

CIJENA APLIKACIJE



Zašto softver toliko košta

Dubravka Mendeš Poljak, Grad Zagreb

AGENDA

- Procjena
- Faktori
- Metrike
- Alati
- U praksi



Procjena



Koliko ste dobar procjenitelj



- 1) _____ - _____ Temperatura površine sunca
- 2) _____ - _____ Latituda Shanghai
- 3) _____ - _____ Veličina područja Azijskog kontinenta
- 4) _____ - _____ Godina rođenja Aleksandra Velikog
- 5) _____ - _____ Iznos količine dolara u cirkulaciji 2004.
- 6) _____ - _____ Ukupan volumen Velikog Jezera
- 7) _____ - _____ Ukupna svjetska zarada filma Titanik
- 8) _____ - _____ Ukupna dužina obale Pacifičkog oceana
- 9) _____ - _____ Broj knjiga objavljenih u U.S. od 1776.
- 10) _____ - _____ Najveća zabilježena težina plavog kita

Koliko ste dobar procjenitelj

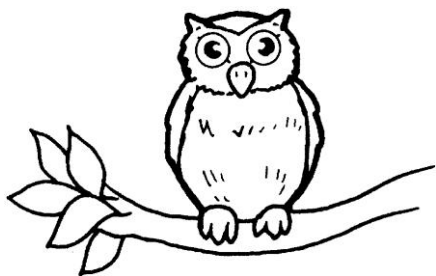


- 1) 6000°C Temperatura površine sunca
- 2) 31°14' N Latituda Shanghai
- 3) 44 390 000 km² Veličina područja Azijskog kontinenta
- 4) 356 BC Godina rođenja Aleksandra Velikog
- 5) \$719.9 milijardi Iznos količine dolara u cirkulaciji 2004.
- 6) 23 000 km³ Ukupan volumen Velikog Jezera
- 7) \$1.835 milijardi Ukupna svjetska zarada filma Titanik
- 8) 135 663 km Ukupna dužina obale Pacifičkog oceana
- 9) 22 mil. Broj knjiga objavljenih u U.S. od 1776.
- 10) 170 t Najveća zabilježena težina plavog kita

Faktori



Manualna procjena



- Pravilo palca
- Iskustvo
- Povijesni podaci



Metrike

- Linije koda
- Funkcijske točke
- Objektne točke
- Slučajevi upotrebe (Use Case)



Alati

- COCOMO II
- SEER-SEM
- QSM-SLIM
- PRICE-S
- Checkpoint
- Estimatic



A fool with a tool is still a fool!

COCOMO II

USC-COCOMO II. 2000.0 - Untitled

File Edit View Parameters Calibrate Phase Mainten

Project Name: **Magistarski rad**

Scale Factors

Precedentedness	NOM	3.72
Development Flexibility	NOM	3.04
Architecture / risk resolution	NOM	4.24
Team cohesion	NOM	3.29
Process maturity	NOM	4.68

OK Cancel Help

Scale Factor Parameters - Default values used

	VLO	LO	NOM	HI	VHI	XHI
PREC	6.20	4.96	3.72	2.48	1.24	0.00
FLEX	5.07	4.05	3.04	2.03	1.01	0.00
RESL	7.07	5.65	4.24	2.83	1.41	0.00
TEAM	5.48	4.38	3.29	2.19	1.10	0.00
PMAT	7.80	6.24	4.68	3.12	1.56	0.00

OK Reset Cancel Help

Platform Parameters - Default model values used

	VLO	LO	NOM	HI	VHI	XHI
TIME	XXXX	XXXX	1.00	1.11	1.29	1.63
STOR	XXXX	XXXX	1.00	1.05	1.17	1.46
PVOL	XXXX	0.87	1.00	1.15	1.30	XXXX

