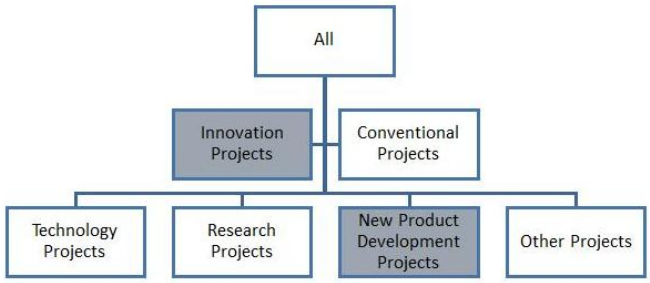
Managing Product Innovation

A study of product innovation in project management

Astrid De Keyzer
Jolien Dobbelaere
Shana Raes
Lisa Vandevoorde
Dorien Van Steenberge

Project

- Fictitious product innovation project
  (Data gathered at Daikin Europe N.V.)
- Distinction between innovational & conventional projects



Outline

- Project life cycle
- Baseline schedule
- Focus on risk analysis to emphasize complexity

→Schedule risk analysis with ProTrack

'Bottom-up approach'

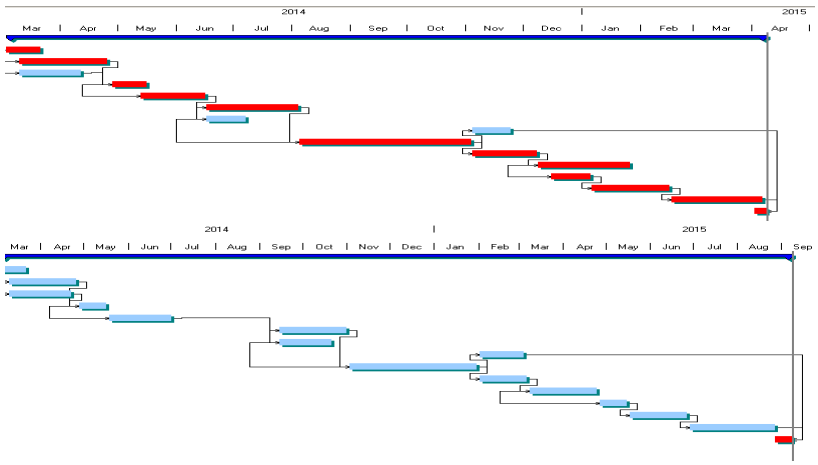
→ Earned value forecasting with P2Engine

'Top-down approach'

Project life cycle

- Report:
  - Overview activities, durations and resources
  - Work Breakdown Structure
  - Activity-on-the-Node Network

Baseline schedule (ProTrack)



Baseline schedule (ProTrack)

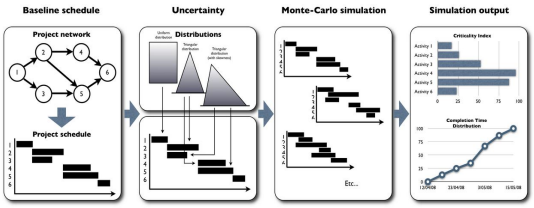
- Start date: March 3th , 2014
- Finish: September 8th , 2015
- Duration: 1 year and 6 months
- Total cost: 2.480.656,75 €

  Fixed cost: 2.170.000 €

  Resource cost: 310.656,75 €
- 15 activities
- 15 renewable resources

Schedule risk analysis (ProTrack)

- Impact of uncertainty on:
  1. Project Duration (PD)
  2. Budget at Completion (BAC)
- 4 required steps



Schedule risk analysis (ProTrack)

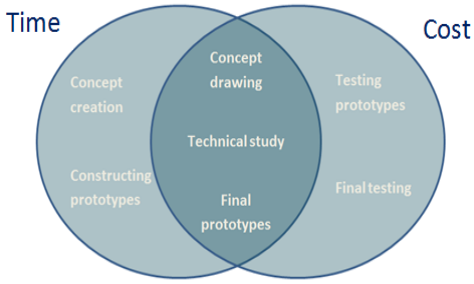
- Take into account…
  - → Unlimited resources
  - → SP percentage of 78%: serial network
  - → Non-linear relation between activities & total project
  - → 3 relevant measures (SSI, CRIRho, CRITau)

Schedule risk analysis (ProTrack)

- Result:

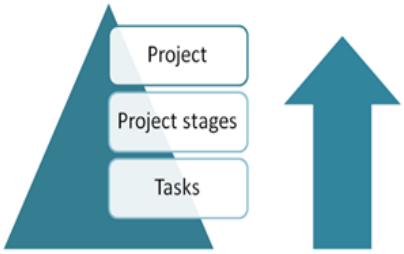
→ Sensitive activities = need higher attention

