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Avoiding the Cost Impacts of Estimate Assumptions

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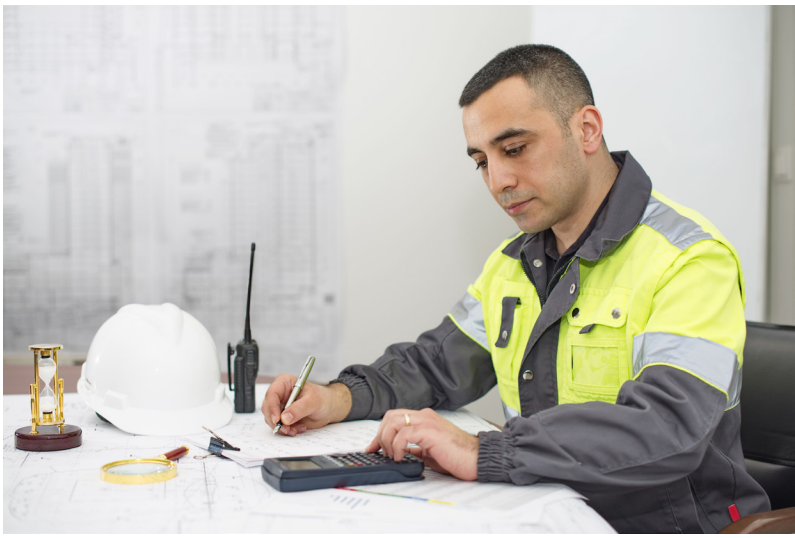
Predicting cost to deliver a project is a challenge for owners and contractors alike. As an owner, the responsibility to pay for changes in estimated costs depends largely on the terms of the individual contract that was awarded. How many in our industry have prepared estimates with costs that shot up far beyond predictions without much advance notice?

For example, remember what diesel fuel cost when preparing estimates in 2017? And how far off were those estimates when the project was completed? Chances are, pretty far.

With global supply chains, there is increased risk to project timelines and subsequent costs compared to estimates. For example, those shipping goods and materials needed to complete their jobs in the early days of the COVID epidemic, these delays caused major headaches and expensive delays, such as idle staff being paid to wait for vital parts to arrive. Time being money, this is not acceptable.

Downstream schedule and cost impacts compound with each day of delays. Investors get anxious about delivery timelines. Indirect costs can go up as the timeline drags out, such as the need to carry insurance longer or updating extended permits. These can all add up to very large sums of money over the life of a multi-year project, creating huge impacts in each of those years.

So, how should we deal with unforeseen circumstances, and how do we mitigate the risks to the costs of our projects? Obviously contract terms specify how unforeseen costs



are handled on a project in terms of responsibilities to accommodate for them. But looking beyond that, what can be done?

COPING WITH UNEXPECTED PRICE INCREASES

Surprise expenses can have huge impacts on our projects and profitability. Fuel over the past five years is a great example to discuss as it's something nearly every project will have to estimate.

In 2017, diesel was approximately $2.65/gallon in the U.S. In 2022, that same fuel was just short of $5/gallon according to the U.S. Energy Information Administration.[1] That's an 88% increase! In that same period, standard inflation increased costs overall around 18-20%.

Now, why is all of this such a big deal? All costs change over time anyway, right? Let's see what happens with our sample project specs.

Timeline

» Estimate is completed and bid on in 2017.

» Funding secured and budget approved in 2019 (typical, the bond issue had some red tape).

» Ground broken and project starts in 2020.

» Project scheduled to be completed in 2023.

Estimate

» $500 million total for the job

» $300,000 total for diesel fuel (accounting for a conservative 25% inflation from 2017 prices when the estimate was created)

Actual diesel costs?

» At time of estimate, approximately $240,000

» Accounting for 25% inflation, approximately $300,000

» True costs in 2022 dollars, approximately $451,200

Based on rapid price increases caused by real-world events, the cost for diesel fuel alone in our spec project went up over $150,000 from the estimated cost to the actual cost. Now, I realize there are a lot of assumptions I am making, and it is not time-phased, but that is part of the point here:

Our assumptions made for an estimate can have significant impacts on our bottom line.

CREATING A COMPLETE AND ACCURATE BASE ESTIMATE

Getting a truly accurate base estimate is vital to deal with and overcome issues like this. The first step toward this goal is not limited to major items in the estimate. For example, something as seemingly simple and straightforward as including all floors of a vertical building in an estimate is crucial.

We also want to ensure that the maximum level of detail — practical for our process flows — is included in the estimate. This will give way to additional steps and reviews that will hopefully help us mitigate as much risk as possible at this phase of the project and set us up for long-term success.

This realistic base estimate then, including indirect and contingency costs, becomes the basis for financially planning the rest of the project. The review and refinement from here will set the table for a profitable project several years down the road when work is completed.

Some remaining important factors to consider include:

» Understanding margins at both the overall bid level and at strategic components of the bid

» Recognizing potential financial and schedule risks, then determining if they require mitigation. This could be anything from alternative suppliers to baking room into the plans for time and cost overruns.

» Mapping areas of the project where profit is slim vs. areas where it is large and ensuring that it accurately reflects the project goals. For example, in some project budgets, there may be a set dollar value associated with specific scope while other funding for the same project is more fluid.

» Leveraging estimating methods that will help you quickly and accurately adjust as time moves on.

Helpful tech tip: Quite often, fuel costs jump rapidly and unexpectedly. If your estimating tool can leverage an easily adjusted resource library, then you can change your fuel cost once and it will be automatically propagated across the remaining scope of the estimate. This can save time and reduces opportunities for human error all while helping you quickly assess that changes impact to your project.

In the end, while every project is unique, its goals are nearly always equated with the ability to deliver the work on time and on budget. The more complex the scope or the more extended the time frame, the more our assumptions can impact the bottom line of our project. This is why a thorough understanding of our costs, risks, assumptions and financial goals and limitations will help us get where we need to be on time and on budget.

About the Author

Nick Osborne serves as a Solution Engineer for InEight, focusing on helping construction industry leaders identify ways to improve their operations with technology. With a passion for technology and the perpetual search for a "better mousetrap," he brings 20 years of hosted software experience to his role, from technical support to product management to sales support. Nick's experience with hosted software is broad and diverse, including everything from contact center technology to network security to construction technology.

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[1] Weekly Retail Gasoline and Diesel Prices, Petroleum & Other Liquids, U.S. Energy Information Administration, March, 2023.