

# Covid –19 - A Window of Opportunities

The question is no longer about whether construction companies should digitize. The moot point today is how they can embrace automation and digitalization that best prepares them to mitigate the business impact or create new opportunities in crisis times. **Agith G Antony** tracks the developments in automation and digitalisation in the construction industry.

**S**ocial distancing brought in as a measure to arrest the spread of Covid-19, as a blessing in disguise, have forced many an industry vertical to look at the adoption of automation and extensive use of digital platforms as a solution to fight the downside. So unprecedented has been the adverse impact of the crisis due this pandemic, that from the perspective of construction domain, the architecture, engineering, and construction industry players now are forced to focus on technology adoption; the sooner the adoption of digital technologies, the better will be the results.

“We strongly believe that a greater adoption

of digitalized workflows across all stages of construction – from design and planning to engineering and onsite work – will be key to overcoming the slump most construction firms are expected to experience, except the ones who have already jumped on to the technology bandwagon and are reaping the rewards with healthy order books, with sizeable orders secured even in this time of economic inactivity. We hope to see many more construction players adopt cutting-edge tech innovations like Cloud-based collaboration, Mixed or Augmented Reality (AR), Machine Learning (ML), and constructible Building Information Modeling

(BIM)," states **Paul Wallett, Regional Director, Middle East and India, Trimble Solutions.**

### Scope & Potential

Speaking about the scope and potential for accelerating the process of digitalization and automation of the construction domain **Dr. Niranjan Hiranandani, President (Nation) NAREDCO & President, Assochams** says, "The scope is wide, opportunities are many. At the primary level, it is about reducing input from the human interface; at two distinct levels - planning and design / architecture and actual construction." According to him it is not just about mechanization for construction, it is also adoption of digital technology and platforms powered by big data, machine learning (ML), artificial intelligence (AI), the Internet of Things (IoT) – to power sales and marketing, to power customer relationship, to enhance creativity in architecture and the design form; virtual testing as also 3-D walk-throughs of show flats... it will be a quantum jump.

**Says Kalyan Vaidyanathan, Co-founder & CEO, Nadhi Information Technologies,** "Now, more than ever, there is a need for technology enabled virtual design collaboration, and virtual tracking and tracing of material supply chain, and remote project monitoring for better execution planning and control. Today, with anticipated cash crunch, there is a need for data driven integrated project controls solutions that can provide forward looking indicators to time and cost impact to various scenarios anticipated. Such integrated project controls solutions are and will become mission critical to running the business."

Vaidyanathan explains some of the tangible benefits or advantages that CXOs and operational project managers seek, which includes:

- To be able to integrate data from various sources and give near real time assessment on the future time and cost impact of various actions or inactions today
- To have real time access to project KPIs and metrics on schedule, cost, quality, safety, sustainability
- To create a single source of truth for the project bringing together internal and external stakeholders collaborating on a common platform
- To have more time to mid-stream course correct before projects go south so that we can be in control of the project
- To manage project portfolios with leaner teams, yet taking advantage and increasing ROI of the investments in various technology components, and
- To have the ability to make decisions and align all systems and stakeholders so that expensive rework and cost of mis-alignments can be avoided.

### Pain Points

Any change brings with it the pain of moving out of existing comfort zones. Points out Hiranandani: "Real estate companies who have been implementing some parts of the mechanization and automation / digital options, are used to falling back on human interface. This mindset has to change, it has to be digital from the starting point, and automated/ mechanized all through. This change in mindset will be most challenging. Actual work schedules will gradually adapt, but the primary challenge will be adopting digital as the base. When my company did a high-rise tower project in Dubai some years ago, it was a learning experience. The extent of digital planning, the enhanced usage of technology and

