

6 Best Practices for Accurate Project Estimates



Table of Contents

- 3 Estimating projects is hard
- 4 First, have a plan
- 5 Get the whole team involved
- 7 Estimates vs. commitments
- 8 Methods of estimation
- 10 The power of ranged estimates
- 12 Five practices to refine your skills
- 14 Keep estimating!

Estimating projects is hard.

*"Good judgment comes from experience,
and experience comes from
bad judgment."
– Fred Brooks*

Why? Because the only time you know precisely how long it takes to complete a project is when it's done. Up to the point of delivery, teams use educated guesswork to predict the future. And the bigger and more complex a project is, the hazier that future is.

Faulty estimates mean missing deadlines and breaking budgets—two of the main symptoms of project failure.

Being a skilled estimator is a crucial part of setting schedules, establishing budgets, managing resources and running a thriving team and business.

In this eBook we're going to take you through six important principles to making reliable project estimations.

First, have a plan

Poor planning is one of the top reasons projects fail.

Unless you have a fully functional crystal ball, you can't produce realistic project estimations without doing a level of analysis and planning. You need to know the full scope of work your team will be doing before you can even begin to consider an estimate.

Here are three important pieces of intel you need before creating your estimates:



1. Define the scope:

What are you expected to deliver?



2. Create a preliminary schedule:

When are you expected to deliver?



3. Define completion criteria:

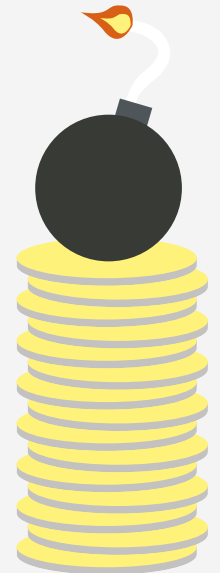
At what point will the project be considered finished?

Without this information, your estimates will be too speculative. Don't become one of those projects that devours time and money long after they should have been completed—simply because completion was never defined.



"If you don't know exactly where you're going, how will you know when you get there?"

— Steve Maraboli



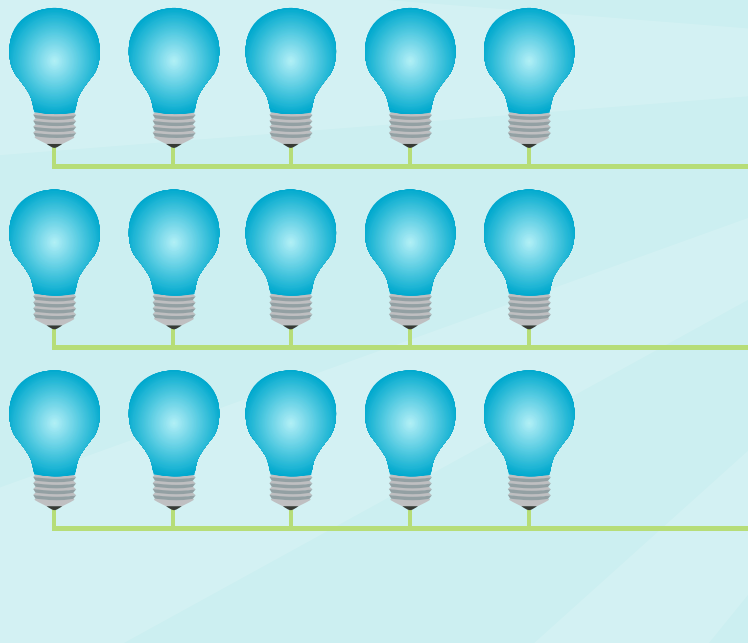
50% of all IT projects with initial price tags of \$15 million-plus massively blow their budgets.

Get the whole team involved

"It takes two flints to make a fire."

– Louisa May Alcott

The estimation process demands a common understanding of project requirements and deliverable solutions. If your team has a pool of subject matter experts, make sure they put their heads together early on or you could end up with estimates based on several different interpretations of what needs to be done. Instead, get input from the whole team from the very beginning.



Here are four key points to keep in mind for making team estimations:



1 Involve the people who are actually doing the work

Any estimates that are provided by those without hands-on expertise will be educated guesses at best. The numbers need to come from the team members who will be doing the actual work. After all, each person has his or her own work speed. **People will be more motivated to make finish dates that are based on their own estimates.**

2 Be clear on what you're estimating

Think through all the parts of the project. For example, if you ask someone to estimate the cost of making a table, don't forget to include time for varnishing, QAing, boxing it, etc. **Ask questions to make sure all aspects of your tasks are covered.**

3 Be a skeptic

It's a good habit to be critical of estimates and triple check them, because:

- Optimism is best when tempered with realism.
- Our desire to be Can Do people can lead to overreaching and falling short.
- **Everything takes longer than you expect.**

4 When in doubt, ask questions

PMs and other team members should feel free to challenge estimates—constructively. If something doesn't feel right, ask questions and offer solutions instead of launching criticism. If disparities crop up it's probably due to different understandings of what's required. **Focus on education, not incrimination.**

Estimates vs. commitments

"You can negotiate the commitment,
but don't negotiate the estimate."

