

EPC Industry: Transformation Imperatives, During and Beyond Crisis

Abstract

The Engineering, Procurement and Construction (EPC) industry by virtue of its inherent nature has traditionally been fragmented, complex and averse to change. EPC contracts are complex, with multi-year engagements supported by multiple subcontractors. Such a disparate and traditionally disintegrated ecosystem introduces inefficiencies and business challenges at multiple levels for EPC firms. Thankfully however, even before the COVID-19 crisis emerged, the EPC industry had begun to acknowledge the importance of digital transformation. The crisis has only accelerated the process. This paper discusses the key transformational trends in the EPC industry and explores how firms can leverage digital technologies to accelerate outcomes in the new reality.

Taking stock of emerging EPC trends

Let's delve deeper into some of the key industry transformational trends unfolding in the EPC industry over the recent years.

- **Industrialized Construction:** It is a key theme in the industry to adopt some of the best practices of rather mature industries such as discreet manufacturing, and aerospace to address traditional industry challenges. Techniques such as prefabrication, offsite manufacturing, and others are being explored to reduce the uncertainties in project implementation.
- **Adoption of Digital Technologies:** There is widespread acknowledgement in the industry about the value digital technologies such as automation, IoT, and analytics bring to the table. Industry learning is also backed by the benefits reaped by the other industries such as manufacturing and Oil & Gas and EPC players are keen to emulate their success.
- **Value Chain Control:** Greater focus on standardization and industrialization enables EPC companies to expand their presence along the value chain through value chain integration or partnerships. This allows more control on the value chain and helps lower the uncertainties by creating integrated supply chains.
- **Safety and Sustainability:** Health and safety already ranks high on the EPC industry's agenda, though the actual impact on the ground has been low. The industry is now looking at wearable technologies such as smart helmets and watches to address some of the onsite Health, Safety and Environmental (HSE) concerns.
- **Talent Pipeline Creation:** The need to access the right talent at the right time and place is more important than ever today as the industry embraces more sophisticated practices such as industrialized or modular construction. Traditionally, the industry has largely focussed on contractual workforce to deliver large and complex projects. However, given the changing paradigm, most industry players are looking to create robust and sustainable talent pipelines to drive transformation across the value chain.

Reshuffling EPC priorities to align with the new reality

The COVID-19 crisis came as surprise and caught most industries off guard. For the EPC industry that already ranked low on digitization and thrived on on-site operations, the situation was even more problematic.

Consequently, EPC companies were forced to reshuffle priorities to address some of the immediate challenges. However, while it is important to address the immediate concerns, it is ever more important not to get distracted by the short-term challenges. EPC firms must look at the long-term horizon and evaluate how short-term investments can lay the foundation for long-term cost savings as well as help drive sustainable transformation goals. Figure 1 illustrates key objectives for the EPC industry on the road to recovery.

