

INEIGHT 

STRATEGIC ESTIMATING:

**3 ESSENTIAL ESTIMATING
PRACTICES FOR COMPLEX
BUILDS**

PROVEN PROJECT CERTAINTY



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3 ESSENTIAL ESTIMATING PRACTICES FOR COMPLEX BUILDS

Estimators know: Every profitable construction project starts with an accurate bid. Estimators also know: that's easier said than done. So it's good news that in today's booming but difficult construction environment, the estimating function is getting some much-needed attention. The most recent KPMG Global Construction Survey found that respondents' biggest priorities are to improve transfer risk, innovation, and — not surprisingly — estimating accuracy.

ESTIMATING IN A CHANGING WORLD

Good news abounds in construction lately. Total construction output continues to expand globally, led primarily by infrastructure work, according to the Q3 2023 Global Construction Monitor by RICS.

An influx of funds provides more good news, thanks to three pieces of legislation: the \$1.2 trillion [Infrastructure Investment and Jobs Act](#), the \$50 billion [CHIPS Act](#), and, most recently, the \$369 billion [Inflation Reduction Act](#). These initiatives are beginning to fill capital coffers as companies pursue infrastructure, clean energy, and sustainability projects. McKinsey suggests the flood of funding will lead to \$130 trillion in projects for decarbonization and critical infrastructure. Given that high interest rates have [hit the construction industry hard](#), the best news going into 2024 may be that the Federal Reserve is [considering lowering rates](#) if inflation continues to fall.

And confidence is high. In KPMG's 2023 Global Construction Survey, 66% of respondents — individuals representing project owners and engineering and construction companies — reported feeling "[optimistic](#)" about the direction of the construction market. Thirty-eight percent felt "very." [Contractors remain confident](#) of growth and expect an increase in profit margins and staffing levels, particularly in the first half of 2024, says a report from the Associated Builders and Contractors.



DESPITE GROWTH, CHALLENGES REMAIN

Yet despite all the change and opportunity on the horizon, it's still a tough world out there.

McKinsey found that 98% of megaprojects incur [more than 30% overruns](#), and 77% are at least 40% late. KPMG's 2023 Global Construction Survey found that only half of all owners complete projects on time. The report also says that, of all respondents, [37% missed budget and schedule targets](#).

McKinsey also notes poor outcomes, citing cost overruns of at least 79% for 500 global projects, each with a total value of at least \$100 million — 62% of the projects were megaprojects valued at \$1 billion or more. The same report gave an example of an international mining company that left \$500 million in net project value on the table by under-evaluating the project during pre-construction.

ESTIMATING: WHERE PROFITABILITY BEGINS

The profitability puzzle starts with the estimating piece, so you're wise to explore how world-class estimating can help your team tackle challenges like bidding on the wrong jobs, where you can't be profitable, or bidding inaccurately so that your company winds up losing money. Add to that the increasing complexity of projects, and accurate bidding becomes even more difficult.

Innovative estimating teams have been leading the charge for change. Instead of using old playbooks, they're creating new standards to transform efficiency, accuracy, and win probability.

You can do the same by developing estimating expertise and competence and following forward-thinking best practices, including using historical data, adopting standardized processes, and automating repetitive tasks. By embracing this change, you'll be at the forefront of the industry's evolution, primed to navigate the complexities of tomorrow's projects with seasoned insights.

THE INCREASING COMPLEXITY OF PROJECTS MEANS ACCURATE BIDDING HAS BECOME EVEN MORE DIFFICULT.





STRATEGIC ESTIMATING:

BEST PRACTICES FOR ESTIMATING IN CAPITAL CONSTRUCTION

As you explore the following estimating best practices, know that they arose from the collective wisdom of industry-leading estimating teams. The first practice addresses a fundamental aspect of estimation: using historical data. The following two are also critical aspects: **standardization and automation**, especially the automation of repetitive tasks. Once you start incorporating these practices, you'll enjoy better accuracy, higher efficiency, and — most importantly — greater profitability.