OK Reset Cancel Help

or code. Most Likely Pessimistic

Ready

COCOMO II

USC-COCOMO II.2000.0 - Untitled

File Edit View Parameters Calibrate Phase Maintenance Help

Project Name: Scale Factor Schedule

Development Model:

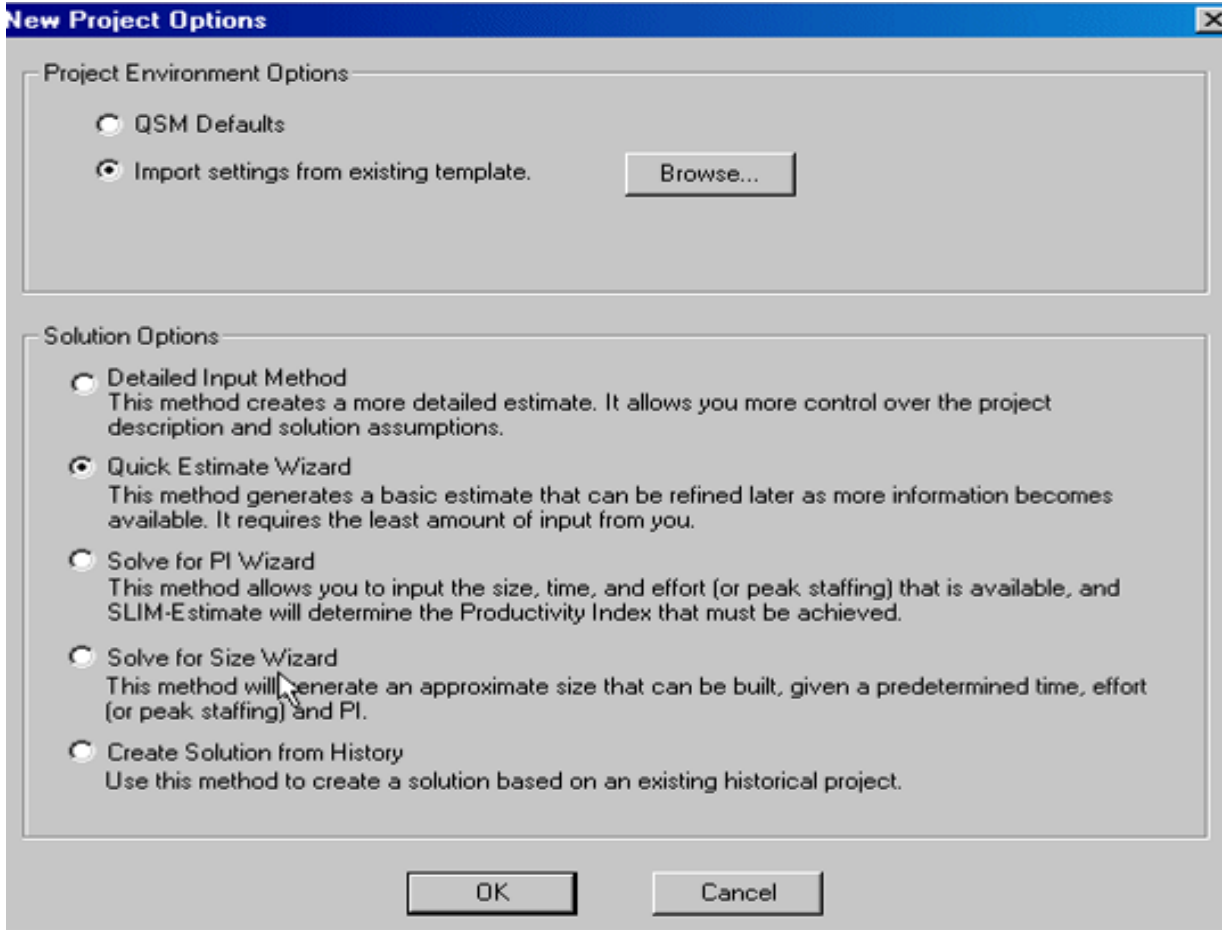
X	Module Name	Module Size	LABOR Rate (\$/month)	EAF	Language	NOM Effort DEV	EST Effort DEV	PROD	COST	INST COST	Staff	RISK
	Primjer 1	S:2500	0.00	1.00	Object-Orient	8.1	8.1	310.4	0.00	0.0	1.1	0.0

