	A	4	Ross
D	A	3	Jones
E	B	5	Smith
F	B, C	3	Ross
G	D	3	Jones
H	E, F	5	Smith
I	C, G	5	Jones

- Draw the network. How long will it take to complete the project? Identify the critical activities and the critical line(s)/path(s). Which activities have slack (float) and how much?
- Develop a Gantt-chart for the project where the activities start at the Latest start. Mark the critical activities.
- The client wishes to reduce (crash) the total project duration by four (4) days. The following information is given:

Activities that can be reduced (crashed)	A	C	D	G	H	I
Normal time	4	4	3	3	5	5
Crash time	3	3	2	2	2	4
Normal cost	18 000	20 000	12 000	12 000	15 000	5 000
Crash cost	24 000	30 000	20 000	15 000	30 000	10 000

How much will this minimum cost? Find critical path(s) and activities with slack.

- Disregard the information in question c). After 10 days Mr. Jones gets ill. Mrs. Ross claims that she can do Mr. Jones work on the project. What are the consequences of this regarding project duration and critical activities?

QUESTION 3

A project consists of activity A to F and has the following budget.

Activity	Budget	Week							
		1	2	3	4	5	6	7	8
A	500	100	300	100					
B	400		200	200					
C	1400		400	600	400				
D	1700			200	800	400	300		
E	1300					700	300	300	
F	600							300	300

- Discuss the purpose of project control, how it can be done and important control factors that need to be followed-up.
- Summarize the total cost for each week and calculate the accumulated cost. What is the total planned cost for this project (the budget)?
- The project is followed-up after week 3. Then activity A is 100% completed, activity B 80% completed, for activity C 60% work remains, while activity D is 10% completed. Actual cost is 2000. Calculate the following after 3 weeks: PC, EV, CV, BV, SV, CPI, SPI, ECAC, and ETAC. Evaluate the project's development.

CASE 8

QUESTION 1

Foss Mechanical

Foss Mechanical is producing advanced processed metal products. The company's financial status is good, its products are well-known for their quality and the company has an extensive list of customers. However, the board of the company is worried about the market development, which has resulted in tougher competition and smaller profit margins. To meet this situation, the board has decided to replace several of the production machines (e.g. milling machine, surface finishing machine), and also implement new production software. The arguments behind the machine and software replacement are:

- Some of the old production machines result in a high percentage of rejects or products with lower quality.
- Out-of-date production equipments have resulted in lower flexibility and utilization of capacity.
- Some customers have quality requirements that cannot be fulfilled by using the present machines.
- Better equipment and software are available in the market, and this can give the competitors a competitive advantage if Foss Mechanical is not starting their project as soon as possible.

The company's board has decided that Alfred, who is the manager of the production department, should be the project manager and responsible for the replacement of the machines and software. According to rumors, the CEO of the firm had suggested Stein, who is head of the IT department, as the new project manager.

Alfred's responsibility as the project manager includes the development of requirements, procurement, installation, training and start-up of both the new machines and the belonging software. The board has decided that the total budget for the project is 18 million NOK. The board has also clearly said that the project has to be finished within 18 weeks due to a contract with an important customer about delivering new metal components.

Alfred is aware of the project's importance for the firm. He himself wishes to work a lot with the project, but he is also the project manager for three other projects in addition to being the manager of the production department. He has also received a message from the board that the machine and software replacement must interfere with the daily production as little as possible, this implies that all contracts with customers must be produced and delivered as planned.

Both the board and the CEO want to undertake a detailed monitoring of the project. Alfred shall deliver detailed progress reports every week to both the chairman of the board and the CEO. The chairman and the CEO have also claimed that all plans have to be approved by them. At the same time, Alfred is confidentially informed that neither the chairman, nor the CEO, have time to participate in the planning and following-up processes of the project.