USE HISTORICAL DATA

Historical data is the bedrock of precise estimating. But there's a challenge: How do you manage fragmented data spread across personal drives and digital archives? The thing is... scattered data happens. It's the frequent result of siloed and legacy systems, team changes, evolving project scopes, and the sheer volume of data generated over the life of a project. The real difficulty in working with historical data is synthesizing all the

diverse, extensive datasets to inform accurate estimates for complex, changing construction projects.

Top estimating teams use technology to gather and retrieve data — and to apply advanced normalization and filtering methods. Advanced normalizing might mean aligning cost data from different countries or eras, accounting for inflation, or adjusting productivity rates for varied labor conditions. Complex filtering might mean discerning which data — for instance, historical weather patterns, local labor laws, and previous supply chain disruptions — will most accurately inform the estimate. Both techniques call for accurate historical data.

When expert estimators find inconsistencies and gaps in historical data — like incomplete material usage records or labor productivity variations — they view the discrepancies as opportunities for in-depth exploration and pattern recognition. If tight deadlines add pressure, top estimators resist relying on intuition. Instead, they use advanced software to find and focus on the data that will lead to consistent, comparable data exactly right for new projects.

**STRATEGIC ESTIMATING
SAVES TIME AND LEADS TO
FASTER, MORE-CONFIDENT
BIDS.**

Innovative estimators also update their internal databases regularly. Doing so turns historical data into an asset, ready to give reliable benchmarks at any moment for any project. Strategic estimating saves time and leads to faster, more-confident bids. And just like that, your team could earn a reputation for being trendsetters, using lessons from the past to fuel future victories.

Using historical data in your estimating practice calls for four elements: Normalized internal benchmark data, filtered data dimensions, allowances based on past cost ratios, and the feedback actuals that close the data loop and keep your data current.

“What we’re doing with an estimate is making a storyboard, but it’s in words, and it should be in order. It should be logical so when you hand the budget over to a job-site superintendent, he can follow that budget because it’s very clear.”

- Mike Albani, Vice President of Estimating, Aecon

THE ESTIMATING FUNCTION ISN'T ABOUT LOOKING FOR DATA. IT'S ABOUT SEEKING INSIGHTS TO DRIVE INNOVATION AND EFFICIENCY IN CURRENT PROJECTS.

1 NORMALIZED INTERNAL BENCHMARK DATA

In large-scale construction projects, like a new subway line, experienced estimators know that normalized internal benchmark data is not just about aligning numbers like labor productivity rates and unit costs. It's about interpreting and applying historical data about past project successes and failures to current projects, changing market conditions, and complex urban environments. In other words, the estimating function isn't about looking for data. It's about seeking insights to drive innovation and efficiency in current projects.

Suppose you're normalizing data for a subway project. In that case, you might encounter historical patterns that reveal efficiency gains in tunnel excavation due to technological advances or shifts in the regulatory landscapes that affect material costs. How do you adjust for factors expected in an urban setting or forecast whether market trends will affect costs? Will the latest new materials keep expenditures down? Where could you use new construction methods to shorten schedules, minimize wasted resources, or improve safety measures? This forwardthinking approach turns estimators into strategic advisors who can give genuine insights that make or break the success of a project.

“I like the accuracy of InEight Estimate, and knowing that I don't have to worry about errors in a spreadsheet. I really like the quote management system. It's very robust and allows us to analyze. We use it extensively.”

- Rob Trulson, CEO, T&T Construction



1 FILTERED DATA DIMENSIONS

Top estimating teams also use advanced analytics to filter data to guide strategic decision-making. They use sophisticated data-slicing techniques that look at basic and advanced project parameters, like predictive material usage trends and equipment performance analytics. A study published in *Data in Brief* shows the power of this approach and the strong effect of analyzed data on construction cost and time.

Big data in construction is changing how estimators work. Research from Pepperdine University shows that you need big data and analytics technology to spot and fix potential project problems. Seasoned estimating teams integrate big data into their workflows, turning traditional practices into more predictive models. Estimates then become potent tools for strategic planning and risk management instead of existing as mere financial forecasts.