- Time buffers
- Agressive estimates

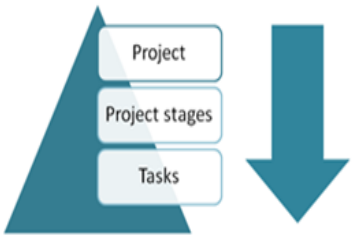


Bottom-up VS. Top-down…

PROTRACK

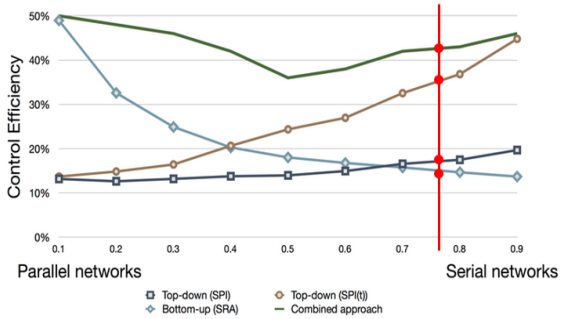


P2ENGINE



Earned value forecasting (P2Engine)

- Ideal for serial networks → Improves control efficiency



Earned value forecasting (P2Engine)

- Take into account…
  - → 100 Monte-Carlo simulations
  - → Three scenarios based on time: Low-Medium-High
  - → Different values for α and β

Risk	α	β
Low	0,5	1,5
Medium	0,8	1,9
High	0,9	10

Earned value forecasting (P2Engine)

- Results:

→ Topological indicators

AD: 81% - Unequal distribution

LA: 66% - Distance between two activities is rather far

TF: 12 - Rather dense network

→ Earned value forecasting indicators

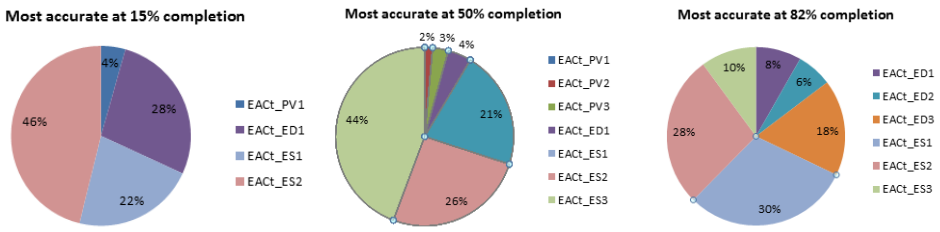
Estimates at completion (EAC)

Tool for identifying & implementing corrective measures

Earned value forecasting (P2Engine)

Investigation of most accurate forecasting indicator under high risk and three stages of completion

TIME

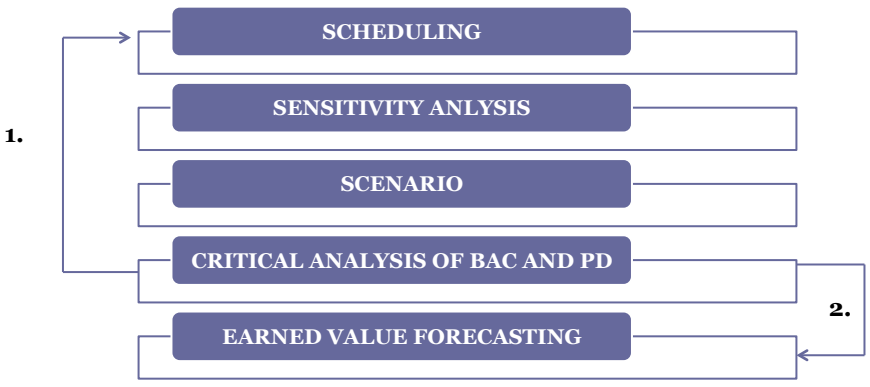


Earned value forecasting (P2Engine)

Time

	High risk	Medium risk	Low risk
15%	EACt_ES2	EACt_ES1	EACt_ES1
50%	EACt_ES3	EACt_ES3	EACt_ES1
82%	EACt_ES1	EACt_ES1	EACt_ES1

Combined approach & recommendations



Combined approach & recommendations

- Scheduling:
  - → Planned Duration
  - → Budget at Completion
  - → Critical path
- Sensitivity Analysis:
  - → High sensitive activities
  - → Critical path + probability of becoming critical

