Project Management, episode 3

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Project Planning
The Purpose of Planning is both..

- Process oriented
  - Creates mutual learning experience and common understanding

- Product oriented
  - Produces the plan, which is the base for execution and control
**Principles of Project planning**

- It should be motivational
- It should encourage involvement
- It should engage commitment
- It should provide the basis for monitoring and control at different levels and by different responsible parties
- It should easily implement revisions of itself
- It should have clear connections between global and detail planning
Project planning

• Global planning
  – What should be accomplished (milestone planning)

• Detail planning
  – How it should be accomplished (activity planning)
Segmentation of Project into Phases

- Design and Engineering
- New Product Development
- Intro to general Production system
- Marketing
- Preparing for Production
Reasons for segmenting a project

- The project is large
- The project is long-term
- It is advantageous to have several parallel sub-projects
- Information is not available to plan the project as one unit
- The project has several natural phases with completely different contents
Segmentation of project

**Feasibility phase**
- Describe problems
- Formulate purpose and goals
- Decide how to approach the problems
- Identify alternative solutions
- Be creative!

**Implementation phase**
- Decide tasks to achieve the goals
- what should be accomplished
- how it should be accomplished

**Project / Subprojects**
Global (milestone) planning

- A milestone is a checkpoint in the project that ensures that we are on the right track
- It describes what the project should achieve, NOT how

  - Example: Being awake at 6.00 am (state)
  
  How? (activity)
  - Go to bed early
  - Put an alarm clock
  - Ask somebody to wake you up
  - Stay awake the whole night
Global (milestone) planning

- A milestone should be neutrally stated in regards to ways of obtaining it
- Neutral milestones give more freedom of choice and better quality control

- Example:
  - The employees have specified knowledge in a given area (**neutral**)
  - The employees have completed course X (**bound to a certain activity**)
More about milestones

- A milestone should be controllable

- A milestone text may comprise two elements
  - The state to be achieved
  - Conditions necessary to achieve this state
  - Example:
    The employees have specified knowledge in a given area after an approved training program (conditional requirement) → easier to be quality controlled
More about milestones

• A plan at the global level should not need to be reassessed if changes occur in the activity level

• Important decision-making points and deliverables in the project should be milestones
Milestone plan

Logical dependencies between states

M1

M2

M3

M4

M5

M6
Correlation between activities and milestones

M1

M2

M3

M4

M5

Work on milestones starts

Milestones are reached

Time
Milestone plan example

Excellent physical work environment

1. M1
   - Describe the present situation

2. M2
   - Describe the desired situation

3. M3
   - Requirements for change are stated and prioritized

4. M4
   - Ideas for measurements to tackle the prioritized requirements for change

5. M5
   - Evaluation of the consequences of the various measures

6. M6
   - Selected measures are included in the action plan submitted to manager
Result paths

Result path A

Result path B

Project start

Result path C

A1

B1

B2

B3

B4

C1

C2

C3
Mission Breakdown Structure

Excellent work environment with satisfied employees and high productivity

Excellent physical work environment

Excellent social work environment

Salary system with bonuses and incentives
Evaluation of milestone plan

• Is it balanced?
• Is it logical?
• Does it have good results paths?
• Are the milestones suitable?
• Is it an overview plan?
Exercise: Milestones

Create a Milestone Plan for holding a birthday/bachelor/wedding party
Global (milestone) organizing

- Communicate effectively
- Allocate tasks to the right expertise
- Include people in a project as long as they have tasks to perform
- Clarify “rules of the game”
- Clarify roles
## Milestone Responsibility Chart

<table>
<thead>
<tr>
<th>Milestone</th>
<th>X</th>
<th>Y</th>
<th>Z</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milestone I</td>
<td>D</td>
<td></td>
<td></td>
<td>X has full responsibility for the decision</td>
</tr>
<tr>
<td>Milestone II</td>
<td>D</td>
<td>d</td>
<td></td>
<td>Y approves professional quality. X has final responsibility for the decision.</td>
</tr>
<tr>
<td>Milestone III</td>
<td>D</td>
<td>d</td>
<td>d</td>
<td>Y and Z agree jointly but X takes the final decision</td>
</tr>
<tr>
<td>Milestone IV</td>
<td>d</td>
<td></td>
<td>d</td>
<td>Y and Z must agree and take decision jointly</td>
</tr>
</tbody>
</table>
Milestone Responsibility Chart

