
CASE 2

QUESTION 1

Automatic traffic controller

Good accessibility is a prerequisite for an efficient and attractive public transportation service. In a large Norwegian city, there is a need for better flow, more public transport lanes, signal prioritization and efficient stops – to reduce travel time and delays. PubTrans is the city mobility provider whose task it is to administrate, market and inform about the public transportation service as well as purchase transport services from independent bus companies.

Automatic traffic management (ATM) is a recently started project where the supplier TraffSys has been chosen by PubTrans to develop a traffic management system that will automatically direct the buses that run in the city. PubTrans is the project owner. The main task of the system, with the help of GPS and real-time control, is to ensure that clumps of buses are eliminated (i.e. that an attempt is made to keep the same distance between the buses on a route), and to ensure that passengers are transported as efficient as possible from A to B.

TraffSys is a European company with offices in Sweden, England, and Germany. TraffSys provides a wide range of services, including consulting, system development, system integration, technical infrastructure, and project management.

- a) TraffSys shall select a project manager. Explain what qualities and skills you think a project manager in a project like this should possess. Discuss how the project manager role differs from a line/department manager role.
- b) Identify four (4) important stakeholders for the project and carry out a stakeholder analysis of these. Discuss the project's relationships with these four stakeholders and how the project should follow-up each stakeholder.
- c) Identify four (4) uncertainties and show how these can be analyzed using a criticality matrix. Discuss what should be emphasized to succeed with the uncertainty management in the project.
- d) Discuss what the supplier TraffSys can do to build trust with the project owner PubTrans. Also discuss how the project owner can control the supplier's work?
- e) TraffSys will develop the traffic management system using the scrum methodology and plans to have two scrum teams. Discuss three (3) benefits of the scrum methodology. Further, discuss three (3) problems that can easily arise from teamwork as in this project.

QUESTION 2

A project has been given the following information:

| Activities | Duration (days) | Preceding activity |
|------------|-----------------|--------------------|
| A | 3 | - |
| B | 5 | A |
| C | 4 | A |
| D | 6 | A |
| E | 3 | B, C |
| F | 3 | D |
| G | 5 | E |
| H | 3 | E, F |

- Develop a network (plan) for the project. What is the duration of the project? What are the critical activities? Which activities have slack and how much?
- Develop a Gantt-diagram for the project where all the activities start at the latest start time. Explain what is meant by the latest start time and what consequences this may have for the plan.
- Disregard the information in question b). The client wishes to reduce (crash) the project duration by three (3) days. The following information is collected:

| Activity | A | B | C | D | E | F | G | H |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Normal duration (time) | 3 | 5 | 4 | 6 | 3 | 3 | 5 | 3 |
| Crash duration (time) | 2 | 3 | 2 | 3 | - | - | 3 | 2 |
| Normal cost | 20 000 | 16 000 | 12 000 | 15 000 | 19 000 | 11 000 | 18 000 | 18 000 |
| Crash cost | 30 000 | 20 000 | 22 000 | 30 000 | - | - | 24 000 | 25 000 |

Normal and crash costs are for the entire activity and are linearly distributed (every day cost the same).

- What is the project budget?
- The client wants to reduce the project time with lowest additional costs. What activities do you want to reduce and by how many days? How much will this cost? What will be the new budget?
- What is (are) the critical path(s) in the new plan? Discuss the consequences of this crashing (reduction in time) when it comes to management of the project?

QUESTION 3

A road construction project that consists of 6 activities is planned to be completed within 14 weeks. The project has a budget based on the following estimated costs. Assume that costs are linear for each activity.

| Activities | Estimated costs |
|----------------------------------|-----------------|
| Measuring | 20 000 |
| Blasting | 160 000 |
| Filling of gravel and flattening | 200 000 |
| Asphalt spreading | 160 000 |
| Install light and crash barriers | 40 000 |
| Install signposts and finish | 10 000 |

| Activity/week | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|----------------------------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| Measuring | ■ | | | | | | | | | | | | | |
| Blasting | | | ■ | | | | | | | | | | | |
| Filling of gravel and flattening | | | | | | | ■ | | | | | | | |
| Asphalt spreading | | | | | | | | | | | ■ | | | |
| Install light and crash barriers | | | | | | | | | | | | ■ | | |
| Install signposts and finish | | | | | | | | | | | | | | ■ |

- a) Develop a table where you summarize total cost for each week and calculate accumulated cost. What is the total planned cost for this project (the budget)?
- b) Find/calculate PC, AC, EV, CV, BV, SV, CPI and SPI and comment the development:
 - i. After 3 weeks: Measuring is finished, and Blasting can start. Actual cost so far is 25 000.
 - ii. After 6 weeks: 50% of the Blasting activity is completed. Actual cost for this work is 100 000.
 - iii. After 9 weeks: Blasting is finished, 50% of Filling of gravel and flattening is completed and Install light and crash barriers is finished. Actual cost for all the completed work is now 350 000.