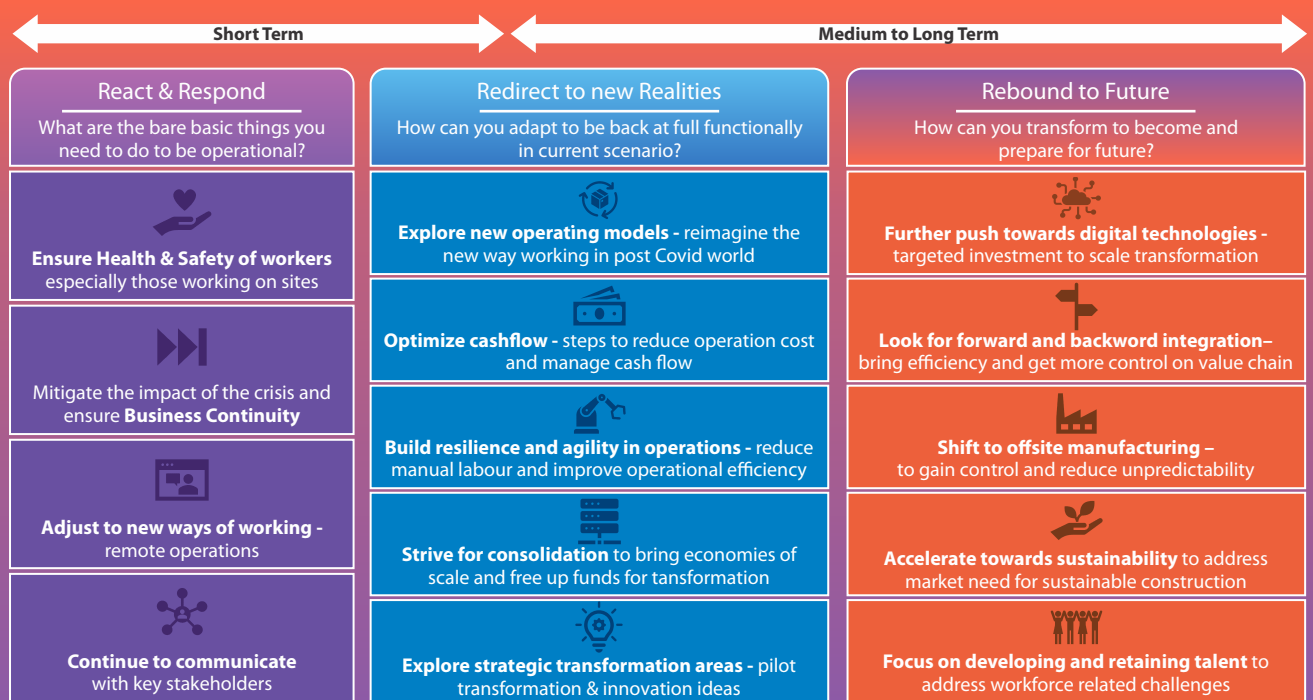


Figure 1: EPC Industry road to recovery & transformation

The recovery process can be divided into three phases:

- **React & Respond:** The immediate focus was to minimise the impact of the crisis while ensuring the health & safety of the workforce. This ensued adjustment to new ways of working such as establishing remote working models. Quick actions at the onset of the crisis helped the companies absorb the impact of the initial shockwaves and buy time to firm up their overall crisis handling strategy.
- **Redirect to New Realities:** As the industry gets accustomed to the new paradigm, the focus is now on creating short to long-term strategies to ensure resilience. Besides addressing the short-term concerns such as maintaining liquidity, optimizing cashflows and keeping the value chain intact, EPC companies have to parallelly get back to the drawing board to redefine their long-term strategy. This requires an outlook of targeted transformation opportunities, a keen focus on building resilience and exploring new revenue streams.

- Rebound to the Future:** As part of the long-term transformation strategy, it is imperative for EPC companies to have a digital adoption strategy. Focus should be on building a solid foundation of enabling digital technologies, which in turn, will act as an enabler for large scale business transformation. The current crisis would also accelerate M&A activities with EPC companies looking for strategic acquisitions or divesture in the medium to long run. Sustainability is another area that is garnering attention. Most companies have revised their sustainability targets with emphasis on carbon neutral, green development and modular or offsite construction.

The digital mandate for EPC over the short and long-term

With the EPC industry pushing the envelope on transformation, digital technologies have a key role to play from both short- and long-term perspective (see Figure 2). In the short-term, technology areas such as remote collaboration, cloud, and cybersecurity have played a key role in supporting the remote operating models, which are now becoming mainstream. As the global economies gradually re-open, EPC firms have also started experimenting with social distancing solutions, which help them reopen the construction sites while adhering to safety guidelines.