**THE GOAL IS TO
CREATE A FRAMEWORK
THAT ACCOUNTS FOR
FORESEEABLE AND
UNFORESEEABLE COSTS.**

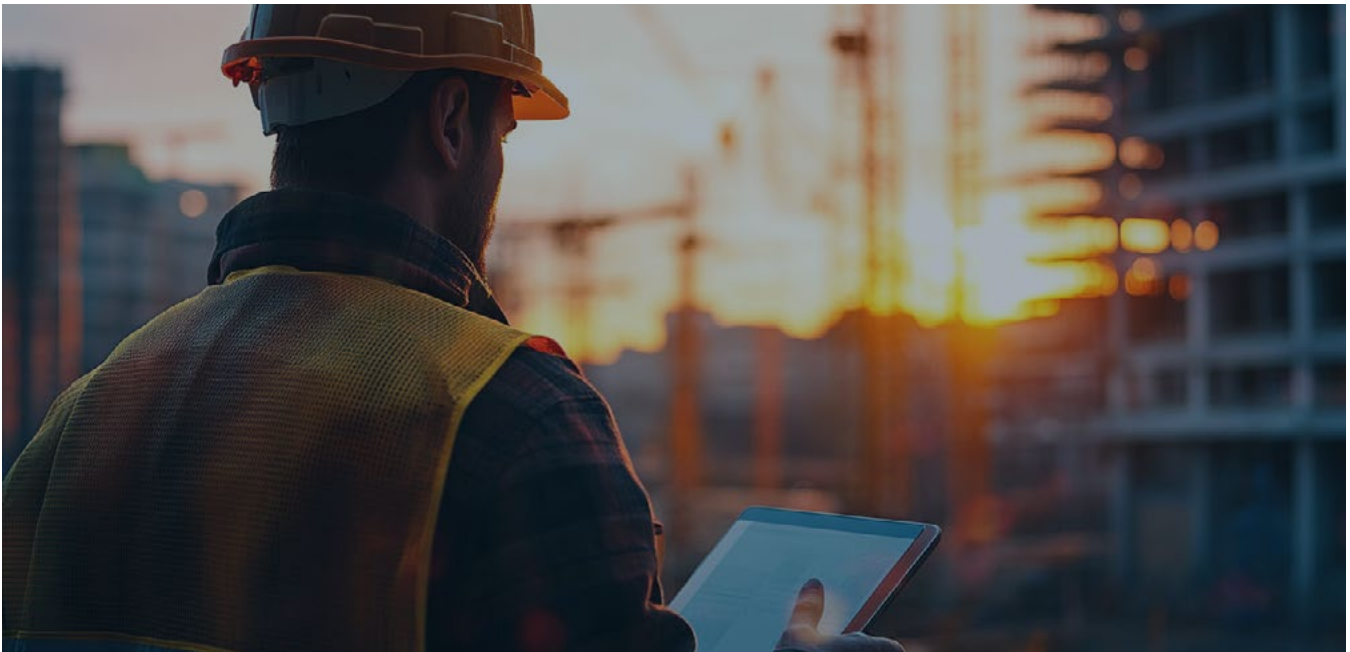


ALLOWANCES BASED ON PAST COST RATIOS

Applying past cost ratios is another exercise in strategic decision-making. It involves analyzing historical data with an eye on patterns and anomalies from past projects and predicting how those elements might affect the current bid. This action calls for a deep dive into historical project data to see how complexities like unexpected site conditions or design modifications have historically influenced overall costs.

If you're after precise cost estimates, set your allowances based on past ratios. According to Carnegie Mellon University's resource on cost estimation, experienced teams tailor contingencies based on historical insight and foresight into the unique challenges of the current project. Tailoring also means accounting for factors like changing market conditions, technological advances, and regulatory changes that might influence project costs.

The goal of applying ratios is to create a framework that accounts for foreseeable and unforeseeable costs. It makes estimates more precise, protects the project from financial risks, and contributes to overall success.



1 CONTINUALLY FEEDING ACTUALS BACK

Veteran estimators know that continually feeding actuals back into the system is like fine-tuning a high-precision instrument. It's not about updating databases. It's about creating an always-current baseline for future estimates.