– "Software Estimation"

by Steve McConnell

The Oxford Dictionary defines an estimate as, "an approximate calculation or judgement of the value, number, quantity or extent of something." A commitment, on the other hand, is a binding agreement to deliver something specific, well-defined and measured.

Often, the person requesting the estimate doesn't differentiate between these two terms. Just because a project has been given an estimate, that doesn't mean it's worth committing to.

"Hey, how long would it take you to..."

Sometimes it happens. You're asked for an off-the-cuff estimate for a particular task. Before you know it, your guesstimation turns into a formal project—with your rough estimate leading the way. Or even worse, you're asked to deliver the project even faster than your original estimate, with no further discussion. LiquidPlanner Senior Developer Adam Sanderson captures this scenario perfectly (and humorously) in his lively blog post, [Defense Against the Dark Art of Estimation Bargaining](#).

If you're leading a team, don't pressure team members to come up with a number you *want* rather than the number they *believe in*. This sets everyone up for failure. It also encourages a defensive culture. Nobody wants to put his or her head on the block. The protective mechanism will be to over-estimate work.

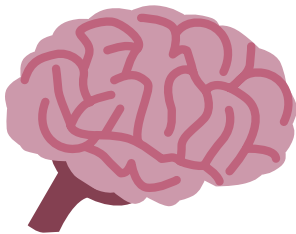


Methods of estimation

"The best we can do is size up the chances, calculate the risks involved, estimate our ability to deal with them, and then make our plans with confidence."

– Henry Ford

There are a number of estimation methodologies to choose from. We won't go into them in detail, but here are some tried-and-true ones that work for all types of projects.



Expert judgment

Comparative or analogous estimation

Top-down

This is probably the most common way people get an estimate. Talk to the men and women with the best hands-on experience and understanding of the project requirements. Just make sure that everyone has the same understanding of what needs to be delivered. And try to find experts who will actually be working on the project.

If your current project is similar to past ones, take the data from previous work and extrapolate it to provide your estimates for the new job. Before proceeding, make sure to check whether those projects were successful!

Using a high-level [work breakdown structure](#) and data from previous projects, you can add estimates for each project work item to determine the overall effort and cost. The top-down method lacks detailed analysis, which makes it best suited for a quick first-pass at a prospective project to assess its viability.



Bottom-up

This method uses a detailed [work breakdown structure](#), and is best for projects you're committed to. Each task is estimated individually, and then those estimates are rolled up to give the higher-level numbers. (If you use the right project management software, it will roll up the estimates for you).

This process makes you think about what's required in order to take a step back to see if the big picture still makes sense. You'll receive more accurate results than the top-down method, but it's also a greater investment of time.

Parametric model estimating

This is a more scientific method that essentially auto-calculates estimates using detailed data from previous activities. Let's say you have data from your last three office network installation projects. You can use this to get a days-per-workstation value or something similar. You then plug in the number of workstations for your new installation and out pop the estimates.



This can be a quick method but needs robust data to feed it. And because it's all about the math, it's hard to adjust for the environmental, political and cultural differences between projects.

The power of ranged estimates

"How long will it take?"

– Every PM, ever.

In project management, the only thing you can be sure of is uncertainty. And change. This is why making ranged estimates for your projects is the smartest way to go.



20 min

23 min

35 min

Why ranged estimates work

If someone asks you how long it takes you to drive to work, you'll probably say "between 20 and 35 minutes," not "23 minutes." Traffic, like projects, has a lot of variables.

When you make ranged estimates that are based on best case/worst case scenarios, you're taking into account all the uncertainty and change inherent in every project.

IT projects run 45% over budget and 7% over time, and deliver 56% less value than predicted.



Making your estimates

When you set out to create your ranged estimates, consider how long each task will take if all goes well (best case), and if it blows up (worst case). Then, take all the parts of the project you estimated and roll it up to encompass the project as a whole. You'll arrive at a range of estimates that reflect varying levels of certainty between these two cases (the mid-point being the *expected* estimate). You can then plan out and budget the project on whichever of these values you deem most appropriate.

Project uncertainty is greatest at the start of any project. As the project progresses, team members can update the remaining work estimates to reflect progress and diminishing risk as more work gets done and the threat of the unknown decreases. The result: teams, stakeholders and clients who trust the plan. And for you, confidence in your estimate because it's based in reality.

Here's a story of a ranged estimate in practice

Let's say you're a developer asked for an estimate to implement a new feature. While you've got a good idea of the high level requirements, the detailed design spec isn't available yet. So you start a first draft of a ranged estimate using best case and worst case scenarios:



Best case

If the scope turns out to be what you anticipated and you don't hit any major snags, you decide 10 days is a reasonable best-case estimate for completion. We suggest a reasonable estimate is one that you're 80%+ confident in.