- a) Explain the difference between a project's goal and purpose. What is the goal and purpose for this project?
- b) Alfred has heard about a tool called "responsibility chart" and will try it out in the project. Develop an example of a responsibility chart for the project and explain what it is and how it can be used.
- c) Identify the project's stakeholders. Chose four (4) of these stakeholders and perform a stakeholder analysis of them. Discuss briefly why stakeholder management is important.
- d) Explain briefly the estimation technique used to develop the budget for this project. What are the strengths and weaknesses by using this budget estimation method?
- e) Identify four (4) uncertainties/risks in this project. Show how to use a risk map/matrix to analyze the three uncertainties/risks you have identified. What is the result of the risk analysis?
- f) Develop an illustration that shows the "project manager compass/the six lookings". Explain briefly how Alfred can use this model as a framework for the management of the project.
- g) It is now 10 weeks since the project started and Alfred is almost on the brink of collapse. Below are listed some general causes of project failure. Select and discuss two (2) causes you think are most important and relevant related to the case.
 - The top management does not understand how a project should be managed
 - Unclear goals
 - Unclear relations between the project and the line organization
 - The project manager has much responsibility, but low authority
 - Nobody is really responsible for the project
 - The project manager does not fit the role of project manager
 - The project has unrealistic plans and budgets
 - The project manager doesn't have the necessary influence on the project's plans
 - The project doesn't have the necessary resources
 - The firm is carrying out too many projects at the same time
 - Insufficient coordination between goals, plans, and following-up
 - The firm has unclear and shifting priorities
 - The project is not properly organized
 - Changes in scope are not followed-up as it should be
- h) Discuss what you think should be the success criteria for this project.

QUESTION 2

You are given the following project information.

Activity	Duration (weeks)	Predecessor	Can be reduced (weeks)	Additional cost per week
A	2	-	-	-
B	4	A	-	-
C	2	A	1	10 000
D	4	B	2	15 000
E	3	B	1	15 000
F	1	B, C	-	-
G	3	D, E	1	20 000
H	4	F	2	10 000
I	4	G, H	-	-

- a) Draw the network diagram. How long will it take to complete the project? Identify the critical activities and the critical line(s)/path(s). Explain what a critical line is? Which activities have slack (float) and how much. Explain what slack (float) is.
- b) Develop a Gantt-chart for the project where the activities start at the Latest start. Mark the critical activities.
- a) The total duration of the project needs to be reduced (crashed) by three (3) weeks. Which activities will you reduce (crash)? Explain your answer. How much will this acceleration of the project cost as a minimum? After the acceleration of the project plan, what is critical line(s) and slack (float)?

QUESTION 3

A project consists of the following activities and the given budget:

	Week					
	1	2	3	4	5	6
Activity A	300	200	100			
Activity B		200	200			
Activity C			300	300		
Activity D			200	200	200	200
Activity E				400	400	
Activity F						100

- a) Summarize the total cost for each week and calculate accumulated cost. What is the total planned cost for this project (the budget)?
- b) The project is being cost controlled after 4 weeks. Then activity A and B are 100% completed, for activity C 25% work remains, activity D is 50% completed, and activity E is 25% completed. Actual cost is 2550.

- What is planned cost (PC) and earned value (EV) after 4 weeks?
 - Calculate cost variance (CV), budget variance and schedule variance.
 - What is CPI after 4 weeks?
 - Describe the project's situation so far?
 - Calculate new total cost (ECAC).
 - What must CPI be during the rest of the project to not exceed the original budget?
- c) A project team member has analyzed the project and argue that there is a chance that the project will be one week delayed. Do you agree?

CASE 9

Knudsen

Knudsen is a company specializing in crafting tailor-made products for the fishing industry. The organizational structure encompasses key departments, including product development, production, sales and marketing, purchasing, finance and accounting, and HR. With a workforce of 60 employees, the company recently underwent an acquisition by Invest, a transaction valued at 270 million. Despite the change in ownership, the CEO remains at the helm, keeping his promise to secure the employees' jobs—a commitment made prior to the family company's sale.

Nevertheless, the new proprietors have outlined a definitive exit strategy: divestment within a 5-year period, yielding a return of 3 times the invested capital. Knudsen, which achieved a turnover of approximately 160 million last year, boasting a 10% profit margin, now finds itself directed by strategic ambitions set by Invest—targeting a sales volume of 250 million within the next five years, accompanied by a 15% profit margin.

To realize these strategic aspirations, a project is scheduled to commence on December 1st of this year, slated for completion by March 31st of the subsequent year. The project encompasses various facets: standardizing the product portfolio, enhancing project management expertise, orchestrating organizational restructuring, and reducing the employee count by 20 individuals. The project's concept remains relatively unfamiliar to most employees. Steering the endeavor is the new Chief Financial Officer from Invest, who now assumes the role of project owner.