Total Lines of Code:

Estimated	Effort	Sched	PROD	COST	INST	Staff	RISK
Optimistic	6.4	6.6	388.1	0.00	0.0	1.0	
Most Likely	8.1	7.1	310.4	0.00	0.0	1.1	0.0
Pessimistic	10.1	7.6	248.4	0.00	0.0	1.3	

Ready

SLIM

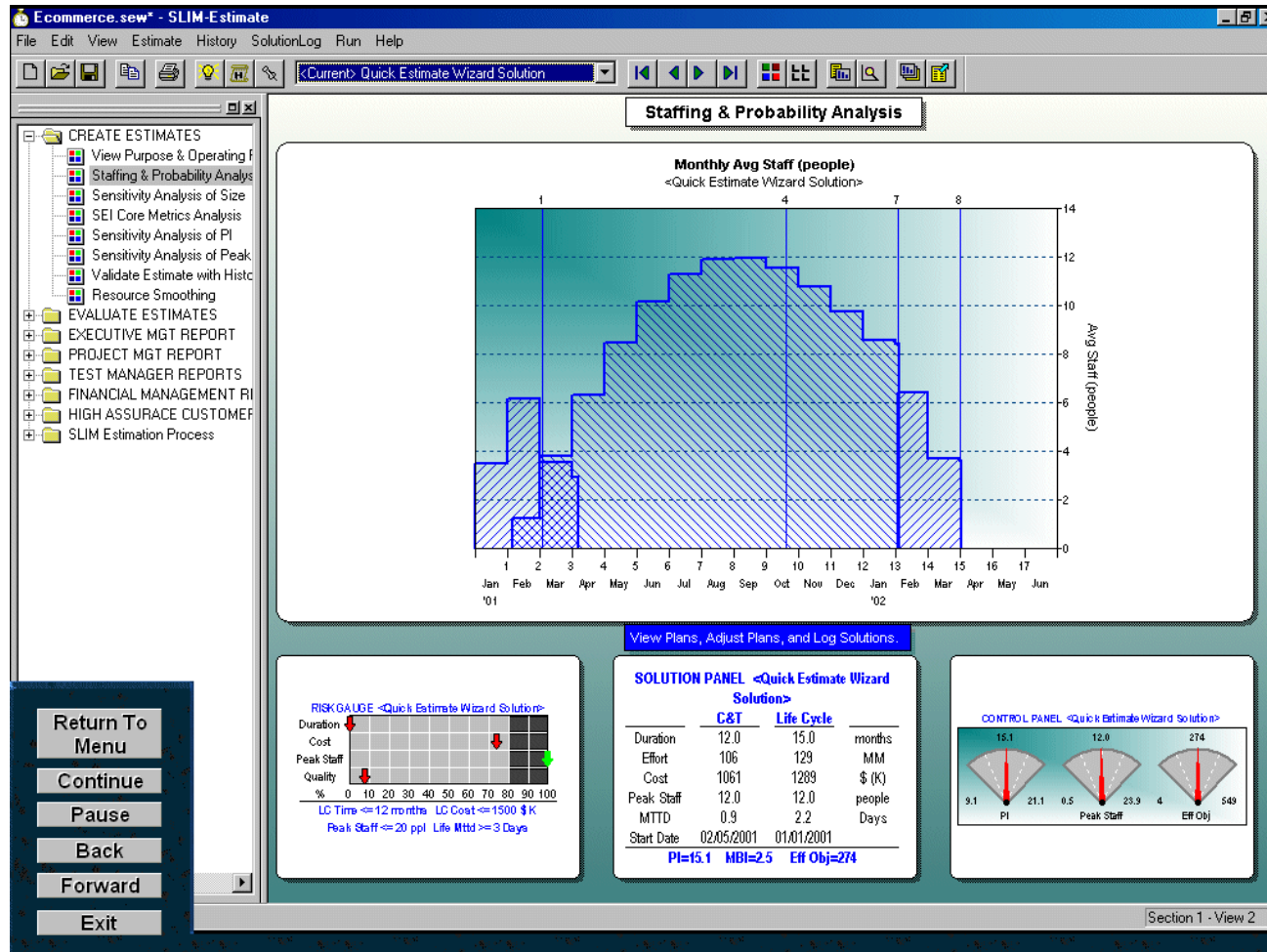
A screenshot of a software dialog box titled "New Project Options". The dialog has a blue title bar with a close button (X) in the top right corner. It is divided into two main sections: "Project Environment Options" and "Solution Options".

