

	Case Name: <b>Eating Belgium</b>	Sector	Event Management
	<b>OR-AS</b> Operations Research - Applications and Solutions <a href="http://www.or-as.be">www.or-as.be</a> <a href="mailto:info@or-as.be">info@or-as.be</a>	Baseline Schedule	Schedule with resources
Submitted by	Wouter Van Damme	Risk Analysis	Schedule with costs
Date	December 16, 2011		Random simulation
File Name	C2011-11 Eating Belgium.p2x	Project Control	One of nine std. scenarios
			User defined distributions
			Automatic tracking
			Tracking based on user input

## 1. Project description

Project authenticity

The organization of a culinary event with chefs presenting Belgian cuisine.

The project consists of activity, resource and cost data that were created by the user.

## 2. Project properties

### 2.1. Baseline Schedule

General	
# Activities	24
Planned Duration (PD)	299 days*
Budget At Completion (BAC)	37.760 €
Renewable Resources	2
Consumable Resources	-

\* standard eight-hour working days

Network topology	
Serial/Parallel (SP)	30%
Activity Distribution (AD)	42%
Length of Arcs (LA)	18%
Topological Float (TF)	14%

### 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	13.3	17.6	3.6
CRI-rho	15.0	19.1	3.0
CRI-tau	25.6	23.3	1.6

	Resource sensitivity		
	avg [%]	std dev [%]	skew [-]
CRI-r	50.0	50.0	N/A
CRI-rho	75.0	25.0	N/A
CRI-tau	100.0	0.0	N/A

	Time sensitivity		
	avg [%]	std dev [%]	skew [-]
CI	33.3	47.1	0.8
SI	38.1	44.8	0.6
SSI	7.8	18.4	3.0
CRI-r	15.4	17.2	2.7
CRI-rho	17.1	18.1	2.3
CRI-tau	27.0	21.4	1.7

## 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) have 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	4.6	4.4
PV - SPI	46.3	46.1
PV - SCI	46.8	46.3
ED - 1	48.3	48.1
ED - SPI	46.3	46.1
ED - SCI	46.3	46.1
ES - 1	17.7	17.6
ES - SPI(t)	28.8	28.6
ES - SCI(t)	28.9	28.7

Simulated EAC accuracy		
method (PF)	MAPE [%]	MPE [%]
1	2.5	-0.6
CPI	3.8	-0.4
SPI	41.4	41.3
SPI(t)	26.7	26.3
SCI	41.5	41.4
SCI(t)	27.0	26.5
0.8 CPI + 0.2 SPI	18.4	18.2
0.8 CPI + 0.2 SPI(t)	13.1	12.0

According to the MAPE values<sup>1</sup> the best performance for time forecasting can be expected from the unweighted Planned Value method. For cost forecasting the unweighted method should yield the best results.

### 2.3.2. Tracking description

The user has not performed any project control and therefore no tracking periods have been defined. Tracking periods can now be generated automatically by ProTrack or by manually inputting tracking data period by period.

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<sup>1</sup> The MAPE gives the best indication for the forecast accuracy (the lower the MAPE, the more accurate the method) since all deviations from the targeted real duration (real cost) are cumulated, whereas for the MPE underestimates can be compensated by overestimates and vice versa, possibly leading to an overly positive evaluation of a certain method. However, the MPE can provide useful information about the nature of the deviations, i.e. does the method rather underestimate or overestimate the real duration (real cost)?