Worst case

What if the detailed design ends up adding some unplanned complexity? Or you have to fix a few bugs in the existing code along the way? (It's happened to you before.) Weighing all these possibilities, you decide 30 days would be a reasonable worst-case estimate for completion.

Your current rough estimate is between 10 - 30 days. This is quite a range, but it reveals the level of uncertainty in the project or task, and at this early stage it's wise to base your project plan on the worse case estimates, and build the risk directly into the overall schedule.

When you receive the detailed design spec, you're able to take that information and narrow down your finish time estimate range to 15 - 20 days. Now, you and your team can get to work, feeling confident in the schedule dates that you share with stakeholders, clients or customers.

5 practices to refine your skills

"Let our advance worrying become advance thinking and planning."

– Winston Churchill

Another benefit to making ranged estimates is that you can keep improving your accuracy. Here are five practices that will help you refine your estimation skills:

1 Learn from history




Lessons learned on previous projects are a good place to start, especially where similar projects have gone before. Make sure you have a process that captures and disseminates these lessons for future projects—or the accumulated wisdom will go to waste. Your estimation history will also show whether your team is more prone to over- or under-estimating.

2 Have a checklist



If your projects have a similar theme, develop a standard checklist or work breakdown structure that everyone can use to make sure nothing gets missed. Ideally, the whole team will have access to a project management tool that supports a standard template for this. This checklist can be added to over time as people identify additional items for inclusion. Whichever way you go, make sure everyone's using the latest list!

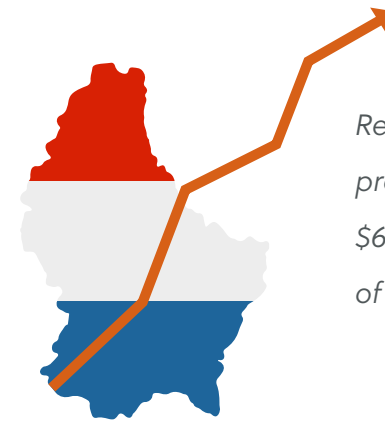
 **Checklist P.S.** Don't forget to include activities like team meetings, informal reviews, or testing, etc. These activities eat up project hours but can easily be overlooked when you're estimating.

3 Know that effort doesn't equal duration



Even when resources are allocated 100 percent to a project, people will not spend all day every day working on it. If you're managing resources, keep this in mind when scheduling tasks. The best project management software tools allow you to set up an availability profile for all your resources, with task durations automatically adjusted to reflect it.

5 practices to refine your skills (continued)



Recent research found that IT projects had a cost overrun of \$66 billion, more than the GDP of Luxembourg.

4 Record assumptions



When generating estimates, you'll often have to base them on certain assumptions, especially when requirements are not well-defined. Be sure to record these assumptions and save that data with your estimates so this information is available to others who might need to know how the estimations were arrived at.

For example, let's say you're developing software and there's a requirement for cross-platform compatibility but it doesn't specify which platforms. Until you nail that detail down, you might have to make your own assumptions, so make sure you provide that information with the estimates.

5 Compare and contrast estimates



Where possible, use more than one method or resource to get your estimates. For example, ask two team members to come up with estimates for the same project. If their numbers are close, you can be more confident in those estimates. If they differ widely, have a sit-down and work out why. Maybe team member A's smaller estimate includes a better plan for the work than team member B's larger one. This approach uncovers issues that may not come to light until later in the project—when it can be too late and very costly to recover the situation.

Similarly, try using two different estimation methods to test finish date feasibility. Use top-down and bottom-up. To do this, create two projects in your workspace: one with a high-level WBS for the top-down estimates and one with a detailed WBS for the bottom-up. Assign a different person to provide estimates for each project template. If the totals are close, then you can be confident in your final estimate. If there's a huge disparity, you can drill down into the *why*.

A stylized graphic featuring a blue gear-like arc at the top, a green sun-like shape in the middle, and an orange sun-like shape at the bottom. The text 'Keep estimating!' is centered over the orange shape.

Keep estimating!

Mastering the art of estimation is an ongoing process. As you refine your skills, estimations become more accurate and team members can anticipate risks and plan for uncertainty. In no time, your organization will be known for setting reliable finish dates and delivering projects on time. And nobody can overvalue the currency of trust.

To learn how to estimate in ranges using LiquidPlanner, contact us!

1-888-881-2561 sales@liquidplanner.com



LiquidPlanner is the industry's only predictive online project management software, built on the belief that teams do their best work when they can make ranged estimates based on best/worst case estimates.

Sources:

McKinsey& Company: Delivering Large-Scale IT Projects on Time,
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by Michael Bloch, Sven Blumberg, and Jürgen Laartz
Standish CHAOS report, 2013

"Software Estimation: Demystifying the Black Art," by Steve McConnell



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