Regularly exporting actual project data into a centralized, cloud-based repository keeps historical data current and creates a more accurate estimating environment. This ongoing feedback loop leads to a level of precision that static historical data — and manual data wrangling — can't match.

This practice is essential for teams working on projects with high numbers of variables and high stakes. Take, for instance, a complex infrastructure project spanning several years. During the project, you might run into fluctuating material costs, labor productivity shifts, and unforeseen site challenges. Adding more data into the system gives you a rich, evolving dataset — a live repository with insights beyond surface trends. It allows you to spot patterns, anticipate potential issues in similar future projects, and adjust estimating parameters accordingly.

A study in the *Journal of Management in Engineering* supports this practice, finding that “with unprecedented clarity,” performance feedback has significant, positive effects on construction process performance.

CONTINUALLY FEEDING ACTUALS BACK INTO THE SYSTEM IS LIKE FINE-TUNING A HIGH-PRECISION INSTRUMENT.

ELEVATING ESTIMATION ACCURACY:

KIEWIT POWER CONSTRUCTORS' DIGITAL LEAP

Estimators at Kiewit Power Constructors (KPC) wanted to improve productivity and efficiency. The Kansas-based team struggled with outdated methods that limited communication and estimate accuracy, leaving them less confident in their bids. They couldn't access historical cost data quickly, which meant hunting for past cost information and manually entering it into spreadsheets. Complex close-out and bid forms were labor intensive, too.

InEight Estimate transformed the team's approach and ushered in a new standard for accuracy. The system allows estimators to query actual past costs for similar projects across the company. They can easily collaborate and share real-time data with multiple teams. With more confidence in their data, the team spends less time chasing outliers and figuring out which numbers to trust from disparate spreadsheets. Estimators use the system to examine different versions with different scenarios. Overall, InEight Estimate boosted the team's bid confidence and gave the team more time to focus on innovative cost-control measures for clients.

2

STANDARDIZE THE ESTIMATING PROCESS

If historical data is the bedrock of precise estimating, then standardization is the blueprint. Standardizing isn't just about creating uniformity, though. It's about creating a reliable, replicable method that improves the accuracy of estimates. Using a consistent method ensures that each new project benefits from the wisdom of past projects, reducing errors and lifting the quality of estimates.

Much like a blueprint provides detailed guidance for construction, standardization gives you a clear, comprehensive plan for every aspect of the estimating process. By standardizing, you know that every calculation and decision follows a time-tested route. This blueprint-like approach streamlines the estimating function and creates consistency across different projects. Applying proven strategies and insights naturally elevates the quality and precision of your work.

Detailed checklists and state-of-the-art estimating software play a role in the standardized toolkit. These tools complement the intuitive judgment of your team and help you leave nothing to chance. But checklists and sophisticated estimating software are just the beginning. Your team's estimating knowledge and expertise also come into play because tools are only as powerful as the teams that wield them. You can make standardization a practical, impactful part of estimating. With it, you can increase efficiency and accuracy, meet budgetary constraints, and set new benchmarks for precision and quality.

Although many factors contribute to a blueprint for standardized estimating, three elements deserve special attention: rate tables and specifications, templates, and data access tools.

STANDARDIZATION GIVES YOU A CLEAR, COMPREHENSIVE PLAN FOR EVERY ASPECT OF THE ESTIMATING PROCESS.

“InEight Estimate seamlessly keys off account codes in the background, so all that data that we estimate with and generate on a project is instantly available to compare against. That’s something we’ve never [before] been able to do as a company.”

- Andrew Haley, Project Estimator, KPC Estimating



2

RATE TABLES AND SPECIFICATIONS

Rate tables and specifications are a strategic foundation of the estimating function. The tools are more than mere calculators; they're dynamic guides in a market with ever-shifting material and labor costs. Remember the recent surge in construction costs, with material costs climbing 14.1% and labor rising 6% in just a year? Your ability to use rate tables strategically for competitive bidding and financial forecasting is invaluable in this environment.