QUESTION 1

- a) Develop a mandate for the project with emphasis on the formulation of the project name, purpose (outcome) and goals (objectives) for the project.
- b) Discuss some “pitfalls in project management” that can occur in the presented project on the road to success.
- c) Discuss how the project should be tied to the base organization (external organizational structure). Draw an illustration showing the structure. What are the main advantages and disadvantages of using the suggested organizational structure?
- d) Develop a simple illustration that shows the “project manager compass/the six lookings”. Explain briefly how this model can be used as a framework for the management of a project like this. What will be important for the project manager in this project to focus on and why?

QUESTION 2

- a) Briefly describe the stakeholder analysis process. Identify five (5) major stakeholders for this project and perform a simple analysis of these stakeholders.

- b) Explain the difference between success criteria and critical success factors. Discuss three (3) success criteria and three (3) critical success factors for this project.
- c) What characterizes a milestone? Create a milestone plan consisting of five (5) milestones for this project. Why does it often make sense to start with a milestone plan and then create activity plans?
- d) Identify three (3) uncertainties in this project. Show how to use a risk map/matrix to analyze the three uncertainties you have identified. Discuss briefly also what the purpose of analyzing uncertainty is.

QUESTION 3

The project has a subproject that consists of six (6) activities. Duration and cost are listed below.

Activity	Predecessor	Duration (weeks)	Budgeted cost per week
A	F;C	2	40.000
B	-	1	15.000
C	B	6	20.000
D	B	3	75.000
E	B	2	35.000
F	E;D	1	40.000

- a) Draw a network diagram and a GANTT chart. How long will it take to complete the subproject?
- b) Identify the critical activities and the critical path(s). Explain what a critical activity is. Which activities have slack (float) and how much. Explain what slack (float) is.
- c) Make a table showing the subproject's budgeted cost development (accumulated charge). Calculate the total budgeted cost for work.
- d) The project owner argues that the subproject should use 50.000 to reduce activity D with one (1) week. Do you agree with him? Write some arguments underlining your view to the project owner.
- e) After 3 weeks the subproject reports the following information for completion and actual total cost (AC) per activity.

Activity	% Completed	Actual cost
A	0 %	0
B	100 %	30.000
C	25 %	45.000
D	40 %	100.000
E	50 %	30.000
F	0 %	0

- f) What is PC, AC and EV after 3 weeks? Calculate CV, BV and SV. Describe the subproject's status after 3 weeks.
- g) How much work remains after 3 weeks? Calculate CPI, SPI, and new ECAC and ETAC. What is the crucial assumption this calculation of new total cost and duration is based on?

CASE 10

QUESTION 1

BodyCare, a Norwegian company, is actively involved in the creation, production, marketing, and distribution of hair and body care products. Faced with stiff competition in the market, BodyCare's leadership has resolved to initiate a new project focused on developing, producing, and marketing a unique shampoo designed for men in the Norwegian market. Let's imagine that you have been chosen to lead this project as the project manager.

- a) Discuss what you would emphasize during the startup phase of your project.
- b) By the senior managers in BodyCare you have been asked to come up with a budget. Discuss the two main ways of developing a project budget and their advantages and disadvantages, before concluding which way you prefer. Also draw an illustration showing the two different approaches.
- c) Soon you are going to put together your team with personnel from BodyCare. Your analysis of the workload shows that during the initiation and planning phase you need 9 team members, some working part-time, others full-time on the project. You have to select an external organization structure for your project. Discuss your choice and the selected structure's advantages and disadvantages. Also draw an illustration showing the organizational structure.
- d) After a few days you are planning to arrange a brainstorming meeting among the team-members with the purpose of identifying ideas for the development of the new shampoo. Suggest and discuss the appropriate internal organizational structure (team structure) for this event.
- e) Draw and discuss the project manager's compass (the six lookings). Discuss also what you think are your most important tasks as the project manager.
- f) Identify three risks of this project. Show how the risk map/matrix can be used to analyze and rank the three risks that you have identified.
- g) Discuss briefly why benefit management/realization often is difficult. Discuss also what can be done to maximize the benefits from this project.

QUESTION 2

You are given the following project information. The costs are linear (distributed) for each activity. The duration for each activity is shown in the Gantt diagram.