The "Project Environment Options" section contains two radio buttons: "QSM Defaults" (unselected) and "Import settings from existing template." (selected). To the right of the second option is a "Browse..." button.

The "Solution Options" section contains five radio buttons, each with a descriptive text block below it:
1. "Detailed Input Method": This method creates a more detailed estimate. It allows you more control over the project description and solution assumptions. (Unselected)
2. "Quick Estimate Wizard": This method generates a basic estimate that can be refined later as more information becomes available. It requires the least amount of input from you. (Selected)
3. "Solve for PI Wizard": This method allows you to input the size, time, and effort (or peak staffing) that is available, and SLIM-Estimate will determine the Productivity Index that must be achieved. (Unselected)
4. "Solve for Size Wizard": This method will generate an approximate size that can be built, given a predetermined time, effort (or peak staffing) and PI. (Unselected)
5. "Create Solution from History": Use this method to create a solution based on an existing historical project. (Unselected)

At the bottom of the dialog are two buttons: "OK" and "Cancel".

SLIM



SEER SEM



The screenshot displays the SEER SEM software interface. The main window is titled 'trading.prj - SEER-SEM'. The left pane shows a Project WBS tree with the following structure:

- Trading Support System
 - SEER SEM Projcena
 - 1.1.1 Analyza
 - 1.1.1.1 Analysis and Query
 - 1.1.1.2 Screen Interface Lib
 - 1.1.2 Data Mining Solution
 - 1.1.2.1 Interfacing Software
 - 1.1.2.2 Off-The-Shelf Cognit
 - 1.1.2.3 COTS component
 - 1.1.3 Trading Support
 - 1.1.3.1 "Tactician"
 - 1.1.3.1.1 GAUSS Interfac
 - 1.1.3.1.2 GAUSS Glue Co
 - 1.1.3.2 "Strategician"
 - 1.1.4 Client-Server Support In
 - 1.1.5 Report System (SQL)
 - Chicago Hemisphere
 - 1.2.1 Prices Database
 - 1.2.2 Intranet Library (Pair)
 - 1.2.3 Report System

The right pane shows 'Parameters - Program: Data Mining Solution' with a table of 'New Lines of Code' for different levels of effort:

Level	1,000	1,500	2,000
- Pre-exists, not designed for reuse	0	0	0
- Pre-existing lines of code	0	0	0
- Lines to be deleted in pre-exstg	0	0	0
- Redesign required	0.00%	0.00%	0.00%

The 'Create/Modify WBS Element' dialog box is open, showing the following details:

- Description: SEER-SEM Projcena
- Analyst: Dubrovka
- Element Types: Rollup, Program, Component, COTS, Unit
- Sizing Options: Lines, Functions, Others
- Platform: Business and Non-Critical MIS
- Application: Financial Transactions
- Acquisition Method: New Development
- Development Method: Waterfall
- Development Standard: Commercial Low
- Class: No Knowledge
- Created Date: 8.10.10, Time: 22:02:43

The bottom right pane shows a bar chart titled 'Data Mining Solution' with a legend for 'Question'. The chart has six bars labeled 'Size', 'Tech', 'Cnpl', 'Staff', 'Sched', and 'Prob'. The 'Cnpl' bar is the tallest, followed by 'Sched', 'Staff', 'Prob', 'Tech', and 'Size'.