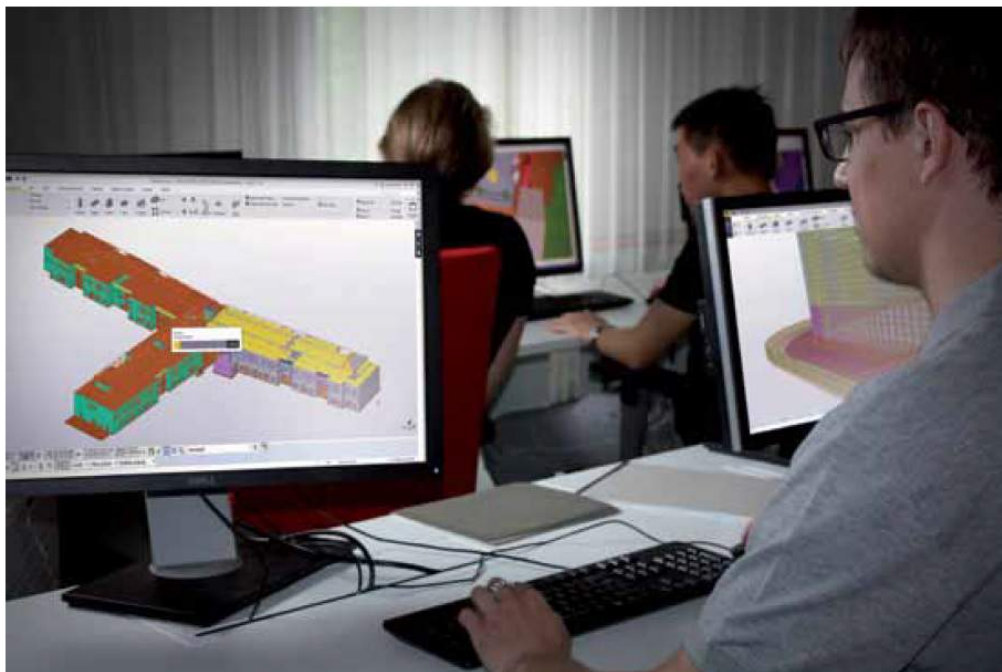


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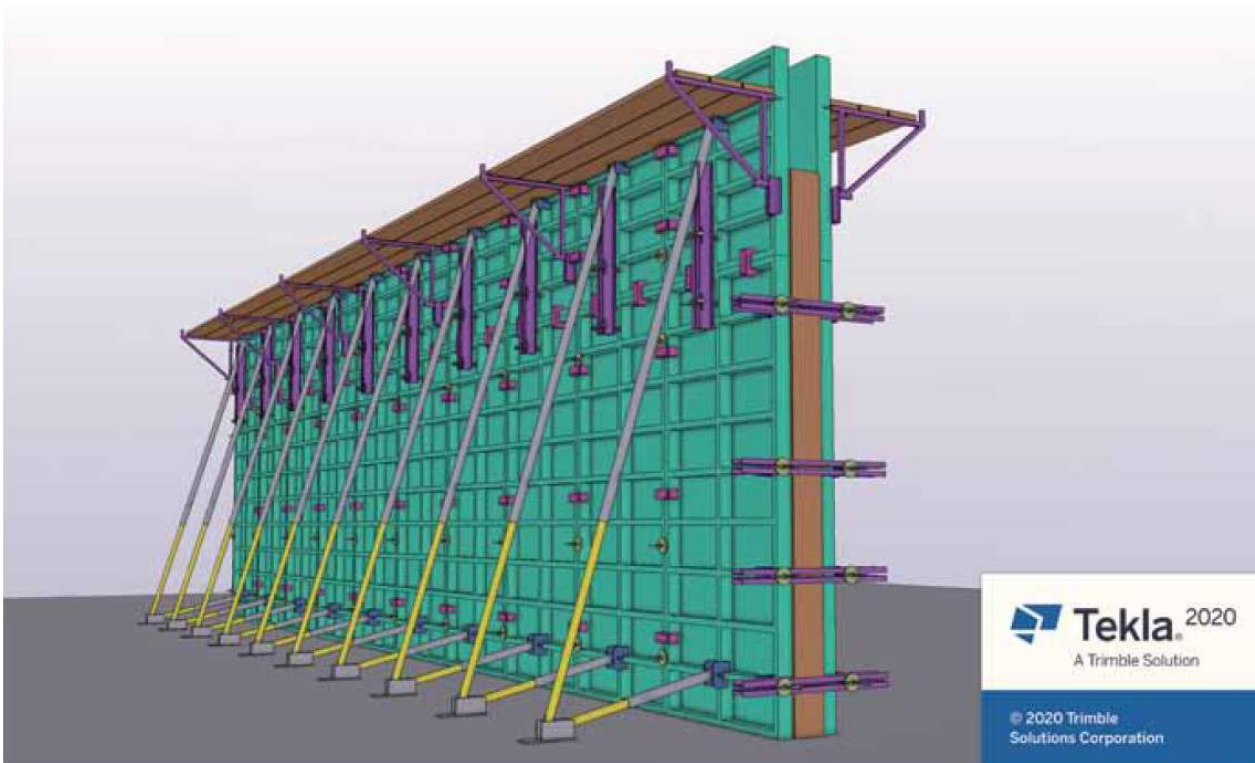


