



The Black Art...

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Definition

“Art forms by persons of African descent (related: African art, African literature, African film, African American studies, African American art, African American literature, African American film, BLK Art Group Caribbean art, Caribbean literature, Caribbean film etc.)”, by Wikipedia



...well, not really, just focus on...



...Software Estimation

Count Compute Judge

How many people do we have here?

Estimate

- Definition
 - Steve McConnell: *“A good estimate is an estimate that provides a clear enough view of the project reality to allow the project leadership to make good decisions about how to control the project to hit its targets.”*
- Definition (sort of)
 - Range
 - Probability associated
 - Usefulness over perfect accuracy

How would you start estimating a project?

Why splitting works?

- You might think that smaller tasks are just easier to estimate – this might be true for very big projects, but for our every day projects we'd make most probably the same errors for bigger and smaller tasks (if we do it carefully).

It reminds us about necessary steps.

The law of big numbers

- But the individual estimates must not be systematically biased!
- It is better to use two numbers – minimal and maximal (or even add a third – the most likely estimation).
- You can also compute variance etc.
- But the real point is to have individual estimates that are not skewed in one direction.

What we can count?

- Story points
- Screens
- Database tables
- Features
- Defects
- Everything that is correlated with effort

The cone of uncertainty

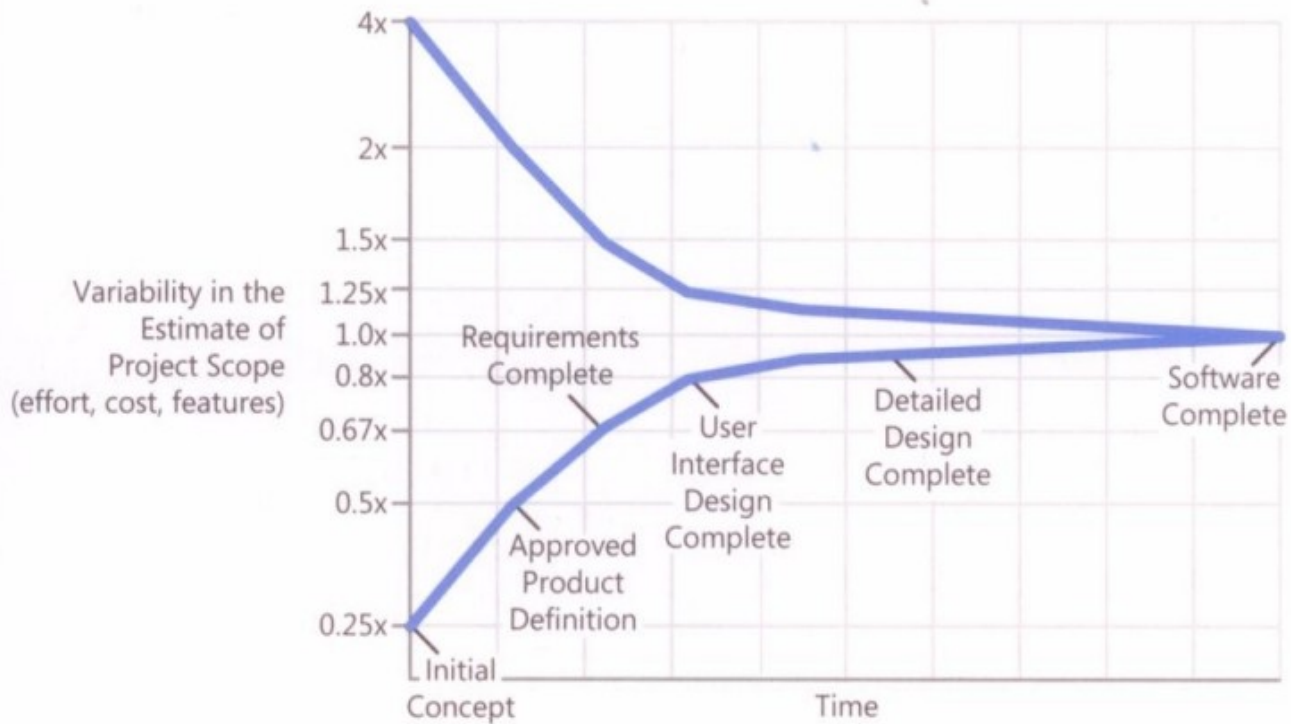


Figure 4-2 The Cone of Uncertainty based on calendar time. The Cone narrows much more quickly than would appear from the previous depiction in Figure 4-1.

How we calculate the effort estimation from the counts?