Now, let's talk about specifications. Top estimating teams also know specs aren't just a list to be checked off — they're a blueprint for risk management. Today's estimating technology adds precision to spec interpretation, sets bids apart, and avoids the costly rework that plagues many projects. Consider how up to 70% of rework can stem from design or specification inconsistencies. Software precision enables everyone, from subcontractors to suppliers, to work towards the same goal -- a successful, profitable project completion.

TODAY'S ESTIMATING TECHNOLOGY ADDS PRECISION TO SPEC INTERPRETATION, SETS BIDS APART, AND AVOIDS THE COSTLY REWORK THAT PLAGUES MANY PROJECTS.

2

TEMPLATES FOR ESTIMATE STRUCTURES

Templates are invaluable for launching complex projects. They create uniformity and pave the way for consistency. Templates also reflect the refined estimating methodology your team has honed over years of practice. By applying consistent layouts, formats, and workflows across various projects, you save time and reduce the margin for error because every project starts on a solid, well-organized foundation.

Adding modern estimating software to the mix elevates the function even more. Imagine seamlessly integrating your templates into a digital platform where they streamline the initiation process and connect dynamically with real-time data and analytics. This integration turns templates from static tools into flexible frameworks ready for the demands of each project. It's like reinforcing precast concrete slabs with innovative materials — your estimates will be solid and responsive to whatever comes your way. This modern approach leads to a forward-looking estimating function that bridges traditional methods with technological advancements.



TEMPLATES STREAMLINE THE INITIATION PROCESS AND CONNECT DYNAMICALLY WITH REAL-TIME DATA AND ANALYTICS.

ELEVATING ESTIMATION:

HOW BLOIS CONSTRUCTION MASTERED COMPLEX PROJECTS

Blois Construction, a heavy civil contractor, aimed to win more complex construction projects and reduce financial risk. To achieve this, the estimating team needed to increase the accuracy, speed, and transparency of its estimating process.

InEight Estimate provided a standardized framework for the estimating process. Today, the team uses historical data as the basis for future estimates, improving accuracy across projects. They can efficiently track multiple budgets and incorporate change orders from the field in real time, making it easy to quantify changes to cost and scope while taking proactive steps to minimize risk.

James Blois, president of the company, is impressed. “We make better project-execution decisions because we’re working from the most accurate and up-to-date information from InEight Estimate,” he says.

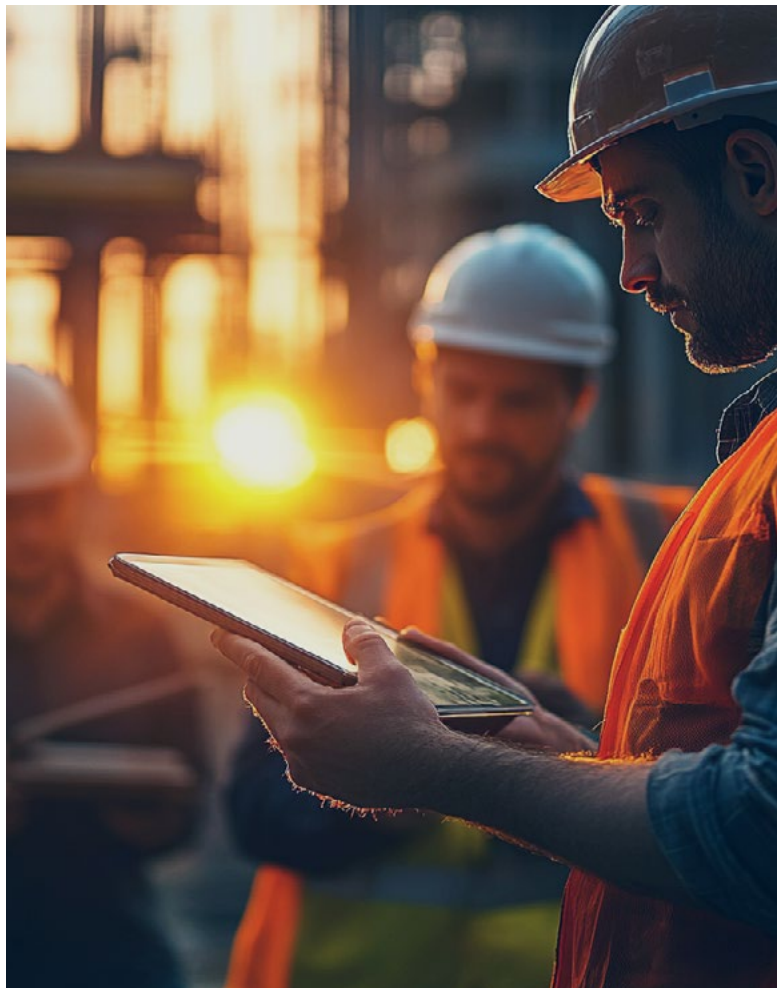
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DATA ACCESS TOOLS