Image courtesy: Trimble

automation in the actual construction – it was like going back to school for most of the team which had gone to the Dubai site from India.

We all have to remember that we are living in the era of digital data and no sector can afford to overlook that. Says **Vijay Gupta, Chairman and CEO, SoftTech Engineers**, “Moving ahead, the construction industry players need to chart out a plan to make things smoother and stable. There are pain areas where they will have to focus and think of bringing technology to address them. The immediate areas where we should implement technology are reduction in manual site visits by using technology for remote supervision, digital procurement management, project management, scheduling, inventory management, accounting, and most importantly, the sales part through digital processes. If we look at all these areas, there is one common factor that connects them and that is, digital data processing of the project. BIM technology (3D/4D/5D) can bring a breakthrough and we must leverage that for this industry.”

Challenges are multi-fold, the most important being the cultural shift, according to **D K Sen, Whole time Director & Senior Executive Vice President (Infrastructure), L&T**. Sen points out, “Construction is one of the least matured industries in terms of technology adoption, though there has been a quantum jump in recent times. People need to first believe that technology is to improve efficiency and not to replace workmen or keep them under surveillance. In L&T, we have worked extensively to bring in the cultural acceptance to accept digitalization as the new way of working. We

have employed even gamification concepts to shed apprehensions. This along with sustained training, communication and management push, have helped us cross the initial threshold of acceptance.”

**Rohit Poddar, Managing Director, Poddar Housing and Development** is on the same page. According to him the biggest issue is the mindset of the promoter and the people in the company - that is the existing culture of the company. Processes can be changed and technological solutions can be suggested but changing culture is difficult.” He adds, “We have to look at the entire value chain of real estate development for the same. There are several opportunities to automate and digitize such as digitizing and recording meetings on the Cloud electronically across offices and construction sites; ensure a robust ERP system and its implementation with zero tolerance to non-adherence. Construction technology has to be appropriate to the project goals.”

“The problem lies with adoption and level of implementation. Other industries like manufacturing, medical, music, media, finance and telecommunication services have adopted it in early stage and they reaped the benefits,” says **Subhash Sethi, Chairman, SPML Infra**. According to Sethi the next wave of digitization is coming through newer technologies including general ledger technologies like blockchain, automation, and smart artificial-intelligence (AI) that will revolutionize the construction industry. He adds, “I believe that we are not far away from using these technologies in our projects as the post pandemic there will be high desire of contact less working

with much lesser human intervention to produce better results in lesser time. We believe that the future of construction industry lies in digitalization and automation and those companies that move early to develop and implement their digitization strategy will be the winners as the construction industry goes digital.

"India has tremendous potential for localizing and adopting global construction technology to build faster and higher quality buildings in both commercial and residential sectors. However, the slow adoption of newer technologies has been one of the biggest challenges that the Indian construction industry continues to face," says **Nejeeb Khan, Head - Design & Business Strategy in India, Katterra**. Recently they have designed a 400-bed permanent quarantine hospital that can be built in 2 weeks! During the last few months, we have seen both China and Italy build such hospitals, and India has the same capabilities.

One of the biggest challenges arises when various contractors from different phases of the construction process - designers, planners, engineers, surveyors and ground crews are not aligned using the same constructible model. This creates challenges and results in lost time recreating models by the surveyors needed for machine control. For example designers create 3D models, but when it comes time to site works and construction of the road, a lot of the time contractors go back to paper plans. Often, surveyors need to re-create the models again, even though they originated as 3D plans initially. This can also lead to errors, which can lead to more rework and delays in the project.