- Industry data
- Historic data of the organization involved, or better from the same project

How good estimator are you?

Fill in the upper and lower bounds that, in your opinion, give you **90% chance** of including the correct value

Table 2-1 How Good an Estimator Are You?

[Low Estimate – High Estimate]	Description
[_____ – _____]	Surface temperature of the Sun
[_____ – _____]	Latitude of Shanghai
[_____ – _____]	Area of the Asian continent
[_____ – _____]	The year of Alexander the Great's birth
[_____ – _____]	Total value of U.S. currency in circulation in 2004
[_____ – _____]	Total volume of the Great Lakes
[_____ – _____]	Worldwide box office receipts for the movie <i>Titanic</i>
[_____ – _____]	Total length of the coastline of the Pacific Ocean
[_____ – _____]	Number of book titles published in the U.S. since 1776
[_____ – _____]	Heaviest blue whale ever recorded

Source: Inspired by a similar quiz in *Programming Pearls*, Second Edition (Bentley 2000).

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How good estimator are you?

Item	Answer
Surface temperature of the Sun	10,000°F/ 6,000°C
Latitude of Shanghai	31 degrees North
Area of the Asian continent	17,139,000 square miles
	44,390,000 square kilometers
The year of Alexander the Great's birth	356 BC
Total value of U.S. currency in circulation in 2004	\$719.9 billion*
Total volume of the Great Lakes	5,500 cubic miles
	23,000 cubic kilometers
	8×10^{14} cubic feet
	2.3×10^{13} cubic meters
	6×10^{15} U.S. gallons
	2.3×10^{16} liters
Worldwide box office receipts for the movie <i>Titanic</i>	\$1.835 billion*
Total length of the coastline of the Pacific Ocean	84,300 miles
	135,663 kilometers
Number of book titles published in the U.S. since 1776	22 million
Heaviest blue whale ever recorded	380,000 pounds
	190 English tons
	170,000 kilograms
	170 metric tons

* Billions are U.S. billions (that is, 10^9) rather than British billions (10^{12}).

Standardization

Politics

The difference between estimation, commitment and target.

Science vs Art of estimation

- Science
 - $\pm 5\%$ accurate estimates
 - Mathematically intensive
 - Understanding requires indepth study
 - Using them may require a lot of effort
- Art
 - $\pm 25\%$ accurate estimates (usually good enough anyway)
 - Simple formulas, procedures and rules of thumb
 - Easily understandable and in use

Estimating

- Is it worth estimating at all?

