

THINKING AHEAD

will help maximise assets

Steven Kratsis, VP, Engineering and Construction, EURA, AspenTech says retaining talent and investing in software is key to operational excellence

A weak workforce in a weak economy leaves engineering and construction companies (E&Cs) vulnerable to stronger competition. The key to long-term sustainability in the oil and gas sector is balancing operational strategy with market demand and reliance on the 'grey matter'. Best-in-class operations require best-in-class minds. Companies need to ensure that their strategies include investment in cutting-edge technologies, brain power and skills to give their businesses a clear advantage in a turbulent marketplace.

The current dearth of oil and gas projects is matched by the scarcity of knowledge across the business. Talent is a vital ingredient in providing companies with the expertise needed to tackle today's business challenges. In addition, tomorrow's generation of engineers need to optimise the biggest asset – people.

Many E&Cs recognise that helping owner-operators achieve operational excellence is a commercial imperative. However, for this to happen, it is equally important to see talent and expert skills nurtured as part of a business plan for long-term success. Without the best people and tools, it is difficult to remain efficient and competitive.

The E&C sector employs millions of workers worldwide with varied roles and responsibilities. Many skilled workers are hired by established E&Cs, yet, they are often only on short-term contracts. This instability means that specialist skills are hard to find. Another barrier to stability is that project bids still tend to be won on a cheapest or fixed price basis, forcing companies to work towards the lowest common denominator. When margins are tight the E&C often faces the biggest risk.

Recently, E&Cs have reduced staffing levels and consequently lost valuable engineering know-how and experience. Talent forced to leave the industry may never return and could migrate to other industries, such as finance and IT. In some cases, veterans with specialist skills are being encouraged not to retire but work part-time to help retain their knowledge and ensure successful project continuity.

Back in 2011, EY Oil & Gas Risk & Opportunity reported: "22% of oil & gas

respondents indicated a lack of qualified personnel was already impacting their operations". However, just four years on and a 2015 Skills & Demand in Industry report by the Institution of Engineering and Technology (IET) reveals that "53% of employers are having difficulty recruiting adequately skilled staff". The report also highlights "that almost 70% of employers have reported a lack of available graduates while 66% voiced their concerns that the education system will struggle to keep up with the skills required for technological change."

So, why is industry not learning its lessons? The turbulent economy is partly to blame, but irrespective of market forces, stronger collaboration between employers and academic institutions is needed to plug gaps and build a sustainable talent pipeline. Ultimately, operational excellence can only be attained with a highly-skilled workforce.

In view of the cycle time to nurture skills, having the right integrated software tools to help perform effective designs means E&Cs can reach better planning and capital decisions faster. In essence, critical knowledge and skills drive behaviour and improve results from the plant floor to the boardroom.

History tells us many companies struggle in a growing market after a slump because they are not ready to compete and fulfil customer demands. Forward thinking E&Cs have decided to redeploy skills to other areas of their business, which ensures they retain the expertise. For example, if the upstream industry sees a downturn and the downstream industry experiences an upturn, smart engineering companies will have safeguarded their skilled workforce to be well placed to competitively 'bid-to-win' and successfully fulfil projects. Companies need to be ready and equipped – tooled up and talent rich. The oil and gas industry is asset intensive and needs to be efficiently maintained, so people need continuous improvement through quality training and investment.

Those E&Cs that have a diverse portfolio supported by expertise and advanced software will capitalise on the opportunities ranging from LNG,



Talent and expert skills need to be nurtured as an integral component of the business plan



Steven Kratsis said: "Technology should be seen as a competitive differentiator, not simply a cost of business"

At a recent European Energy Forum in London, David Brown, CEO, IChemE highlighted: "Skills supply, the human infrastructure of our industries, is not something that you can plan or deal with on a scale of months or years. Like some of the major infrastructure in which we invest, it is something to be planned on a scale more like decades. Enthusing a young person with a career in engineering through to becoming fully qualified, chartered and achieving 'time to autonomy' might take up to 15 years."

exploration and production, power generation, petrochemicals, refining etc.

Many E&Cs have standardised on AspenTech's aspenONE Engineering software suite, which incorporates an integrated engineering lifecycle approach to achieve flexibility, streamlined processes, global execution, global collaboration and capital cost efficiency. Users have achieved improvements in project performance and cycle time in all aspects of the workflow. In addition, using AspenTech's tools, E&C majors have measured a 30% improvement on FEED project performance and streamlined their workflow across global offices.

Integrated engineering software includes products for conceptual engineering, cost estimation, analysis and understanding the engineering workflow. Using this software results in consistent decisions and improved engineering efficiency delivering benefits of 10 – 30% in capital and operating costs and 30% in engineering efficiency. In addition, benefits of 2 – 8% in operating cost reduction can be obtained by reusing engineering models during manufacturing and supply chain phases.

Productivity is a process whereby people, processes and technology can extract the maximum value from a manufacturing asset, which will result in increased E&C performance and profit. As an ageing workforce reaches retirement and diminishing operational expertise takes its toll, retaining talent is a priority. Whilst many E&Cs face a market slump, those companies that do not plan for the market uplift or invest in software will not be able to meet future growth.

Operational excellence is not just about physical plant assets – it is also about people. Automating best practice enables more engineers to add value on owner-operator projects. Technology helps address complex problems that support better decision-making. As smart E&Cs invest in software and differentiate their businesses in the market, now is the time to start thinking ahead.

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