



DERIVE VALUE

FROM CONSTRUCTION ERP

**FOUR ENGINEERING AND
CONSTRUCTION ERP BUSINESS
VALUE DRIVERS AND HOW TO
TAKE ADVANTAGE OF THEM**

By Steve Treagust, Global Industry Director of
Finance, HCM & Strategy, IFS

IFS

RELIABLE VALUE

U.S. CONSTRUCTION ERP TO ACHIEVE MEASURABLE BUSINESS RESULTS



ARE YOU READY?

**...SYSTEMIC CHANGE IS
COMING TO THE INDUSTRY AND
[CONTRACTORS] HAVE TO BE
READY. BUT THEY HAVE TO SEE
A WELL-DEFINED UPSIDE TO
MOVE FORWARD.**

The engineering and construction industry is conservative when it comes to enterprise technology. Given tight margins and fluctuating revenues, it is difficult for many executive teams to commit to something like enterprise resource planning (ERP) software.

Senior executives at construction firms or engineer, procure, construct (EPC) contractors may realize the industry is changing, and they need to get better control over their business. They know systemic change is coming to the industry and they have to be ready. But they need to see a well-defined upside to move forward. At IFS, we have a rigorous business value engineering (BVE) process that we work through with our customers. And this process lays out clear and reliable benefits that engineering and construction companies should be able to realize from implementing true 21st Century construction ERP. Of the various ways engineering and contracting firms achieve return on investment (ROI) from ERP, the lion's share of the upside originates from four specific business functions.

The first of these benefits should be close to the heart of any CFO ...



TWO REALITIES

MOST CONSTRUCTION COMPANIES...FACE CASH FLOW PROBLEMS. WHY? BECAUSE WHILE THEY ARE WORKING IN THE COMPANY'S SYSTEM OF RECORD—BE THAT FULL ERP OR JUST A FINANCIALS PACKAGE—INDIVIDUAL PROJECTS ARE TRACKED IN DISCONNECTED SPREADSHEETS.

PROJECT FINANCIAL CONTROL

The CFOs of many project-driven businesses have very little true visibility and control over project financial positions. In one study from TSheets and zlien, most construction companies said they face cash flow problems. Why? Because while they are working in the company's system of record—be that full ERP or just a financials package—individual projects are tracked in disconnected spreadsheets. And those spreadsheets:

- Do not follow any consistent methodology for recording performance of work on contracts or how that ties into liquidity or payment events.
- Do not provide visibility into whether revenue flowing into the project through applications for payment will cover the costs of labor, subcontractors or materials that are being expended.
- Cannot intelligently identify, allocate and manage risk in a way that protects not just project cash flow but company cash flow.

Furthermore, these spreadsheets will not enable executives to intelligently or accurately estimate and anticipate each project's end game when it comes to cost, cash and revenue. Nor will they enforce a consistent approach to estimating or project financial management so that a CFO is comparing apples to apples when she or he reviews the project portfolio.

With accurate information on the cash position, an engineering or construction firm is in a better position to ensure not only that they have enough cash on hand, but that they don't have too much when that money could be invested in other ways to grow the business. International contractors must also have the treasury management tools ensure they have cash in right currency, with appropriate hedging strategies in place.

Eliminating these cash flow problems will not just help make payroll and keep current on external financial obligations to subcontractors. It will also give an executive team the confidence to make proactive investments in technology and process change that will take the company, finally, to that next level.

The ability to better control cash flow, while tying cash in and cash out to project performance and task completion, will give an executive team the freedom to truly invest in and grow the business, even as they eliminate the negative financial and customer experience repercussions of their current cash flow problems.



RAPID CHANGE

CONSTRUCTION ERP SHOULD BE ABLE TO QUICKLY ADD CHANGE ORDERS TO THE TOTAL PROJECT SCOPE, AND INTO CURRENT OPERATIONAL PROJECT PLANS.

COMMERCIAL CONTROL AND CHANGE MANAGEMENT

Once a proposal is successful and turns into a contract, that engineering and construction firms must start executing on that contract and managing project performance. But for perhaps the majority of contractors, 10 to 15 percent or more of the total revenue the project produces come through change orders and contract amendments. When that percentage fluctuates by even 3 to 4 percent, that may affect project revenue by a few more million dollars. So, the ability to proactively plan around contingency scenarios becomes very important in construction ERP.

Sometimes these changes are due to any inadequacy of the initial scope, but more often arise from discovery during the project or through changing priorities during a multi-year large scale development project. We may expect more of this in very dynamic settings like redevelopment, where you are learning on-site of the condition of the existing structure and the level of effort required for adaptive reuse. And in condominium or leased space like offices or retail developments, the number of total units, unit size, finishes and other project details will be defined on a fluid schedule.

Construction ERP should be able to quickly add change orders to the total project scope, and into current operational project plans. The software should also give engineering visibility into the nature of and anticipated degree of change associated with similar projects. But once it is issued, a contractor must set up a change order in construction ERP—defining the goal of the change and record it against the appropriate steps in the contract. Each change must be automatically pushed through approval and review stage stages and gates, and construction ERP must also enable reporting and visualization of the impact of the change on financial performance, required resources and project execution.

Once the site plan and construction schedule reflect anticipated change orders, an engineering and construction company can avoid expensive rework. Having to rip and replace recent construction or failing to prepare to extend utilities given subsequent project phases can result in significant waste. Visibility into the extent and timing of these changes may also help with project financing as lenders can have visibility of the expected cost profile of the project further into the future.

This change management process must also be structured to increase margins and revenue. So, contractors should be able to identify in construction ERP the core value of the project and identify changes or additional services that will meet project owner needs while increasing project revenue and margin. It must maximize the revenue and profit potential of each opportunity that comes in the door.