Act.	Duration (days)	Pre-decessor	Planned costs per activity	Days										
				1	2	3	4	5	6	7	8	9	10	
A	2	-	6	■	■									
B	3	-	15	■	■	■								
C	2	A	8			■	■							
D	1	A, B	6				■							
E	2	C, D	10					■	■					
F	2	C, D	12				■	■						
G	3	B	9				■	■	■					
H	4	E, F, G	16							■	■	■	■	

The project is being controlled after **five** days. Then you are given the following information:

Activity	% completed	Actual costs
A	100%	7
B	100%	15
C	100%	10
D	100%	6
E	0%	0
F	50%	5
G	33 ⅓%	4
H	0%	0

- Draw the project network. How long will it take to complete the project?
- Identify the critical activities and the critical path(s). Explain what a critical activity is.
- Which activities have slack (float) and how much. Explain what slack (float) is.
- Explain briefly how to add time buffer in the plan (network) so you have some extra spare time to go on when you are not sure if the schedule holds. How would you solve it in this project?
- Develop a Gantt-chart for the project where the activities start at the Latest start. Mark the critical activities.
- The project manager wants to end project one day earlier than scheduled. Each of the activities C, E, F and G may be reduced by one day by increasing the resource usage, e.g. by using extra staff and overtime. For activity C it will cost 1, for E it will cost 3, for F it will cost 2 and for G it will cost 4. How would you solve this and how much will it cost? Explain.

When solving the remaining questions, ignore f).

- g) Summarize the total cost for each day and calculate accumulated cost. What is the total planned cost for this project (the budget)? **(Remember: The costs are linear for each activity.)**
- h) What is PC, AC and EV after 5 days? Calculate CV, BV and SV. Describe the project's status after 5 days.
- i) How much work remains after 5 days? Calculate CPI, SPI, and new ECAC and ETAC. What is the crucial assumption this calculation of new total cost and duration is based on?

CASE 11

QUESTION 1

NORFISH is the name of a fish processing company situated in northern Norway. With a workforce of 100 employees and an annual turnover of 800 million NOK, the company achieved a profit of approximately 25 million NOK last year. However, during the spring of the same year, the company's board of directors made a strategic decision to modernize operations and significantly enhance profitability. In pursuit of this objective, an improvement and transformation project was formulated. This project aims to achieve its objectives through a combination of strategies. The project encompasses the reduction of personnel, the implementation of efficient new workflows, and the integration of advanced technology. Scheduled for execution within the current year, the project carries a total budget of 100 million NOK. As a direct outcome of the project, next year's projected profits are anticipated to be threefold the profits realized in the preceding year. In the context of this project, there is a suggestion to implement a new standard ERP system. While a specific ERP system has not yet been chosen (an ERP system encompasses software that supports numerous business functions including production, inventory, sales, purchasing, and finance), preparations are underway. Within the production department, plans are in place to install a new production line featuring innovative filleting machines, complemented by an integrated production management system that harmonizes with the chosen ERP system.

- a) Will you characterize this as a PSO-project and why? Justify your answer.
- b) Explain the difference between a project's goal and purpose. What is the goal and purpose for this project?
- c) Explain what a critical success factor is. Develop five (5) critical success factors for this project.
- d) NORFISH shall select a project manager to lead the project. Discuss what characterizes a good and effective project manager. Discuss also what qualifications should be emphasized when selecting the project manager for this project.
- e) Explain briefly what a milestone is. Formulate five (5) milestones for the project.
- f) Petter was selected as the project manager. The other project team members were Lucas, Silje, Morten and Arne. Develop a responsibility chart for the five (5) milestones (a milestone responsibilities chart) where you use some of the most common letter codes for the allocation of responsibilities. Explain briefly what is meant by horizontal and vertical analysis of the responsibility chart.
- g) Identify four (4) key stakeholders to this project. Make a stakeholder analysis of their relation to the project.

- h) Discuss briefly the importance of good information/communication in a project such as this. Develop a communication plan for the project.

QUESTION 2

You are given the following project information:

Activities	Duration (days)	Predecessor
A	4	-
B	5	-
C	3	A, B
D	2	A, B
E	1	B
F	4	C, D
G	3	D, E
H	4	G
I	6	F, G

- a) Draw the project network. How long will it take to complete the project?
- b) Identify the critical activities. Explain what a critical activity is.
- c) Calculate the slack for each activity. Explain what slack is.
- d) Explain the difference between the planning techniques CPM (Critical Path Method) and PERT (Program Evaluation Review Technique). Which technique have you used in question 2 a)?
- e) Develop a Gantt-chart for the project where the activities start at Earliest Start.