Roles

X: executes the job
D: takes decisions solely or ultimately
d: takes decisions jointly or partly
P: manages work and control progress
T: provides tuition on the job
C: must be consulted
I: must be informed
A: available to advise
Example:
Milestone Responsibility Chart

<table>
<thead>
<tr>
<th>M1: Describe the present situation</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td>A</td>
<td>C</td>
<td>X</td>
<td>X</td>
<td>T</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M2: Describe the desired situation</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td>D</td>
<td>d</td>
<td>X</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M3: Requirements for change</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td></td>
<td></td>
<td>X</td>
<td>I</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M4: Ideas for measures</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td></td>
<td>C</td>
<td>X</td>
<td>C</td>
<td>A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M5: Evaluation of the consequences</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td></td>
<td>X</td>
<td></td>
<td>I</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M6: Action plan</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X/P</td>
<td></td>
<td>C</td>
<td>X</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>
Milestone Responsibility Chart

- A party may well have several roles simultaneously
- One person may be included in several parties
- There should not be two capital D’s on the same line!
- There should neither be two capital P’s on the same line!
Milestone Responsibility Chart

Horizontal analysis: Review each milestone individually and evaluate the work to achieve it

Vertical analysis: Assess total workload for those involved in the project
Time scheduling

Two different scenarios may exist:

- Completion date determined by the project
- Externally imposed completion date
Time scheduling – project determined

- The feasibility study is a good method for obtaining a basis for estimating the time and resources in the project.

- Anticipated completion times for respective milestones should be entered on the milestone plan.

- Division into phases and sub-projects make subsequent time planning more certain.
Time scheduling – project determined

What we need:

• the milestone plan

• the milestone responsibility chart

• overview of most time- and resource-consuming activities
Time scheduling – externally imposed

- Based on market considerations
- Based on a strategic decision
- Sub-project in a larger project
- Decision by public authorities
- Part of an educational curriculum
Rough activity overview

M1: Describe the present situation
- Prepare a questionnaire
  - Wait for response
  - Process and report the replies

M2: Describe the desired situation
- Interview line managers
  - Prepare a proposal on the desired situation
  - Decide on the desired situation

M3: Requirements for change
- Identify the most important

M4: Ideas for measures
- Hold a brainstorming session

M5: Evaluation of the consequences
- Assess the measures
  - Calculate cost estimates

M6: Action plan
- Select the measures to be included in the plan
  - Calculate the measures in a plan
  - Develop an action plan in detail
Rough activity overview

• If the work is performed in a concentrated manner, without any interruptions, how many days (or hours or weeks) will it take?

• Look more closely at the recourse-consuming activities involved in reaching each milestone
# Milestone responsibility chart with time scheduling

<table>
<thead>
<tr>
<th>Man-days</th>
<th>Start</th>
<th>End</th>
<th>Week</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Line managers</th>
<th>Personnel consultant</th>
<th>Committee</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>1/1</td>
<td>20/1</td>
<td>1</td>
<td>M1 X/P A</td>
<td>C</td>
<td>X</td>
<td>X</td>
<td>T</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>10/1</td>
<td>10/2</td>
<td>2</td>
<td>M2 X/P D</td>
<td>d</td>
<td>X</td>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>10/2</td>
<td>12/2</td>
<td>3</td>
<td>M3 X/P</td>
<td></td>
<td>X</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>10/2</td>
<td>1/3</td>
<td>4</td>
<td>M4 X/P C</td>
<td></td>
<td>X</td>
<td>C</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1/3</td>
<td>20/3</td>
<td>5</td>
<td>M5 X/P</td>
<td></td>
<td>X</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>20/3</td>
<td>10/4</td>
<td>6</td>
<td>M6 X/P</td>
<td></td>
<td>C</td>
<td>X</td>
<td>C</td>
<td></td>
</tr>
</tbody>
</table>
Excellent physical work environment

Milestone plan with time scheduling

1/1  M0  Project starts

20/1  M1  Describe the present situation

10/2  M2  Describe the desired situation

12/2  M3  Requirements for change are stated and prioritized

1/3   M4  Ideas for measurements to tackle the prioritized requirements for change

20/3  M5  Evaluation of the consequences of the various measures

10/4  M6  Selected measures are included in the action plan submitted to manager
Exercise: Milestone Responsibility Chart