SITE CONSTRUCTION MANAGEMENT

Construction can be challenging to manage in real time because work takes place at diverse geographic locations and value flows rapidly between corporate entities through contracts, subcontracts and even joint ventures. This means construction ERP needs to have:

- Robust functionality for mobile access on tablets across the whole suite
- Purpose-specific apps for mobile workers on site
- Efficient means for subcontractors and suppliers to interact directly through portals and application program interfaces (APIs)
- Features that make it easily opened up to subcontractors make it easier to assess performance of the site. This provides thorough and timely insights on completion against project milestones as well as quality, health, safety and the environment (QHSE) incidents and compliance. Executives must be notified as soon as a quality incident on site happens. Construction ERP will addend it to a QHSE report and provide a means for causation analysis

Most contractors lack visibility into QHSE issues until long after the fact, and once they are aware, they cannot put causality against each incident or patterns of incidents. But construction ERP should provide traceability into whether each worker has proper documentation and credentials for the work and has been issued proper safety equipment. The software should require that every job have a corresponding method statement that documents how incidents will be avoided and how well they are executing against that method.

QHSE DOCUMENTATION

...CONSTRUCTION ERP SHOULD PROVIDE TRACEABILITY INTO WHETHER EACH WORKER HAS PROPER DOCUMENTATION AND CREDENTIALS FOR THE WORK AND HAS BEEN ISSUED PROPER SAFETY EQUIPMENT.

It is desirable and gratifying to walk around on site and get that immediate sense of whether your people are working safe, or progress against known milestones. Remember that while every ERP system in the world will beat you at math, there is no software system that can beat you at walking around and talking to people on site—getting line of sight confirmation of progress reports, and factoring weather conditions into the plan. Maybe there was a torrential rain and you need to factor in dewatering because the trenches are flooded. Construction ERP should enable identification of risks like these early on and provide pathways to quickly adjust a project plan as needed.

And as a structured system, ERP gives you cold, hard facts to bring to bear on the various challenges that do come up on site. Maybe on the subcontractor is claiming in the project plan that brick work is 50 percent complete. But then you look at it and it looks like 10 percent. Maybe the subcontractor says they cannot finish according to the plan. Do you have the information to challenge what you are being told and find solutions? And can you attach the photo you took on site and addend it to an appropriate document—say that mason's application for payment—in the system?



TRANSFORMATION

AS EACH ENGINEERING AND CONSTRUCTION COMPANY LOOKS AT THEIR OWN STRENGTHS AND DEFICIENCIES, THEIR INDIVIDUAL MARKET AND COMPETITORS, THEY CAN LEVERAGE THE SOFTWARE TO ENABLE THEM TO ACTUALLY DO BUSINESS IN NEW WAYS...

SUBCONTRACTOR MANAGEMENT

Software can help you manage subcontractors against defined deliverables. But long before this, construction ERP should eliminate extensive phone and email continuity with subcontractors, starting from letting bids to subs in the first place. The bid-letting, bid receipt, evaluation, subcontractor selection—all of these processes should be automated. The scope of the contracted work flows into the project plan.

Once subcontracts are awarded and work begins against a scope of work, construction ERP should manage:

- Subcontract performance valuations against the contractual position, authorizing progress against benchmarks to approve payment
- Risk and opportunity management to monitor and attach risk to scope creep, and to provide forward-looking what-if risk scenarios and risk mitigation tools
- Subcontractor forecasting for estimate-to-complete (ETC) and estimate-at-complete

A proper construction ERP application will bring lean processes to an environment where a large percentage of work is executed by external parties. Administrative overhead must be eliminated, and ERP must become a real-time, collaborative space for the prime, subcontractors, materials suppliers and even the project owner.

CHALLENGE THE STATUS QUO

There are quantifiable, smart ways to leverage construction ERP in your engineering and construction business. Some of these benefits, like ones cited above, may come by reducing non value-added work or improving decision making through better visibility. But this is just the jumping off point. As each engineering and construction company looks at their own strengths and deficiencies, their individual market and competitors, they can leverage the software to enable them to actually do business in new ways, creating new revenue streams through new types of engineering and construction services. The potential is limited only by your ability to identify problems and envision ways to fix them in ways your competitors cannot.

With two decades providing cost control and risk mitigation systems to multibillion-dollar programs, Steve has the commercial intelligence to elevate IFS's focused Industries. His role includes thought leadership, product direction and communications on financial, people and strategic matters. His career began as a construction site tradesman before advancing with a building surveying degree, MBA and CIMA/CGMA accounting qualifications. Prior to IFS Steve worked for BAESystems, Alstom, Centrica, and Babcock. He holds a passion for environmental & ethical concerns and is an advocate for responsible business.

ABOUT IFS

IFS develops and delivers enterprise software for customers around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. The industry expertise of our people and solutions, together with a commitment to delivering value to every one of our customers, has made IFS a recognized leader and the most recommended supplier in our sector. Our team of 3,700 employees and growing ecosystem of partners support more than 10,000 customers around the world to challenge the status quo and realize their competitive advantage. Learn more about how our enterprise software solutions can help your business today at [ifs.com](https://www.ifs.com)

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WHERE WE ARE

AMERICAS

+1 888 437 4968

ASIA PACIFIC

+65 63 33 33 00

EUROPE EAST

+48 22 577 45 00

EUROPE CENTRAL

+49 9131 77 340

UK & IRELAND

+44 1494 428 900

FRANCE, BENELUX AND IBERICA

+33 3 89 50 72 72

MIDDLE EAST AND AFRICA

+971 4390 0888

NORDICS

+46 13 460 4000