QUESTION 3

A project consists of 4 activities and has the following budget:

	Week					
	1	2	3	4	5	6
Activity 1	200	200	200			
Activity 2		400	400			
Activity 3				600		
Activity 4					200	200

- Summarize the total cost for each week and calculate accumulated cost. What is the total planned cost for this project (the budget)?
- Explain briefly what an S-curve is. Draw the (planned) S-curve using the accumulated costs. What other two S-curves are used when the project is being followed-up?
- The project is being cost controlled after 3 weeks. Then activity 1 is 100 % completed, while activity 2 is 75 % completed. Actual cost is 1500. What is earned value after 3 weeks? Calculate cost variance, budget variance and schedule variance.
- What is CPI after 3 weeks? Describe the projects' situation so far? Calculate new total cost (EAC/Estimate at Completion). What must CPI be during the rest of the project to not exceed the original budget?

CASE 12

QUESTION 1

- a) What are the characteristics of a project?
- b) Describe the external organizational structure called matrix organization and its advantages and disadvantages. Draw an illustration showing the structure.
- c) Discuss what should be emphasized when selecting the team members to a new project? Give a brief description of the isomorphic team structure and in which situations this is a suitable way of organizing the project work. Draw an illustration showing the structure.
- d) Give a brief description of what is meant by critical success factors. View examples of the five critical success factors for a project.
- e) Discuss what characterizes an effective and good project manager.

QUESTION 2

Stud Invest AS has initiated a project that aims to build student housing on the vacant land between BI and Storo Shopping Mall. The plan is to build a large building with approx. 150 rooms. The project is now in a preliminary study, but there are still many pieces that must be in place before construction can begin. If everything goes according to the plan, Stud Invest AS hopes to start construction next year.

- a) Identify four key stakeholders to this project. Make a stakeholder analysis of their relation to the project.
- b) Describe what a milestone is. Develop a milestone plan (with five milestones) for this project.
- c) What usually contains a mandate? Create a proposal for a mandate for this project with emphasis on the choice of project name, purpose and goals for the project.
- d) Identify three risks of this project. Discuss briefly what the purpose of analyzing risks. Show how the risk map/matrix can be used to analyze the three risks you have identified.
- e) What characterizes a successful project? Discuss success criteria for the student housing project.

QUESTION 3

You are given the following project information:

Activities	Duration (days)	Predecessor	Planned cost/ budget (per day)
A	3	-	50
B	5	-	100
C	2	A	50
D	4	A	100
E	3	A	50
F	2	C, D	100
G	3	B, E, F	100

- Draw the project network. How long will it take to complete the project?
- Identify the critical activities. Explain what a critical activity is.
- Calculate the slack for each activity. Explain what slack is.
- Develop a Gantt-chart for the project where the activities start at Earliest Start.
- Create a resource/cost table where you summarize the total cost for each day and also calculate accumulated cost. What is the total planned cost for this project (the budget)?

After 6 days the following information is given:

Activity	% completed
A	100%
B	100%
C	100%
D	75%
E	66 $\frac{2}{3}$ %
F	0%
G	0%

Actual cost after 6 days are 1250.

- Calculate SV, CV, BV, CPI, SPI after 6 days.
- Based on you data, what is your assessment of the status of the project?

Links

PMI: <http://www.pmi.org/>

PMI Norway: <http://pmi-no.org/>

IPMA (International Project Management Association): <http://www.ipma.world/>

Norsk Forening for Prosjektledelse (in Norwegian): <http://prosjektledelse.org/>

Prosjekt Norge (in Norwegian): <http://www.prosjektnorge.no/>

Concept – research programme at NTNU: <https://www.ntnu.edu/concept>

Prinsix – Forsvarets prosjektrammeverk (in Norwegian): <https://www.fma.no/prinsix>

The Project Management Group at BI: <https://www.bi.edu/research/find-department/departement-of-leadership-and-organizational-behaviour/project-management/>

David Hillson – The risk doctor: <http://www.risk-doctor.com/>