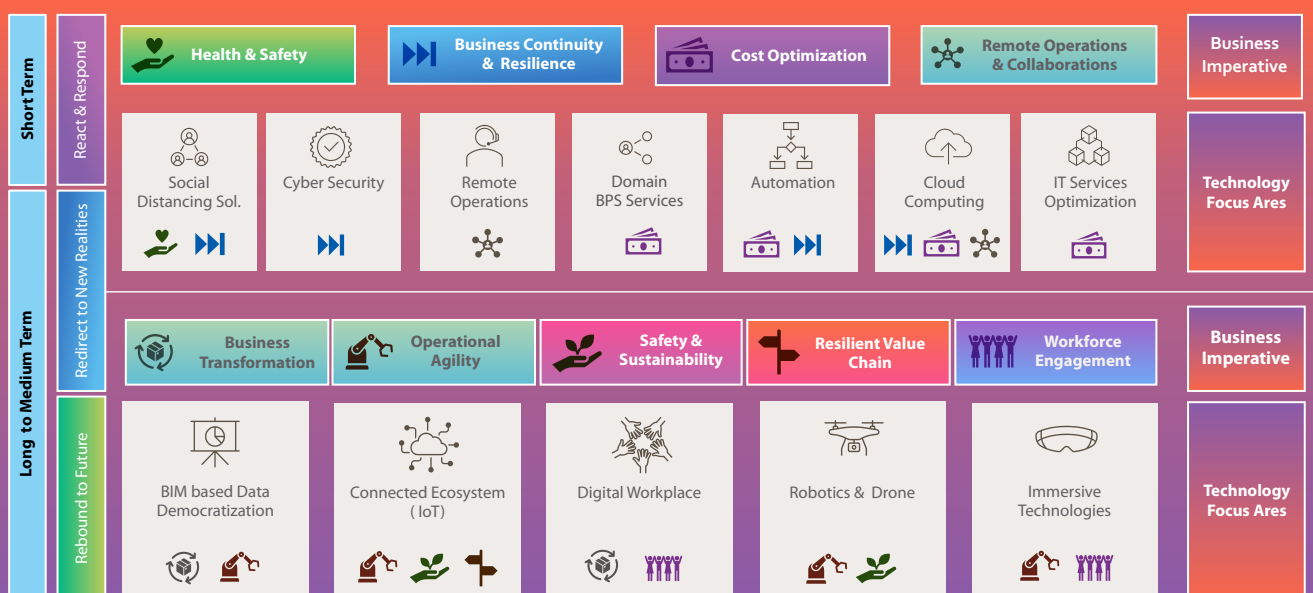


Figure 2: Role of digital technologies in EPC transformation

Some of the other areas such as consolidation of IT services, outsourcing of non-core BPS services, and business process automation are also vital from the cost optimization perspective. These areas, if explored with strategic intent can help optimize the overall operations cost and free up resources to drive the larger transformation agenda.

The EPC industry is also keen to explore other next-gen technologies such as Artificial Intelligence (AI) and Machine Learning (ML), Internet of Things (IoT), immersive reality, and additive manufacturing. However, the most critical piece of the puzzle is to get the existing segregated data landscape sorted. With steady adoption of Building Information Modeling (BIM) and implementation of Common Data Environment (CDE), the industry has already taken steps to create a central repository to store construction project information, which in turn acts as a trusted data source feeding the critical information to downstream digitized applications.

Another key focus area for EPC firms would be to strive towards a connected ecosystem. While a Common Data Environment is crucial, it can never act as a comprehensive single source of truth unless it is fused with site operations, supply chain and logistics data. An end-to-end connected ecosystem powered by a cloud-based IoT platform can help bridge this gap and would include areas such as connected operations, workforce, supply chain, and smart assets. Besides providing access to the operational data, a connected ecosystem would also help address some of the chronic industry problems around productivity, health and safety, etc. through targeted digital solutions such as digital work permits, construction command centres, and more.

Immersive reality solutions are another frontier bound to play a crucial role in the digitized experience in the EPC industry. For instance, Mixed Reality can play a crucial role in enabling solutions such as remote assist or overlaying the crucial operational data for on-site audits or inspections. Similarly, Virtual Reality can help drive virtual collaboration, design, training, while also playing a key role in offering immersive experiences to potential clients as part of sales and marketing efforts. Many EPC firms such as Bechtel have rolled out VR based safety solutions that simulate dangerous situations and train operators in safety procedures and protocols. Others such as Skanska use immersive experiences to demonstrate to the designer or customers multiple-fit options helping them to decide on the final building configuration.

Prepare now to win in the future

While the COVID-19 crisis continues to pose challenges to EPC players - with contracts getting deferred or cancelled, and widespread value chain disruptions, it also offers an opportunity to break the inertia on transformation. The time is ripe to focus on targeted adoption of digital technologies to address some long-standing industry pain points. Industry players that emerge as winners in the new reality will be those who are already drawing up their strategies knowing that the future belongs to those who work towards creating it.

About The Authors

Manish Bhadri

Manish Bhadri is an Innovation & Transformation Lead with Energy & Resources UK&I, helping TCS Energy & Resources customers build digital strategies and drive growth & transformation initiatives. He has over 15 years of experience in technology consulting and has rich experience of bootstrapping industry specific digital transformation initiatives.

He holds a bachelor's degree in Computer Science and Master's in business administration from Great Lakes Institute Management, India

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