The most effective estimating teams working in capital construction today use a strategic blend of consistent methods and shared reference data, such as centralized cost databases, material specifications, and historical project performance metrics. These advanced tools get everyone on the same page and keep project teams coordinated. The common data environment (CDE) is a cornerstone of this strategy. Whether you're using a CDE extensively or still exploring its benefits, the role of a CDE in streamlining project collaboration and data management cannot be overstated. With a CDE, all project data gets stored in one spot, easily accessible to all stakeholders. This centralized approach to data management minimizes misunderstandings and discrepancies — often the root causes of costly delays and rework in large-scale projects.

Top estimating teams use real-time analytics to understand project dynamics and financial and operational data — and to discover cost-saving opportunities. This analytical approach likewise helps you make informed decisions that directly affect the profitability of your projects.

Here's another crucial consideration: 95% of all data captured during the design phase goes unused. It's why innovative estimating teams balance data quality and relevance by using advanced data verification and validation tools, advanced filtering and selection capabilities, and the latest machine learning algorithms for historical data analysis. You can also use this approach to be sure you're identifying and using only the most pertinent data, driving efficiency and practicality, and avoiding the pitfalls of information overload.



THE ROLE OF DATA ANALYTICS IN THE ESTIMATING WORKFLOW CANNOT BE OVERSTATED.



AUTOMATE REPETITIVE TASKS

If historical data is the bedrock of precise estimating, and standardization is the blueprint, then the automation of repetitive tasks is the engine powering modern construction efficiency. From high-tech construction robots to AI-powered project management, automation is reshaping the industry.

This drive toward automation has also trickled down into the finer aspects of construction—estimating included. Swapping out slow, manual methods for automated, technology-driven processes can allow you to achieve precision and speed like never before.

Automating also frees up your time to focus on the more strategic aspects of your projects, such as analyzing market trends, exploring new construction techniques, and building client relationships. This shift lets you contribute meaningfully to project planning, risk management, and decision-making, leading to better outcomes.

These days, automating isn't an option; it's a strategic imperative. To make strides toward automation, consider three specific elements: templates for deliverables, databases for quantifying tasks, and advanced data analysis and reporting tools. Each plays a vital role in helping you to elevate the estimating function.

TEMPLATES FOR DELIVERABLES

The most efficient estimating departments use templates for deliverables like RFP responses, estimate summaries, change order requests, and subcontractor agreements. But we're not talking about just any templates. We're talking AI-powered templates that extract data from various sources and use it to generate tailored documents, slashing grunt work and saving time. Templates also increase the accuracy and consistency of your responses and improve your chances of winning bids.

Using AI-powered templates also has a ripple effect on the entire build process. For one, it makes collaborating with team members and external stakeholders easier. With centralized templates, everyone works from the same script, reducing miscommunications and keeping all parties on the same page. This synchronization is critical, especially in complex construction scenarios spanning years and involving multiple teams, subcontractors, agencies, and even geographies.

The dynamic nature of templates also means you can quickly update them to reflect changes in project scope or regulations, keeping your documents current and compliant. Integrating AI into your estimating process is a giant leap toward more intelligent project management.

