

	Case Name: Gas Pipeline	Sector	Construction (Industrial)	
	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	Forough & Rojin		One of nine std. scenarios	
Date	2020		User defined distributions	
File Name	Gas Pipeline	Project Control	Automatic tracking	
			Tracking based on user input	

## 1. Project description

Project Authenticity

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

## 2. Project properties

### 2.1. Baseline schedule

General	
# Activities	153
Planned Duration (PD)	293 days*
Budget at Completion (BAC)	644,405 €
Renewable Resources	-
Consumable Resources	-

Network Topology	
Serial/Parallel (SP)	35%
Activity Distribution (AD)	56%
Length of Arcs (LA)	0%
Topological Float (TF)	57%

\* 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	7.22	9.55	2.8
CRI-rho	23.65	19.90	0.5
CRI-thau	40.18	42.36	0.7

	Resource sensitivity		
	avg (%)	std dev (%)	skew (-)
CRI-r	18.74	18.58	1.8
CRI-rho	24.00	19.90	1.2
CRI-thau	22.79	42.36	2.1

	Time sensitivity		
	avg (%)	std dev (%)	skew (-)
CI	26.3	43.3	1.1
SI	30.9	40.5	1.0
SSI	2.2	7.2	7.7
CRI-r	6.7	9.9	3.4
CRI-rho	23.3	20.6	0.5
CRI-thau	40.8	42.0	0.6

### 3. Project control

#### 3.1 simulated forecast accuracy

simulated EAC (t) accuracy		
Method - PF	MAPE (%)	MPE (%)
PV - 1	6.12	5.75
PV - SPI	23.37	23
PV - SCI	23.6	23.5
ED - 1	10.4	10
ED - SPI	23.37	23
ED - SCI	23.45	23
ES- 1	5.5	5.6
ES- SPI(t)	16.75	16.5
ES - SCI(t)	16.90	16.6

simulated EAC accuracy		
Method - PF	MAPE (%)	MPE (%)
1	0.5	-0.2
CPI	1	0
SPI	17.37	16.8
SPI (t)	12.25	12.3
SCI	17.5	17
SCI (t)	12.48	12.4
0.8 CPI + 0.2 SPI	5.3	5.4
0.8 CPI + 0.2 SPI (t)	3.5	3.5