Modern Project Management

1 - Introduction

Goals of the lecture
- Explain the Challenges of Modern Project Management
- Give an overview on the Project Life Cycle
- Give practical Tools and Techniques in order to
  - Optimize the Planning
  - Improve the Estimations
  - Get the Resources on time
  - Manage the Project Risks
  - Keep the project on Track

Agenda
- Day #1
  - Current State of the Art
  - Overview Project Life Cycle
  - Initiating a project
- Day #2
  - Planning
  - Organizational Aspects
  - Resources
  - Risk Management
- Day #3
  - Keeping Projects on Track
  - Earned Value
  - Cost and Quality

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- MBA at HEC Lausanne
- PhD at EPF Lausanne
- Working as Software Engineer at ITT, Sulzer Escher-Wyss
- VP for R&D at Mecasoft
- Since 1991 independent consultant
- Since 1996 president of STS - company dedicated to Project Management Training.

2 - Current state of the Art

2003
The shift

During the past 10-15 years, an important shift took place:
- The pressure (Time to Market) increased
- Many activities are run as projects
- Many activities of daily business disappear
- More and more people are involved in projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Small projects</th>
<th>Daily business</th>
<th>Large Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>10</td>
<td>80</td>
<td>10</td>
</tr>
<tr>
<td>2000</td>
<td>30</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>2010</td>
<td>50</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

1980

In the 80’s, projects accounted for less than 10% of the activities
- A limited number of employees were involved in projects

2003

Today, Projects account for 20-30%
- Almost everyone is involved in projects
- This requires a new way to manager activities AND projects

The Big Challenges

1. Project Management Methods were developed for engineering projects
   - Today, the methods are not always appropriate for projects in other areas
2. Project Management Methods were developed for projects only
   - Today, projects AND activities should be managed by the same concepts and the same tools
3. Projects used to have their own accounting system
   - Today, integration of projects with ERP is a must.
4. Methodology differ in each company
   - ... and changes with every new CEO.
5. Resources allocation – how ?
6. Project Portfolio - what for ?

Challenge #1

- Project Management Methods were developed for engineering projects
- My project is NOT an engineering project!

Tell me exactly how long you need for the mathematical breakthrough!

Planning with uncertainties

- Temperatures > 1200° supported ?

Option E
Changing level of granularity

- Change the granularity
  - Not the activity, but the deliverable is the main part of the planning
  - GDPM (Goal Directed Project Management) is one systematization of this approach

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“Deliverable” approach

- Consequences
  - Gantt + Activity Network not used
  - A Milestone for each deliverable
  - New tools: Milestone Graphics
  - New approaches in the Project Management Software:
    - Resource allocation done on the management level

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Challenge 1 - solutions

- Project Management Methods were developed for engineering projects
  - Today, the methods are not always appropriate for projects in other areas
- Solutions:
  - Planning with uncertainties
  - Change granularity
- Remaining problems
  - Different methodologies used for different projects
  - Software packages not adequate
  - Missing: Concept to integrate projects of different types

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Challenge #2

- Project Management Methods were developed for projects only
  - Today, projects AND activities should be managed by the same concepts and the same tools
- But: if every single activity of 0.5 ... 3 days duration is treated like a project:
  - Hundreds of projects
  - No overview
  - PM spend 20% of their time for overhead
- The current available software packages does NOT solve the problem
- What is needed:
  - A CONCEPT for the integrated Management of Projects and Activities
  - Corresponding software packages

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Solution: Management by projects

- Management by Project
  - Buzzword...
- Rotate the organization 90 degrees to the right:

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Challenge #3

- Projects used to have their own accounting system
  - Today, integration of projects with ERP is a must.
  - Nearly every PM-Software claims it’s compatibility...
- Reality:
  - Sometimes, people enter the time spent into TWO systems
  - Redundancy of ERP and PM-Software
  - Every company finds it’s way...
Challenge #4

- Methodology is different in every company
  - ... and changes with every new CEO.
- Every company defines it’s own methodology
  - ... and writes its Bible: the “PM Handbook”
- This a the indicator of poor maturity of the process.

Maturity Model

- Five levels in the common maturity model
  - Optimizing (5)
    - Project-oriented organization
    - Integrated (4)
      - Institutionalized & integrated into planning
  - Managed (3)
    - Consistent, comprehensive approach
  - Foundation (2)
    - Consistent, basic approach to project execution
  - Adhoc (1)
    - No formal consistent process

Maturity Models

- SEI model only for Software development
  - Capability Maturity Model’s (CMM®)
- Many tools available:
  - Project Management Maturity Model (PMMM) (www.pmsolutions.com)
  - Organizational Project Management Maturity Model (OPM3) (www.pmi.org)
  - Project Management Maturity Model Online Assessment Survey (www.primavera.com)
  - Kerzner Project Management Maturity Model Online Assessment (www.iil.com)

PMI’s OPM3

- PMI survey + research:

Challenge #5

- Resources allocation - How ?
- Are capacities available ?
- Where should resources be allocated:
  - To the daily business ?
  - To the projects ? Which projects ?

First answer: coordination

- A coordination meeting with department heads and project managers
  - OK for SMEs
  - Requires the presence of a member of the board (decisions!)
  - Cons: time consuming
Second answer: Project office

- Coordination
- Compile information for CEO
- Elaborate portfolios
- Plans capacities
- Sets standards and processes

CEO

Capacity Planning

- Reveal bottlenecks at an early stage
- Better management of the sales
- Launch projects throughout the year
- Guarantee deadlines are met

Capacity Planning

- For each department, determine the number of people working on projects.
- The required capacity for all projects must be consolidated within each department.

Capacity Planning - example

Capacity Planning in MBP

- Each team runs several projects
  - Resource leveling first within the team

Consolidating within the team

- Checking for over-allocation of resources within the team
Leveling across projects

- Leveling within the team, across the projects

Before

After

Leveling between teams

- Problems, which may not be solved within the team A, are discussed between the teams

Team A  Team B

Challenge #6

- Project Portfolio - what for?
- Who starts new projects?
- Who kills a project?
- Who has the overview?
- Which projects are in line with the strategy?

Maturity Issues

- 66% have project selection criteria
- 66% explicitly align projects → strategy
- BUT only 25% have well-balanced portfolios

(Source: Survey of the PMI)

Project Portfolio

- Risk versus ROI

Area ~ Budget

ROI

Less Is better....

- Simple rules often efficient:
  - Not too many projects at the same time

Project Portfolio

- Instrument to get control over the numerous projects
  - Choose criteria for new projects
  - Evaluate overall risk
  - Visualize the "project landscape"

Software

- Different software packages available for project portfolio management.
State of the art: Certification

- Is project management a career path?
  - No formalized studies (Post grades, etc)
- Companies tend to offer three career paths:
  - Manager
  - Technical expert
  - Project Manager
- Strong need for certification of professional PM
  - Required by DoD, etc

2 Certifications

- Worldwide TWO Certifications:
  - PMI (Project Management Institute)
    - Certification: PMP, CAPM (Certified Associate)
  - IPMA (International Project Management Association)
    - Certification: Level A, B, C and D
  - Switzerland:
    - Swiss PM Association (www.project-management.ch)
    - Level B and C (www.vzpm.ch)