Usporedba procjene

Automatski alati	Manualna procjena
✓ Poznato je odakle podaci dolaze	× Stvaranje krivih asocijacija
✓ Poznati su faktori uključeni u procjenu	× Odabir pogrešnih činjenica
✓ Definirani načini određivanja veličine	× Korištenje dostupnih i zabilježenih podataka
✓ Sistematizirani podaci ✓ Definirani algoritmi ✓ Definirane formule ✓ Definirane metrike	× Mogućnost korištenja pogrešnih podataka
✓ Unificirano tumačenje faktora	× Nekompletnost podataka

Usporedba procjene

Automatski alati	Manualna procjena
Caper Jones, komparacija 50 projekata	
✓ 22 projekta	✓ 4 projekta
precizno predviđanje neprogramskog dijela	Optimistične procjene: <ul style="list-style-type: none">▪ rasta zahtjeva▪ ocijene napora▪ dokumentacije▪ testiranja manji troškovi, rokovi
✓ 28 (3 projekta više od 25%)	✓ 46 (29 projekta više od 30%)

Istraživanje hrvatskih SW kuća

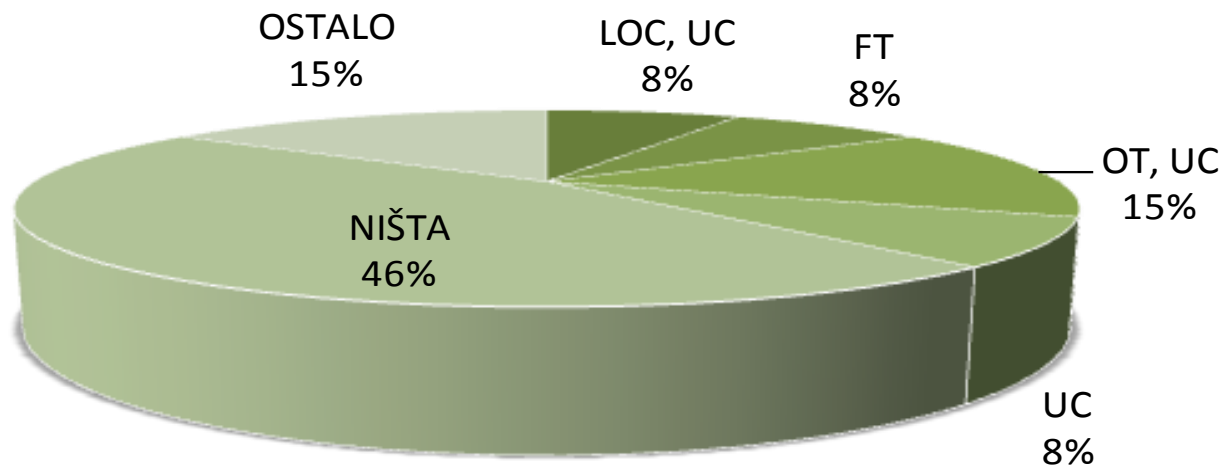


- Koliko su hrvatski proizvođači softvera upoznati s metrikama i alatima za procjenu troškova?
- Na koji način vrše procjenu troškova?
- Koliko izbor metrike i alata ovisi o vrsti softvera i korištenim tehnologijama?
- Utječe li način procjene na uspjeh projekta?
- Dolazi li do prekida razvoja softvera zbog loše procjene?

