

MANAGEMENT REVIEW

Management without theatre.

STRATEGY

WHY PROJECTS RUN LATE AND OVER BUDGET

A textbook planned for two years that took eight, how few projects hit budget and time, the inside and the outside view, error or misrepresentation, what counts as success, and a card for an estimate.



8.5%

of more than 16,000 projects came in on budget and on time; 0.5% also delivered the benefits promised.

FLYVBJERG & GARDNER, 2023

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Most projects are approved on an estimate made by the people who want to do them. The estimate is built from the plan, step by step, and it rarely asks how similar projects turned out. This issue is about that question and the number it gives.

Daniel Kahneman's team expected a textbook in about two years and finished it in eight. In Bent Flyvbjerg's database of more than 16,000 projects, 8.5% came in on budget and on time. Dan Lovallo and Kahneman blamed the inside view, built from the plan alone; Flyvbjerg added deliberate underestimation. Both point to the same remedy, reference class forecasting.

Stiven Janaqi EDITOR · STIVEN CATALYST

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HOW TO READ THIS ISSUE

Figure

Every figure has its source and year at the foot of its page.

Our reading

Where the editors interpret rather than the research, it says so.

Practice

The steps and the card are proposals to try, not research results.

COVER STORY

Two years that became eight

In the 1970s Daniel Kahneman led a team writing a curriculum and a textbook on judgment and decision making for Israeli high schools. One day he asked each member how long they thought it would take to finish the book.

The answers centred on two years, from one and a half to two and a half. Then he asked Seymour Fox, a curriculum expert on the team, how other teams had done. About 40% never finished, Fox said, and none of the rest took less than seven years or more than ten. His own estimate had been well within the group's optimistic consensus.

“We're below average, but not by much.”

That was Fox's view of the team against the others. The team carried on as if nothing had happened. The book was finished eight years later.

OUR READING

Fox had the record in his head. It came out only when the question was about other teams, not about this one.

Source: Daniel Kahneman, McKinsey Quarterly, 2011

Kahneman's own account, in an excerpt of *Thinking, Fast and Slow* published by McKinsey Quarterly (2011). Lovallo and Kahneman (2003) call this the planning fallacy; for the thesis study that measured it, see No. 44.

THE NUMBERS

On budget and on time

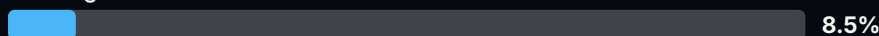
Bent Flyvbjerg and his colleagues have collected cost and schedule data on more than 16,000 projects in over 20 fields and 136 countries, going back to 1910. In *How Big Things Get Done* (2023) he and Dan Gardner count how many hit all three marks.

PROJECTS IN THE FLYVBJERG DATABASE, SHARE (2023)

Over budget, late, or both



On budget and on time



...and with the benefits promised

**27%**

average cost overrun in 1,471 IT projects (Flyvbjerg & Budzier, 2011)

1 in 6

was a black swan: costs 200% over on average, schedule almost 70% over

OUR READING

The average is not the risk. The risk is the one project in six that goes far beyond it.

Sources: Bent Flyvbjerg & Dan Gardner, 2023 (via Reviews and summaries of the book); Bent Flyvbjerg & Alexander Budzier, Harvard Business Review 89(9), 2011

The database holds projects of every size, most of them large; it is a collection, not a random sample. We read the book's figures in reviews of it, not in the book itself.

THE MODEL

The inside and the outside view

Dan Lovallo and Daniel Kahneman (2003) trace bad forecasts to the inside view: the estimate is built from the project's own tasks and obstacles. The outside view sets those aside and asks how similar projects turned out. Flyvbjerg (2006) set it out in three steps.



EDINBURGH TRAM LINE 2, COST FORECAST IN £ MILLION



OUR READING

A reserve sized by hope is spent before the work begins. Size it from the record.

Sources: Dan Lovallo & Daniel Kahneman, Harvard Business Review 81(7), 2003; Bent Flyvbjerg, Project Management Journal 37(3), 2006

An early use of the method: 46 comparable rail projects. The promoters' £320 million already held 25% for contingency; the class asked for 40% or 57%. A planning forecast; we report no outcome.

[More in the essay](#)

High-volume days: the standard under pressure

WHAT THE RESEARCH SAYS

Error or misrepresentation?

Optimism, in Lovallo and Kahneman's account, is an honest delusion. Flyvbjerg names a second cause, strategic misrepresentation. His evidence came from 258 transport projects worth US\$90 billion (2002).

