

Vision 2030: Towards Next Generation EPC Companies

Abstract

“Prediction is very difficult, especially if it's about the future,” Niels Bohr had once noted.

Engineering, procurement, and construction (EPC) companies are re-discovering themselves in the new world order of fluctuating oil prices, evolving customer demands, emerging geopolitical forces, and shrinking margins. However, the most important influence has been disruptive technologies, without which achieving efficiency and cost effectiveness would have been an uphill battle. With the Internet of Things (IoT), augmented reality (AR), virtual reality (VR), artificial intelligence (AI), and analytics invading the traditional space, there is no choice but to pay attention and adopt. Data security is a major threat for the legacy systems. Yet, there's no denying how the current IT infrastructure is changing with rapid cloud adoption and reduced total cost of ownership (TCO). Some EPC companies are already accelerating their journey on the transformation roadmap. We can tell this based on the RFPs received by us. Interestingly,

these companies have created their own roadmaps—a good start towards realizing a digital future.

In such an evolving paradigm, we suggest that companies take a rational approach that does not disrupt existing business processes, ensuring contracts with long-term clients remain unaffected. They can adapt to thrive in a rapidly changing, increasingly competitive, and constantly uncertain world. While the future or the pace of developments cannot be predicted with certainty, tracking several key trends can aid companies to prepare for the future.

Once we start to look at the application landscape with respect to the internally developed EPC new generation reference architecture (NGRA), the gaps in technology and the business model start to show. There will be some solutions which can be accelerated by partnering with technology specialists and this will be the key differentiator to bring about the transformation while ensuring business as usual.

Crafting Smarter Assets

All around us, we see smarter assets being built – cities, buildings, infrastructure, and even industries. Robotics and interoperability through the IoT have become default. Here, automation starts at the design stage of those assets, quickly moving on to installation, and then to operations. With greater intelligence in oilfields, mines, factories, airports, living spaces, and other facilities comes higher efficiency, value, and quality of operations. However, this also comes at a hefty price of increasing complexity and operational risk.

EPC companies are preparing to build smarter facilities by becoming exceedingly technically proficient. Their role will extend beyond that of general contractors, requiring them to stand out as true integrators of emerging technologies. To realize this, these companies must be integrated within their own organization and with customers, suppliers, and sub-contractors in meaningful and innovative ways.

Building Smart and Lean Organizations

EPC firms are restructuring themselves with a focus on customers and technology. Our leading EPC customers from Americas, Europe and Australia are trying to achieve their future vision by building technologies to achieve their business goals. These technologies are slated to disrupt the traditional value chain and present regional operating models. Such shifts are already noticeable with advances such as visualization (versus modelling), robotics (versus construction), production using 3D printing (versus procurement), and the IoT (versus project monitoring and controls). There are technologies that can even install or construct based on plans derived from the 3D models. In many projects, drones are being used to monitor the project progress status.

It is clear that these pervasive technologies will demand new ways of operating both within and outside the enterprise. Consolidation and running simulations or testing scenarios will soon be passé. Consider how the monitoring cell functions today. Rather than updating schedules based on inputs sourced from the site, it now only needs to watch and connect 3D models accordingly.

The NextGen workforce is now changing, with younger, less experienced, but more tech-savvy employees. Future organization models need to re-orient themselves to collaborate and converge current silos. Engineering disciplines, therefore, must make room for the operations and maintenance (O&M) strategies. Some companies are starting this journey with pilot projects involving social platforms with the goal of creating a foundation for future, flexible organization—creating brand values centered on trustworthiness, innovation, and agility.

Customizing Solutions

Going forward, facilities will move towards becoming more customized. An example in this direction is distributed power generation and how this is changing the utilities market. Another would be how 3D printing and robotics are helping manufacturers reduce their footprint and move closer to the markets.

This poses an interesting problem for modern EPC companies. How can one scale to reduce costs in locally oriented markets? How can production processes be standardized to minimize cycle time and also serve time bound projects?

In response, EPC companies are moving closer to their customers—going beyond building specification to help customers recognize smaller, more customized facilities within the local market can make the business better. This might also require firms to source and train local resources with the intent to drive down maintenance costs with the fundamental goal of becoming a global player with local presence.

Gaining Competitive Edge with Good Governance

Conventionally, governance is considered a secondary issue that qualifies or disqualifies the EPC enterprise when bidding for contracts. However, in today's hyper-connected world of smarter, localized projects, delivering compelling customer experience depends on good governance, which is seen as an effective way of managing risks for both parties involved. After all, nothing negates the value of an asset faster than uncontrolled risk.

Governance, fortified by robust IT security policies, must include all aspects of operational, financial, and vendor or sub-contractor risks. This also means accommodating risks

posed to the customer by changes in specifications and schedules. Rather than being theoretical, this will be a data-driven approach that leverages advanced analytics. The outcomes can then be linked to business KPIs and managed accordingly.

In the recent RFPs and RFIs, we have noticed a shift in how SLAs are being attempted to link to business KPIs. CSIs are now increasingly mapped to business functions with a bigger role for domain expertise from IT service companies.

Forming Partnerships as a Core Competency

Now, more than ever, firms need to partner with clients, suppliers, sub-contractors as well as tech companies to not only take operations to the next level, but also proactively address customer needs and pain points. Imagine the possibilities of a collaborative environment enabled through a shared cloud-based infrastructure or platform that breaks traditional enterprise boundaries.

The leading adopters will become true orchestrators—bringing together customers, suppliers, sub-contractors, and non-traditional players such as tech companies to innovate and create the next generation of new assets.

As part of the transformation towards becoming a re-imagined digital enterprise, IT partners can provide necessary support through innovation labs, dynamic testing solutions, and more—for circumnavigating future uncertainties.

Marching Towards Operational Excellence

To sum up, the Next Generation EPC companies need to re-imagine their business using an approach which will encompass the following.

- SLAs linked to business KPIs make it visible to track changes.
- Transformation is at the core of business approaches, while PoCs run for effective deployment.
- The key solutions are the outcome of the technologies identified, adopted and deployed. These are tested under business conditions during the run followed by Continuous Service Improvement (CSI).
- Operational excellence is the end goal while being sensitive to cultural changes.

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Tom Franklin serves as the Director of TCS' upstream center of excellence. He comes to TCS with more than 40 years of experience in the oil and gas industry. He was a contributor to Cambridge Energy Research Associates' landmark study of the impact of information technology on the petroleum industry, "The Quiet Revolution." In serving his clients, he has delivered engagements covering business and IT strategy, system selection, business process design, and system implementation. He has worked with business processes such as prospect evaluation, production field operations, drilling, petroleum and reserves accounting, and energy trading and risk management.

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