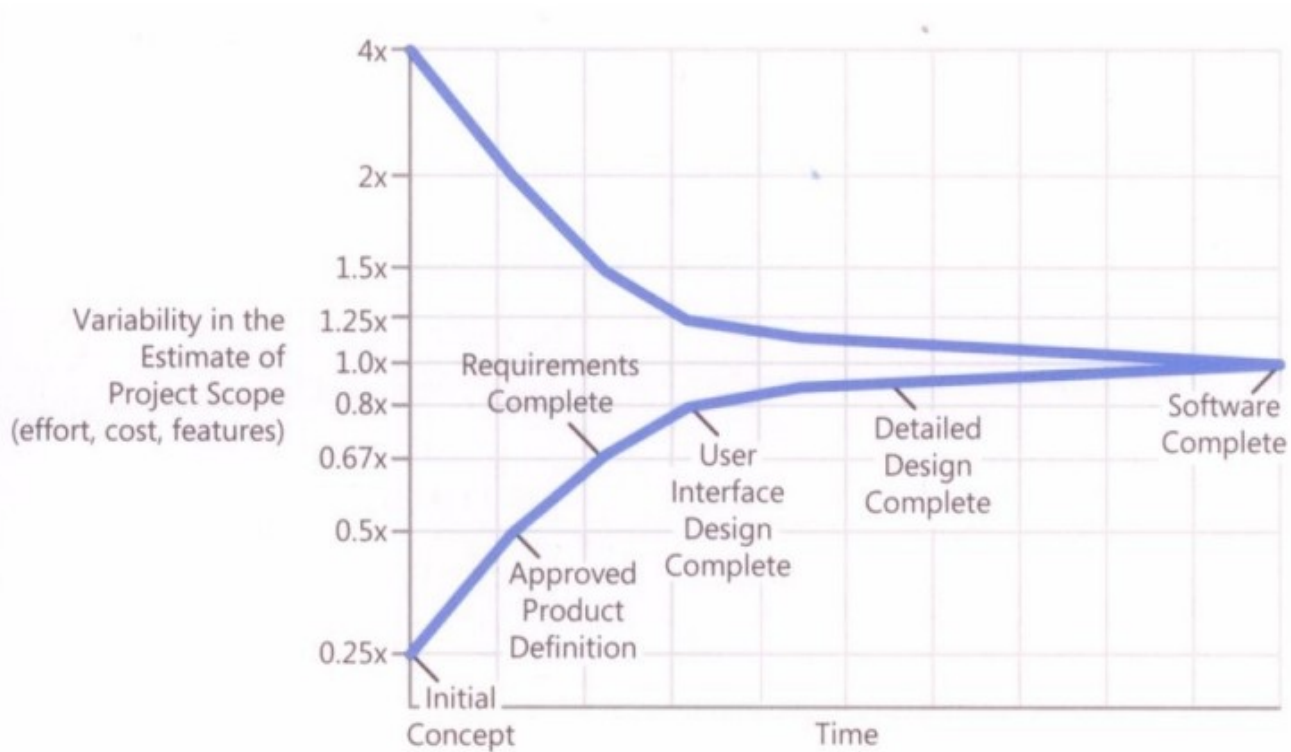


Figure 4-2 The Cone of Uncertainty based on calendar time. The Cone narrows much more quickly than would appear from the previous depiction in Figure 4-1.

Estimating

- Overestimation
 - Parkinson's Law: work will expand to fill available time
 - Student Syndrome: much of the work shifts towards the end of available time
- Underestimation
 - Reduces effectiveness of project plans
 - Reduces the chance of on time-completion
 - Leads to spending too little time on requirements/design
 - More additional work to get project back on plan

Estimating

- Underestimation vs Overestimation

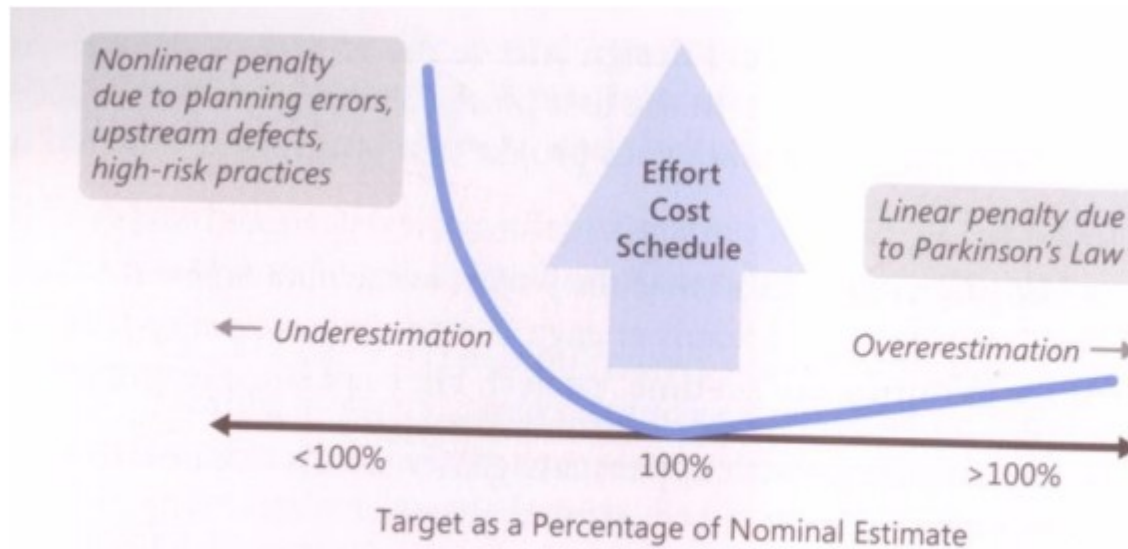


Figure 3-1 The penalties for underestimation are more severe than the penalties for overestimation, so, if you can't estimate with complete accuracy, try to err on the side of overestimation rather than underestimation.

Golden rules

- Remember what an estimate is
 - check definition
- Do not give off-the-cuff estimates
 - count, don't guess
- Do not reduce developer estimates
 - they are already too optimistic
- Be careful when you present your estimation
 - precision (578,7 days vs 600 days)
- Distinguish between estimate, commitment and target
- Re-estimate
- Practice

References

- Steve McConnell “Software Estimation: Demystifying the Black Art”, Microsoft Press
- http://en.wikipedia.org/wiki/African_art
- http://en.wikipedia.org/wiki/File:African_Art_Display.jpg

Q&A