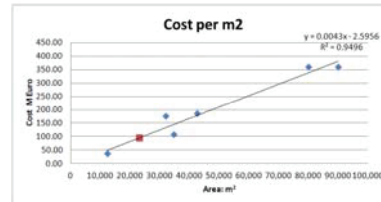
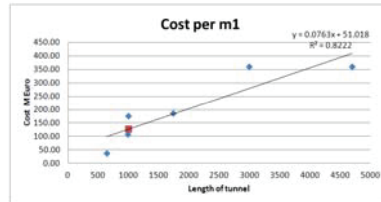


PE Challenge



- Determine correlation



- Validate correlation
m1: R^2 0.822

m2: R^2 0.949

- Estimate the new object

Name	Location	Cost	Characteristics			
			Area	Predicted Cost [M€]		Excluding Outlier
Bridge		[M€]	[m ²]	[m ²]	Data Set	
A		185.00	42.500	42.500	178.62	178.62
B		38.59	12.300	12.300	49.85	49.85
C		107.00	34.650	34.650	145.15	145.15
D		360.00	79.900	79.900	338.10	338.10
E		360.00	79.900	90.000	381.16	381.16
F		176.31	32.000	32.000	133.85	133.85
Forecast			23,000	95.48	95.48	

Parametric Estimating Extended



- Single correlation (2 parameters)
PE Example
 $y = 0.0043x - 2.5956$
- Multiple correlation
(multiple interdependent parameters)

Key Inputs

Input	Definition
S_e	Effective Size.
C_w	Effective Technology.
D	Staffing Complexity.
PK	Staff Loading, which represents the place on the staffing curve where staff peaks.
F_c	Staff Loading Scale Factor, computed from PK .

Key Outputs

Output	Definition
E	Life Cycle Effort, or the total area under the staffing curve.
t_p	Schedule to the peak of the staffing curve.



Staffing Rate with the Front Loaded Rayleigh

Staffing rate is defined as the derivative of the staffing curve at time = 0. The derivative of the staffing curve with the front loading parameters is:

$$p'(t) = \frac{F_c K}{(PK \% t_d)^2} \left(e^{\left(\frac{-t^2}{2(PK \% t_d)^2} \right)} + \left(\frac{-2t^2}{2(PK \% t_d)^2} \right) e^{\left(\frac{-t^2}{2(PK \% t_d)^2} \right)} \right)$$

SEER SEM "Base" settings



- Component structure

Parameters	Function Based Sizing	Project Monitor & Control Snapshots	Labor Category Allocation		
			Least	Likely	Most
PROGRAM: Traffic Control Algorithms					
Function Implementation Mechanism					
Programs Included In Size					
FUNCTIONS (Classic)					
NEW					
— New Functions			450	550	700
— Software phase at estimate			Done		
— Pre-exists, not designed for reuse			0	0	0
— Pre-existing functions			0	0	0
— Funcs to be deleted in pre-existg			0	0	0
— Software phase at estimate			Done		
— Redesign required			5.00%	10.00%	40.00%
— Reimplementation required			1.00%	5.00%	10.00%
— Retest required			10.00%	40.00%	100.00%
— Pre-exists, designed for reuse			0	0	0
— Pre-existing functions			0	0	0
— Funcs to be deleted in pre-existg			0	0	0
— Software phase at estimate			Done		
— Redesign required			1.00%	5.00%	10.00%

- Minimal Requirements:
 - Size
 - Technology
 - General Characteristics ("Environment")

SEER SEM "Environment" settings



- Manual

Parameters	Function Based Sizing	Project Monitor & Control Snapshots	Labor Category Allocation			Note
			Least	Likely	Most	
PROGRAM: New Development						
PERSONNEL CAPABILITIES & EXPERIENCE						
— Analyst Capabilities			Nom-	Nom+	Hi	Build previous version
— Analyst's Application Experience			Hi	Hi	Hi	
— Programmer Capabilities			Low	Nom	Hi	
— Programmer's Language Experience			Nom	Hi	Hi	
— Development System Experience			Hi	Hi	Hi	Build previous version
— Target System Experience			Hi	Hi	Hi	Build previous version
— Practices & Methods Experience			Nom	Hi	Hi	
DEVELOPMENT SUPPORT ENVIRONMENT						
— Development Practices Use			Nom-	Nom	Nom+	
— Automated Tools Use			Hi	Hi	Hi	Framework available
— Turnaround Time			Lo	Low-	Nom	
— Response Time			Low-	Nom+	Hi	
— Multiple Sites Development			Hi	Hi	Hi	

2	LEXP	Low-	Nom	Hi	2.00	1.00	0.40	1.07	(0.31)	(0.22)
3	DEXP	Low-	Nom	Hi	2.00	1.00	0.40	1.07	(0.31)	(0.22)
4	TEXP	Low-	Nom	Hi	2.00	1.00	0.40	1.07	(0.31)	(0.22)
5	PEXP	Low-	Nom	Hi	0.40	1.00	2.00	1.07	0.22	0.31

- Help

Development System Experience

Development team average years of experience with development computers, operating systems, job control languages, and other items used to develop the software, as of development start.

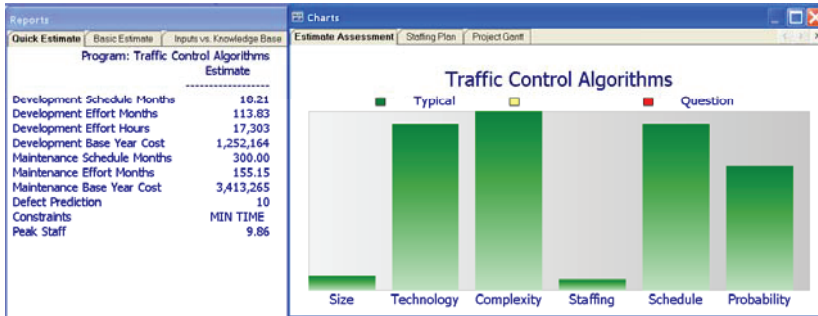
Rating	Description
Extra High	More than 4 Years Average
Very High	3 Years Average
High	2 Years Average
Normal	1 Year Average
Low	4 Months Average
Very Low	Less than 4 Months Average

See Also: [Development System Validity](#)
[Development System Complexity](#)

Tunnel Safety System



- Estimate



- Results:
Effort / Cost
Schedule
Quality (Defects)
Both for Development & Maintenance (25 years)

External Validation



- Benchmark estimate with ISBSG