**USING AI-POWERED
TEMPLATES HAS A
RIPPLE EFFECT ON
THE ENTIRE BUILD
PROCESS.**

3

DATABASES FOR QUANTIFYING TASKS

Experienced estimators are already well-versed in the complexities of major construction projects, including the nuances of quantification and cost estimation. Sophisticated construction estimating

software doesn't replace such expertise; it amplifies and enhances it, merging a precision-driven approach with project planning and execution.

Advanced quantification tools within these software solutions provide precision for quantity takeoffs, where accuracy is crucial.

The technology allows you to extract material, quantity, and part requirements directly from digital blueprints, eliminating the slow, error-prone process of manually measuring and calculating from physical plans. And because the software automates calculations, it minimizes the risk of human error, contributing to the overall quality and trustworthiness of your work.

These tools also use sophisticated algorithms and databases with up-to-date material and labor costs that help you stay competitive yet realistic, aligning your estimates with what's happening in the market. This integration allows for a more dynamic estimating approach in which costs update automatically based on market trends and pricing. In an industry like construction, where prices tend to fluctuate, this real-time integration can help you maintain the accuracy of estimates.

Bottom line? Adopting advanced estimating software and centralized databases is a strategic move that positions you to leverage your team's expertise and industry insights. These tools streamline the quantification process while enriching the quality of your work, positioning you as a top estimating team ready to tackle tomorrow's challenges and opportunities.

**SOPHISTICATED
CONSTRUCTION
ESTIMATING
SOFTWARE DOESN'T
REPLACE EXPERTISE.**

“Similar to managing a stock portfolio, a key to success is shedding the jobs you don't want. There's often more optimism at the estimating stage than what results in the field. Using advanced estimating software removes the rose-colored glasses and presents a more accurate picture. It's the facts you're working with, not just the 'feel' side of things. While intuition has its place—estimating and building jobs is a bit of an art—more decisions should be grounded in facts.”

- Mike Albani, VP of Estimating, Aecon

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ADVANCED DATA ANALYSIS AND REPORTING TOOLS

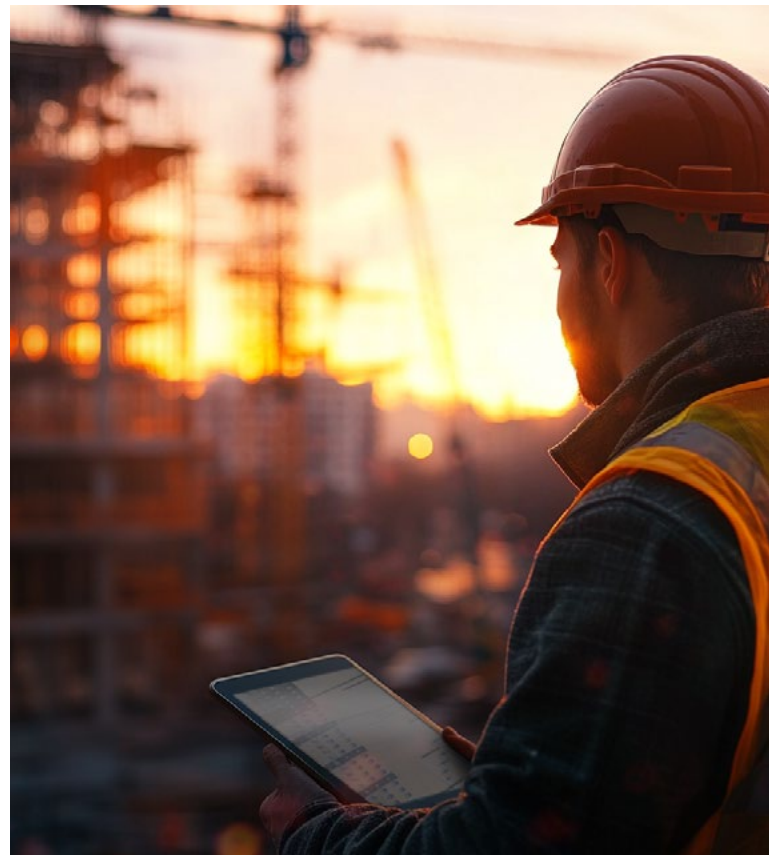
Estimating teams serious about automating repetitive tasks rely on advanced data and analysis tools. Deloitte's State of Data Capabilities in Construction report revealed what you likely already know—construction professionals spend too much time on data, ranging from 11.5 to 13.4 hours per week, depending on their role. The report also showed that construction companies classified as data leaders see a 50% increase in average profit growth rate each year compared to data beginners.