AVERAGE COST OVERRUN BY TYPE, 258 TRANSPORT PROJECTS (2002)

All projects



Rail (58 projects)



Bridges and tunnels (33)



Roads (167)



The authors weighed technical, economic, psychological and political explanations. Underestimation, they concluded, cannot be explained by error and is best explained by strategic misrepresentation, that is, lying.

OUR READING

Both causes have one remedy: an estimate checked against the record by someone who does not need the project approved.

Sources: Bent Flyvbjerg, Mette Skamris Holm & Søren Buhl, Journal of the American Planning Association 68(3), 2002; Dan Lovallo & Daniel Kahneman, Harvard Business Review 81(7), 2003

The 2002 sample covers transport only, and a statistical pattern does not prove intent in a single case.

HOW IT IS MEASURED

Against which number?

An overrun depends on its baseline. Flyvbjerg and his colleagues judge a project against the estimates used to decide whether to build it. Flyvbjerg and Gardner then count three marks at once.

01	Cost	actual cost against the estimate at the decision
02	Time	actual finish against the date promised at the decision
03	Benefits	what the project delivers against what its case promised

“The cost estimates used to decide whether important infrastructure should be built are highly and systematically misleading.”

OUR READING

A budget re-based halfway through can make a late, costly project look on plan. Keep the numbers from the day of the decision, and choose the measure before the project starts.

Sources: Bent Flyvbjerg, Mette Skamris Holm & Søren Buhl, Journal of the American Planning Association 68(3), 2002; Bent Flyvbjerg & Dan Gardner, 2023 (via Reviews and summaries of the book)

The quote is from the abstract of Flyvbjerg, Holm and Buhl (2002), 258 transport projects. The three rows are our summary of these baselines; the 2023 figures are on page 4.

TOOL OF THE ISSUE

The outside-view card

Fill it in before the estimate is approved: first the inside view, then the record, then the gap. Afterwards log the planned and the actual dates; Delay Analyzer keeps the same kind of log for routes.

01 Inside view our cost and time, built from the plan

02 Reference class similar finished projects, ours or others', and how many

03 What they took typical and worst overrun in cost and time

04 Our position why we would do better or worse, in writing

05 Estimate and reserve the number we commit to, and how sure we are of it

06 Afterwards actual cost and date, added to the class

Sources: Bent Flyvbjerg, Project Management Journal 37(3), 2006; Dan Lovallo & Daniel Kahneman, Harvard Business Review 81(7), 2003

A practice proposed by the editors, after the three steps of Flyvbjerg (2006) and the outside view of Lovallo and Kahneman (2003). Once the number is set, a pre-mortem (No. 44) tests the plan behind it.

Open the tool: [Delay Analyzer](#)

stivencatalyst.com/tools/delay-analyzer/

SOURCES AND METHOD

Every figure has a source.

The figures in this issue come from the sources below. The year shows how recent each one is.

Daniel Kahneman: Beware the 'inside view' (excerpt from *Thinking, Fast and Slow*)

Daniel Kahneman, *McKinsey Quarterly*, 2011

<https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/daniel-kahneman-beware-the-inside-view>

How Big Things Get Done

Bent Flyvbjerg & Dan Gardner, 2023 · via
Reviews and summaries of the book

Why Your IT Project May Be Riskier Than You Think

Bent Flyvbjerg & Alexander Budzier, *Harvard Business Review* 89(9), 2011

<https://hbr.org/2011/09/why-your-it-project-may-be-riskier-than-you-think>

Delusions of Success: How Optimism Undermines Executives' Decisions

Dan Lovallo & Daniel Kahneman, *Harvard Business Review* 81(7), 2003

<https://hbr.org/2003/07/delusions-of-success-how-optimism-undermines-executives-decisions>

From Nobel Prize to Project Management: Getting Risks Right

Bent Flyvbjerg, *Project Management Journal* 37(3), 2006

<https://doi.org/10.1177/875697280603700302>

Underestimating Costs in Public Works Projects: Error or Lie?

Bent Flyvbjerg, Mette Skamris Holm & Søren Buhl, *Journal of the American Planning Association* 68(3), 2002

<https://ppp.worldbank.org/library/underestimating-costs-public-works-projects-error-or-lie>

EDITORIAL METHOD

Each figure was checked for its year, its publisher and what exactly it measures. Where the publisher's page could not be opened, the figure was checked against independent summaries and is marked "via". The editors' interpretation is marked "Our reading". Figures that could not be confirmed are not in the issue.



MANAGEMENT REVIEW

Management without theatre.

Every issue, one management question, checked against the best research.

ALL ISSUES

stivencatalyst.com/magazine/management-review.html