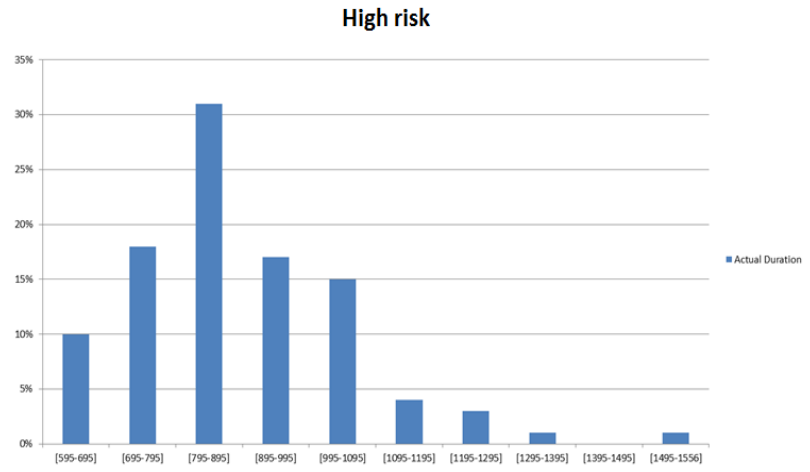
Combined approach & recommendations

- Scenario:
  - → Managerial insights
  - → Analysis critical and sensitive activities
  - → Nature of the project

Focus on high risk scenario

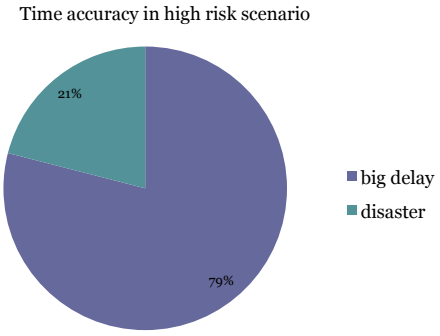
Combined approach & recommendations

- Critical analysis of the Project Duration



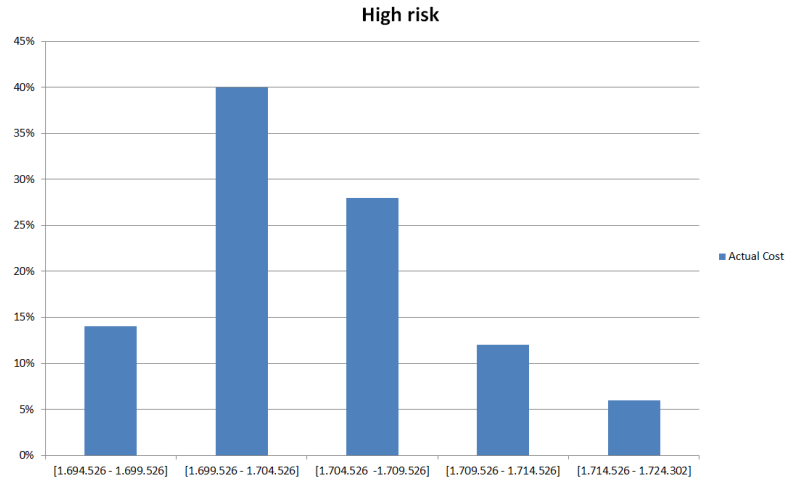
Combined approach & recommendations

- Critical analysis of the Project Duration



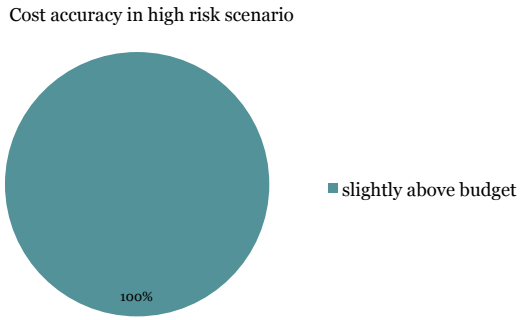
Combined approach & recommendations

- Critical analysis of the Budget at Completion



Combined approach & recommendations

- Critical analysis of the Budget at Completion



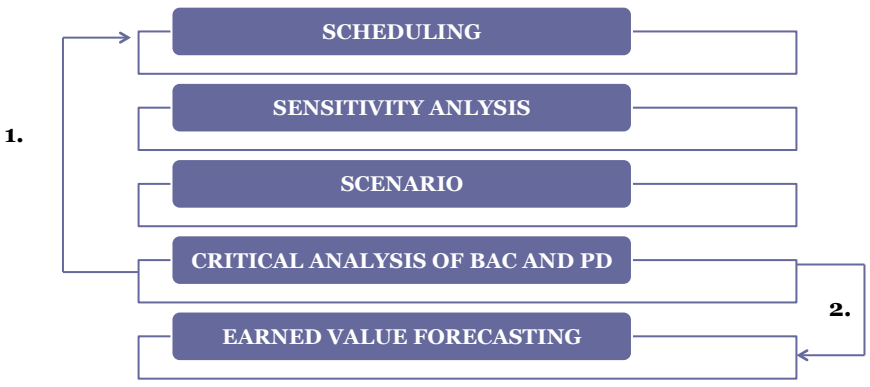
→ BAC & PD will be closer to actual cost & time

→ Back to Scheduling

Combined approach & recommendations

- Earned Value Forecasting
  - → Execution phase
  - → Deviations from BAC and PD
  - → Using most accurate measures
    - → Vary across different stages of completion

Combined approach & recommendations



More efficient forecast and control of the time and cost aspect.

Thank you for your attention…

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