

	Case Name: C2018-03	Sector		
	OR-AS Operations Research - Applications and Solutions www.or-as.be info@or-as.be	Baseline schedule	Schedule with resources	
			Schedule with costs	
		Risk analysis	Random Simulation	
Submitted by	Mayté & Thymo		One of nine std. scenarios	
Date	2018		User defined distributions	
File Name	C2018-03	Project Control	Automatic tracking	
			Tracking based on user input	

1. Project description

Project Authenticity

The project consists of *activity*, *resource* and *cost* data that were obtained directly from the actual project owner.

2. Project properties

2.1. Baseline schedule

General	
# Activities	20
Planned Duration (PD)	177 days*
Budget at Completion (BAC)	€ 1.480.224,75
Renewable Resources	8
Consumable Resources	-

Network Topology	
Serial/Parallel (SP)	68%
Activity Distribution (AD)	76%
Length of Arcs (LA)	0%
Topological Float (TF)	10%

* Standard eight-hour working days

2.2. Risk analysis

Random simulation by ProTrack was performed using the default symmetric triangular risk distribution profiles.

	Cost sensitivity		
	avg (%)	std dev (%)	skew (-)
CRI-r	11,85	20,24	2,4
CRI-rho	38,65	19,92	-0,3
CRI-thau	61,66	44,06	-0,4

	Resource sensitivity		
	avg (%)	std dev (%)	skew (-)
CRI-r	12,50	33,07	2,8
CRI-rho	56,25	16,54	2,8
CRI-thau	100,00	0,00	N/A

	Time sensitivity		
	avg (%)	std dev (%)	skew (-)
CI	65,1	45,2	-0,7
SI	41,4	42,7	0,3
SSI	14,3	16,6	0,9
CRI-r	17,4	17,2	1,0
CRI-rho	26,5	19,3	0,1
CRI-thau	31,4	35,7	1,3

2.3. project Control

2.3.1. Simulated forecasting accuracy

The accuracy of time and cost forecasting methods has been evaluated based on Monte Carlo simulation runs using the risk profiles described in section “2.2. Risk Analysis”. Based on these risk profiles, the Mean Absolute Percentage Error (MAPE) and Mean Percentage Error (MPE) has been calculated to evaluate the expected accuracy of the time and cost predictions, EAC(t) and EAC, respectively.

simulated EAC (t) accuracy		
Method - PF	MAPE (%)	MPE (%)
PV - 1	38,50%	-31,21%
PV - SPI	54,34%	22,69%
PV - SCI	53,94%	23,79%
ED - 1	153,46%	114,77%
ED - SPI	54,34%	22,69%
ED - SCI	54,04%	22,76%
ES- 1	41,98%	-41,03%
ES- SPI(t)	23,35%	-11,59%
ES - SCI(t)	23,37%	-11,41%

simulated EAC accuracy		
Method - PF	MAPE (%)	MPE (%)
1	2,16%	-2,16%
CPI	1,97%	-1,97%
SPI	26,99%	26,15%
SPI (t)	18,55%	13,64%
SCI	27,06%	26,23%
SCI (t)	18,65%	13,74%
0.8 CPI + 0.2 SPI	17,83%	16,94%
0.8 CPI + 0.2 SPI (t)	5,15%	3,99%