- 46% hrvatskih softverski kuća ne koristi niti jednu metriku pri procjeni

- *nisu upoznati s metrikama za procjenu*
- *metrike ne pomažu pri procjeni*
- *nedostatak educiranih osoba*

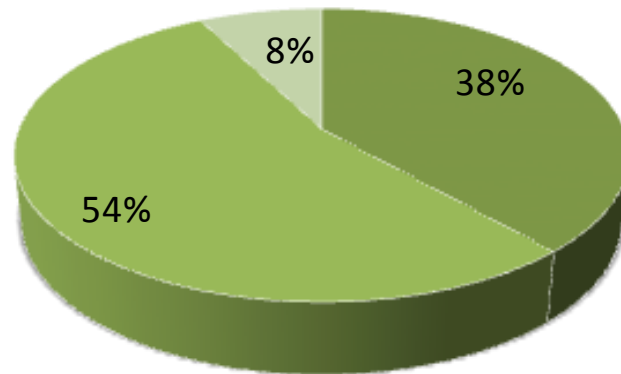
Metrike



- 77% hrvatski softverski kuća ne koristi niti jedan alat za procjenu

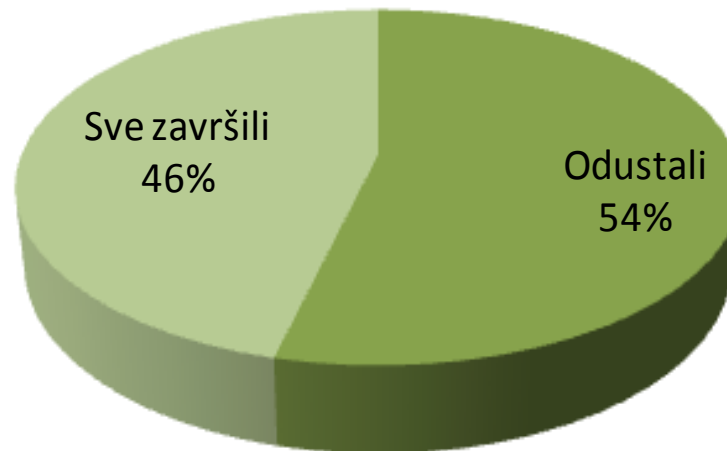
- *nisu upoznata s takvim alatima*
- *alati nisu potrebni za procjenu*

Važnost procjene

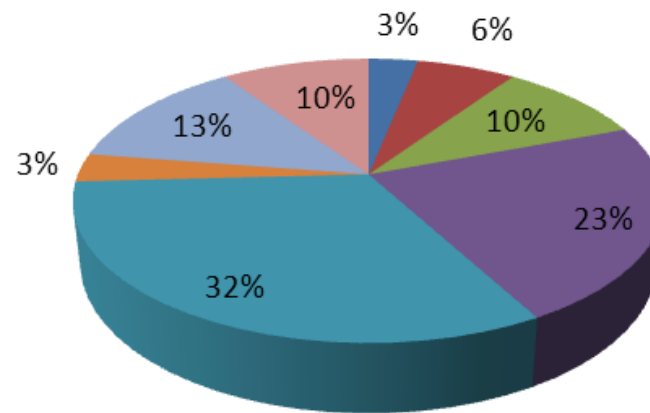


■ jako važno ■ važno ■ umjereno važno

Prekid razvoja softvera



Prekid razvoja softvera



- nedovoljan broj alociranih resursa
- loše ili nerealno postavljene zahtjeve
- loše vođenje projekta
- politička odluka
- loša procjena izvodljivosti
- loša procjena troškova
- bez odgovora
- otpor projektu

ZAKLJUČAK

- Kombinacija alata i metrika
- Razumijevanje područja procjene
- Razumijevanje vlastitih mogućnosti
- Povećanje uspješnosti završetka projekta



HVALA NA PAŽNJI!
PITANJA



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