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Flexible technology manages E&Cs through market storm

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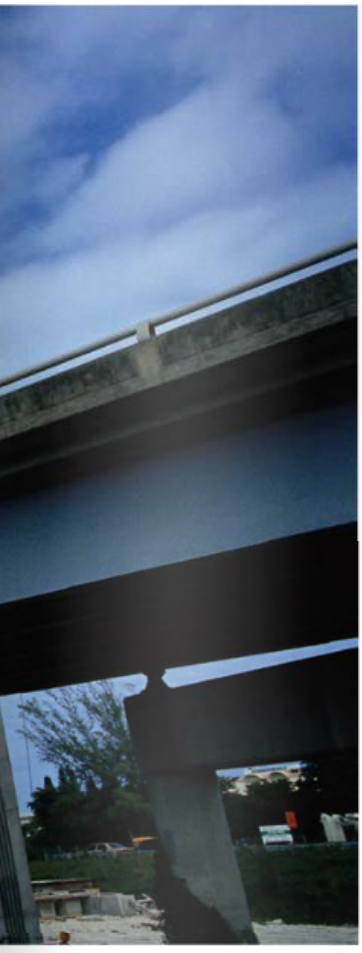
With the plunge in oil prices, big operators' oil & gas capital spending is coming under increased scrutiny. Therefore, engineering and construction companies (E&Cs) have a greater need to be more flexible, remain profitable and manage their business through market turbulence. To survive and thrive, contractors need to innovate dynamically across all aspects of their operations and deliver high-quality services in line with market forces. So, how can E&Cs weather market storms and address both operational and commercial needs?

As the relationship between E&Cs and owner-operators changes, contract conditions need to be more closely aligned to the interests of both parties to ensure project scopes are clear and costs do not overrun. Also, when engineering expertise is tight, the workforce tends to be stretched to achieve more with less resource. Owner-operators consider standardised designs as one option to minimise costs. Therefore, partnering with the right technology vendors with flexible business models can make the difference between



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success and failure during these uncertain times.

Simplification and effective execution

The dynamics of the market reflect a paradigm shift as old plants are phased out in Europe and Asia, while new plants are built in the Middle East, China, Russia and the US Gulf Coast. This brings great opportunities for E&C companies.

Managing risk plays a key part in the strategy to decrease uncertainty and ensure project estimates track to project performance. Many E&Cs have limited resources. As projects unfold, companies need to do more with less to complete them on time. By improving the bid process, E&Cs can win contracts with more accurate estimating and project execution performance. Project managers can reduce risk and uncertainty by tracking estimates against performance. By simplifying execution, global teams can contend with resource shortages. However, this can only be done by partnering with vendors who can reliably help throughout the project lifecycle, while maintaining quality standards.

Project managers can reduce risk and uncertainty by tracking estimates against performance.

Those E&Cs that can diversify their operations from the oil & gas sector to other markets, like chemicals and mining, will capitalise on delivering high-quality, reliable services to meet client objectives. With the optimism in emerging markets and the positive effect of technological advances, E&Cs see infrastructure development as pivotal to growth. Projects are diverse, ranging from transportation systems, including rail, road, air and shipping networks, through to design and supply of direct fired heaters, complex construction projects for chemicals and refining and project execution expertise to the minerals and metals sector.

According to a recent study by PwC, "engineering and construction CEOs see technological advances as the top trend which will transform their business. Many called some aspect of technology the "next big thing" to impact their business, citing everything from new applications for formwork to techniques to better manage and utilise data. Most engineering and construction CEOs are optimistic about their ability to keep up--only 33% are concerned about the speed of technological change, compared to 47% overall".

Competitive differentiator

E&Cs compete on a global basis bidding and executing on complex, large-scale projects. By having an integrated software environment, companies can produce optimal plant designs quickly and efficiently, incorporating highly accurate cost estimation technology. In addition, these projects require software that enables significant collaboration internally with the owner-operators. For engineers and project managers, having control over changes to specifications or projects is essential in mitigating risk. Engineering projects need to maintain maximum flexibility early in the project cycle. ➡

Technology should be seen as a competitive differentiator and not simply a cost of doing business. Advances in areas like process optimisation software help E&Cs broaden their global footprint and strengthen their competitiveness in high-growth, emerging markets. Many companies have adopted AspenTech's aspenONE Engineering software suite to optimise process designs for energy use, capital and operating costs and product yield through the use of activated energy, economics and equipment design during the modelling process. aspenONE Engineering enables E&C companies to bid and perform projects with lower cost and company risk.

In addition, partnering with AspenTech brings significant commercial benefits in the form of its business model. With aspenONE® Licensing Model, E&Cs have access to all products in the aspenONE® suite and can use software tools on a 'check out - check in' basis and track the usage whilst adjusting when and where the software is used based on their changing business requirements. As business priorities evolve, this flexible software model transforms the way companies can conduct business, whether the software is installed on premises or in the cloud, customers have access to the full range of innovative software applications to meet project demands.

For example, if an E&C is using Aspen HYSYS to produce engineering models for the oil & gas market, they can switch their tokens to adopt Aspen Plus to produce and optimise process models, including best-in-class physical properties, to support customers in the chemical industries. Common and intuitive user interface with the tools allow engineers to easily switch between applications. Embedded training in the software tools allows quicker learning and interaction to help speed up knowledge when engineering staff may be new to the company or unfamiliar with key project software technology.

A leading European E&C recently demonstrated the principle dynamics of diversification by using

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AspenTech's leading aspenONE suite to adapt and support its commercial needs. In 2012, when the oil price reached a high of $125 per barrel for Brent, the focus of engineering tools used was on hydrocarbons. Crude oil prices fell during the second quarter of 2012 as a result of lower oil demand and the global economic slowdown. By the end of 2014, Brent crude oil prices ended at around $58. Reflecting this trend, the large European E&C's software usage shifted towards a more diverse range of tools to support other industries, including chemicals, metals and mining, heat exchanger engineering projects through to the use of more dynamic simulation software. This proved to be an enormous commercial advantage, using both the AspenTech License Model and the comprehensive software suite of tools to help mitigate risk and adapt to market fluctuations.

Innovation and business growth

The engineering design and construction industry is rapidly changing against a backdrop of fluctuating oil prices and intense competition. Today, the markets are open to global trade allowing capital investment, skills and technology to move freely across borders and increase business opportunities. Agility is essential to respond quickly to change and being flexible requires organisations to build long-term partnerships with technology vendors to meet demand and support customer needs. Crucially, with the right software tools E&Cs can successfully achieve competitive edge. The biggest capital project opportunities worldwide exist in the midstream and upstream, including gas production, oil production and gas processing. This requires better and more efficient ways of executing projects. As the market continues to show signs of turbulence, flexibility in the engineering of facilities is extremely important.

Business is becoming more complex. If E&Cs are to weather the storm in the energy markets, access to a flexible and scalable software model helps E&Cs compete and survive while capitalising on growth opportunities in established and emerging markets alike.