Data analytics also transforms reporting and documentation. Analytics tools simplify managing tasks like comparing equipment performance against industry standards and identifying underperforming equipment, which leads to better equipment selection and reduced idle time. These tools also assist with schedule management, allowing you to analyze the activities and locations of equipment and crews to find schedule gaps or overlaps and optimize assignments.

Another way to cut repetitive tasks and boost project outcomes is by integrating Building Information Modeling (BIM) into your processes. BIM offers a more integrated and detailed approach to estimating through a visual and data-rich representation of a construction project. This approach allows you to access precise measurements and materials data directly from the model, leading to more accurate and efficient bids. BIM also supports real-time updates and changes, ensuring that estimates remain current and reflect project modifications.

**YOU WON'T JUST BE KEEPING
PACE; YOU'LL BE SETTING
STANDARDS.**

These advancements in data handling efficiency, enhanced reporting, and BIM workflows represent a new frontier in construction project management. By using these sophisticated tools, you can automate repetitive tasks, increase efficiency, improve project quality, reduce costs, and boost profits. Embracing these tools can position your team at the forefront of an evolving industry. You won't just be keeping pace; you'll be setting standards, shaping a future where enhanced efficiency, superior quality, and remarkable profit gains are tangible realities.



AECON'S ACCURACY ADVANTAGE:

PIONEERING PRECISION IN PROJECT ESTIMATION WITH DIGITAL TOOLS

Aecon Group Inc., Canada's largest publicly traded infrastructure development company, faced considerable estimating challenges. The company wanted to transition from traditional processes to a digital estimating solution to save time and budget. The conventional methods of creating bids were time-consuming, taking up to a week. Aecon wanted a solution to help estimators gather more intelligence about prospective bids and create estimates in less time.

Enter InEight Estimate. The advanced digital estimating software has transformed Aecon's estimating function, saving more than 3,000 estimating hours each year. With the Bid Wizard tool inside InEight Estimate, Aecon now creates bids in minutes, saving up to 4.5 days for each project setup. These efficiency gains have allowed the company to shift bid preparation hours into estimate analysis. The result? Aecon now produces faster and more accurate bids, significantly improving its operational efficiency and productivity.

THE FUTURE OF YOUR ESTIMATING FUNCTION IS IN **YOUR HANDS**

Although the challenges of estimating capital construction projects loom large, you can manage them effectively with the right best practices, strategies, and tools. Use historical data. Standardize your estimating process. And automate to eliminate repetitive tasks. Advanced, cloud-based software—developed especially for capital construction—can help you apply the best practices and target the issues you face with estimating, including bidding on jobs where you can't be profitable, bidding inaccurately so that jobs become money pits, and dealing with the overwhelming and increasing complexity that is the world of capital construction.

We invite you to experience the transformative power of InEight Estimate. Take the first step toward modernizing your estimating technology and processes. Experience firsthand how InEight Estimate can be your path to differentiation through world-class estimating competence, improved accuracy, shorter cycles, and a higher win probability. Let us show you how easy it is to bring your estimating practice into the future.

REQUEST A DEMO

ABOUT INEIGHT

InEight provides field-tested project management software for the owners, contractors, engineers, and designers who are building the world around us. Over 575,000 users and more than 850 customers worldwide rely on InEight for real-time insights that help manage risk and keep projects on schedule and under budget across the entire life cycle. From pre-planning to design, from estimating to scheduling, and from field execution to turnover, InEight has powered more than \$1 trillion in projects globally across infrastructure, public sector, energy and power, oil, gas and chemical, mining, and commercial.

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