Create a Milestone Responsibility Chart with time scheduling for holding a birthday/bachelor/wedding party
Uncertainty analysis

- General uncertainty evaluation
- Milestone-specific uncertainty evaluation
General uncertainty analysis

- Environment (*external conditions, eg. competitors, nature*)
- Project plans and project organization (*internal conditions, eg. using unfamiliar technology*)
- Conduct of the decision-makers (*relationship between base organization and project*)
- Access to resources in the project (->>-,-,)
Milestone-specific uncertainty analysis
# Uncertainty matrix

<table>
<thead>
<tr>
<th>Uncertainty element</th>
<th>Probability</th>
<th>Consequence</th>
<th>Action</th>
<th>Responsible</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1: Describe the present situation</td>
<td>Dishonest responses</td>
<td>Small</td>
<td>Large (quality)</td>
<td>Information and motivation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium</td>
<td>Large (time)</td>
<td>Agreem ent with PM</td>
</tr>
<tr>
<td>M2: Describe the desired situation</td>
<td>Medium</td>
<td>Large (time)</td>
<td>MD asks them to allocate time</td>
<td>PM</td>
</tr>
</tbody>
</table>
Exercise: Uncertainty Analysis

Add an Uncertainty Analysis to the Project Plan for holding a birthday/bachelor/wedding party
Detail (activity) planning

- Identify all the activities that must be performed to reach a milestone
- Identify the activities that will delay the overall project if they are delayed and put extra focus

For each activity:
- Identify all the people that are involved
- Estimate the necessary work effort
- Estimate the work duration and placement in calendar time
- Consider the relationship with other activities
Detail (activity) planning

- Should not be done before it is strictly necessary

- Thoroughness and precision are more important than creativity

- A single activity should not be large in work effort and calendar time

- It must be possible to check that each activity has been completed
Rough activity overview

M1: Describe the present situation - Prepare a questionnaire
- Wait for response
- Process and report the replies

Good starting point for activity planning BUT:

- The above list was not intended to be complete
- Activities already completed have raised the level of knowledge
- A completely different approach than initially considered may be now chosen
- The level of ambition may have changed significantly
Activity responsibility chart for the first milestone

M1.1: Draft of questionnaire
M1.2: Gather views on questionnaire
M1.3: Final form of questionnaire
M1.4: Mailing list
M1.5: Send out questionnaire
M1.6: Send out reminders
M1.7: Process the replies
M1.8: Draw up the report
**Activity responsibility chart for the first milestone**

<table>
<thead>
<tr>
<th>Man-days</th>
<th>Start</th>
<th>Week</th>
<th>End</th>
<th>Project Manager</th>
<th>Managing director</th>
<th>Head production</th>
<th>Head sales</th>
<th>Head personnel</th>
<th>Personnel consultant</th>
<th>External consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>1/1</td>
<td>1</td>
<td>6/1</td>
<td>M1.1</td>
<td>X/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>1</td>
<td>8/1</td>
<td>8/1</td>
<td>10/1</td>
<td>M1.2</td>
<td>P</td>
<td>A</td>
<td>C</td>
<td>C</td>
<td>C</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>9/2</td>
<td>9/2</td>
<td>11/1</td>
<td>M1.3</td>
<td>X/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>1</td>
<td>1/1</td>
<td>1/1</td>
<td>10/1</td>
<td>M1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X/P</td>
<td>T</td>
</tr>
<tr>
<td>0.5</td>
<td>12/1</td>
<td></td>
<td>12/1</td>
<td>M1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X/P</td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>17/1</td>
<td></td>
<td>17/1</td>
<td>M1.6</td>
<td></td>
<td></td>
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<td></td>
<td>X/P</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12/1</td>
<td>12/1</td>
<td>19/1</td>
<td>M1.7</td>
<td>X/P</td>
<td></td>
<td></td>
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<td>X</td>
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<tr>
<td>3</td>
<td>16/1</td>
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<td>20/1</td>
<td>M1.8</td>
<td>X/P</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Responsibility charts

- Principle responsibility chart: Clarifies the role of different parties in the project work
- Milestone responsibility chart: Clarifies the role of different parties in achieving milestones
- Activity responsibility chart: Clarifies the role of different individuals in carrying out activities

Given a condensed description of what has been agreed upon
Exercise: Activity Planning

Create an Activity Responsibility Chart for holding a birthday/bachelor/wedding party
Questions?