Cost of Estimation Error

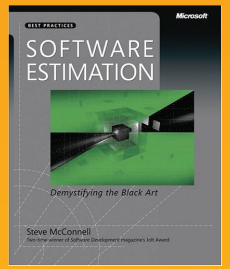
What's the Harm?

"I need the software in three months, so I'll tell the development staff that I need it in two months. I don't think they can actually deliver it in two months, but at least that will ensure that I get it in three months."

This rationale is intuitive and appealing. But it is ultimately destructive to software project costs and schedules. Projects that could have been completed in three months end up taking four or five months because of the problems caused by such reasoning.

Underestimation causes a project to be underscoped and underplanned. That increases the number of mistakes that occur upstream. These mistakes must be corrected eventually—at much greater cost than if they had been corrected earlier. These mistakes erode cost and schedule and virtually eliminate mid-range to long-range predictability.

Skillful project planners strive for accurate estimates, and they especially strive to avoid underestimating.



SOFTWARE ESTIMATION

Construx's estimation consulting and training offerings are based on the best-selling book Software Estimation: Demystifying the Black Art, *by Construx's founder, Steve McConnell.*

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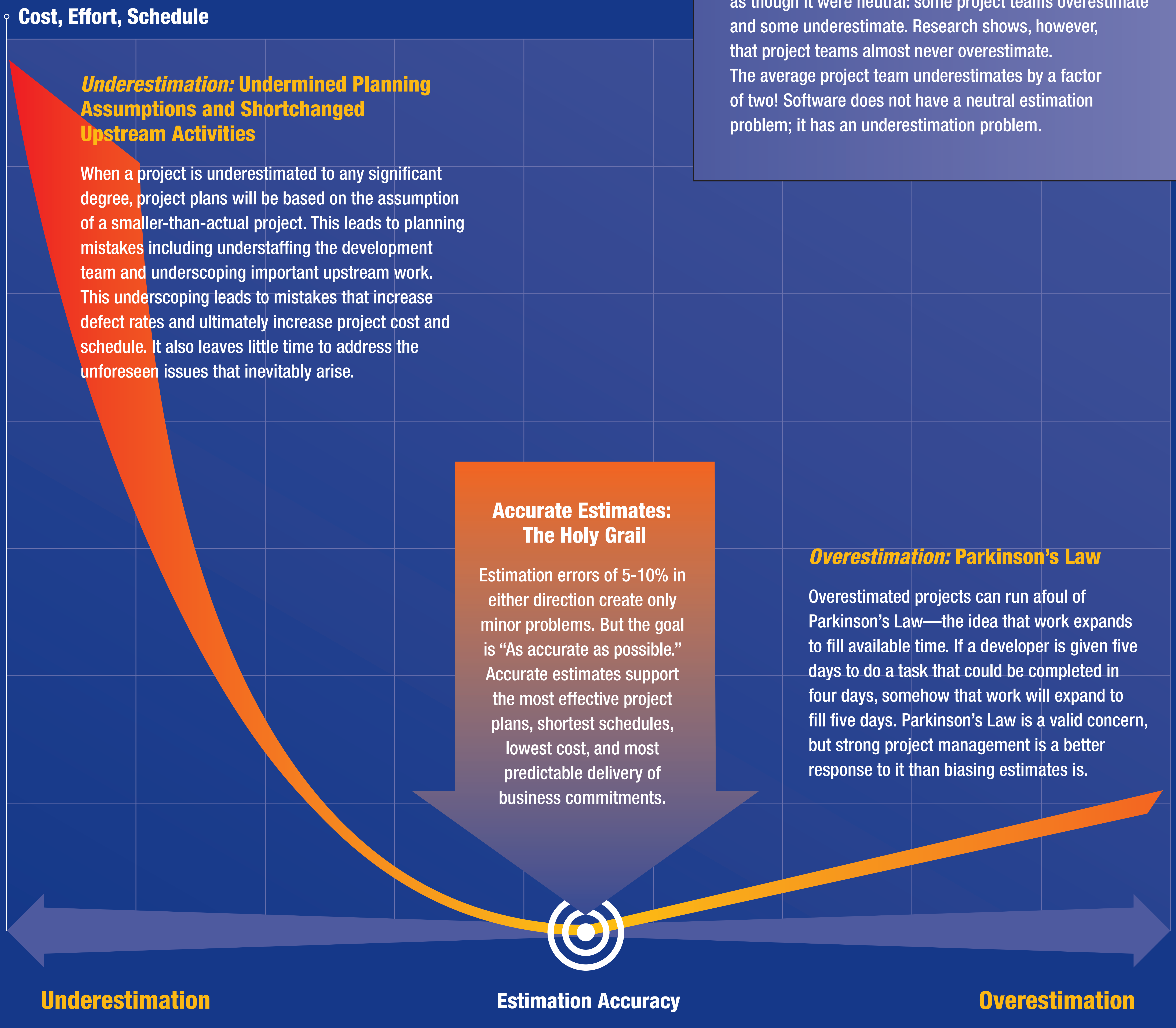
The Software Industry's Estimation Problem

Some people refer to the "software estimation problem" as though it were neutral: some project teams overestimate and some underestimate. Research shows, however, that project teams almost never overestimate. The average project team underestimates by a factor of two! Software does not have a neutral estimation problem; it has an underestimation problem.



Underestimation: Undermined Planning Assumptions and Shortchanged Upstream Activities

When a project is underestimated to any significant degree, project plans will be based on the assumption of a smaller-than-actual project. This leads to planning mistakes including understaffing the development team and underscoping important upstream work. This underscoping leads to mistakes that increase defect rates and ultimately increase project cost and schedule. It also leaves little time to address the unforeseen issues that inevitably arise.

Accurate Estimates: The Holy Grail

Estimation errors of 5-10% in either direction create only minor problems. But the goal is "As accurate as possible." Accurate estimates support the most effective project plans, shortest schedules, lowest cost, and most predictable delivery of business commitments.

Overestimation: Parkinson's Law

Overestimated projects can run afoul of Parkinson's Law—the idea that work expands to fill available time. If a developer is given five days to do a task that could be completed in four days, somehow that work will expand to fill five days. Parkinson's Law is a valid concern, but strong project management is a better response to it than biasing estimates is.