According to **Krishna Veeraraghavan, Director and COO, - Bengaluru, Shriram Properties** there are various barriers that are

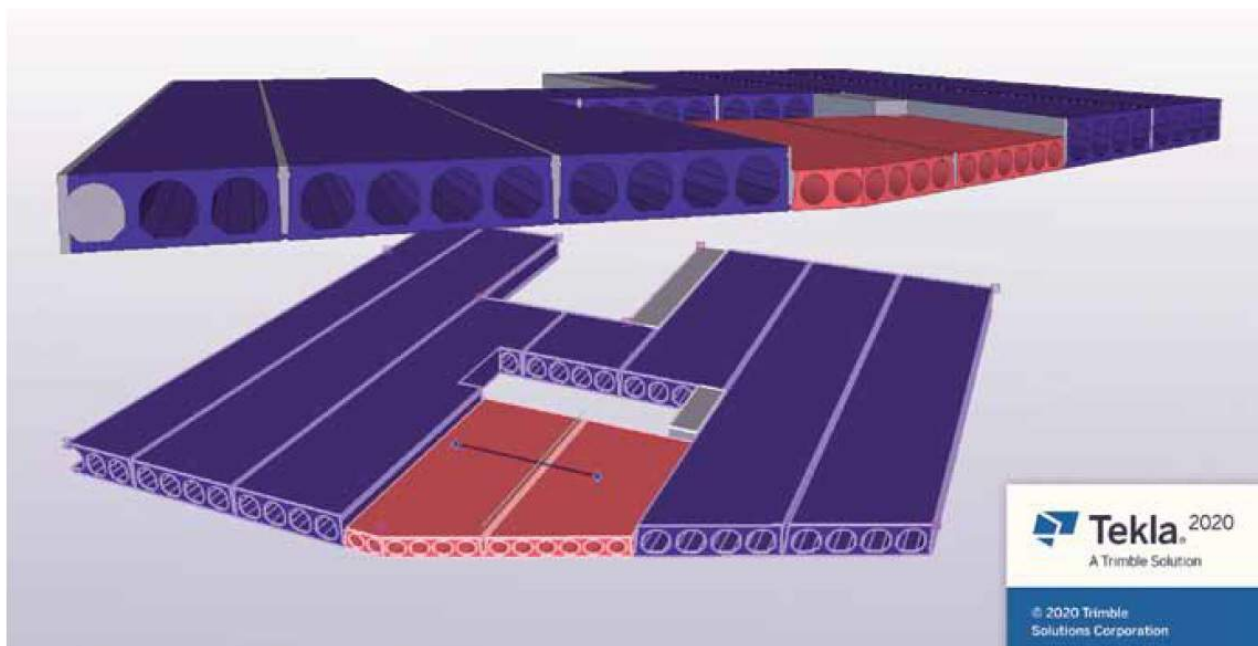
slowing down the pace of this transformation, one of which is the lack of tech education among various stakeholders. "The initial cost to be spent to adopt the technologies is the main deterrent and the service-oriented knowledge and rectification of any glitches in the process is another major pain point. The evolution of technology is extremely fast, but the people involved in the workflows are not able to cope up with that pace," avers Veeraraghavan.

Many of the real estate companies have already forayed into the processes of automation and digitization. "We have stayed cutting edge with large scale systems automations that have maximized our potential and readiness for innovations. We have moved on to enterprise level platforms such as SAP and Salesforce that will translate into flexibility and speed. We have been using online and digital channels extensively to conduct business during the lockdown. From digital advertising to online meetings and virtual project tours, we have been utilizing every possible avenue to connect with customers, channel partners and vendors.

We are already looking at integrated online sales tools to manage the sales flow and customer interactions. We shall further ramp up these channels for use in future as well," says **Subodh Runwal, Director, Runwal Group**.

"We have opened the option of online buying in this lockdown where families staying back home can interact with our team through our virtual platform and chalk out their plans of finalizing a property of their choice from our bouquet of offerings.

We have introduced a virtual sales experience centre for our customers in these unprecedented market conditions to guide and support their buying decisions and give them an option to virtually transact during this lockdown period and thereon. On-call support, WhatsApp Assistance, virtual



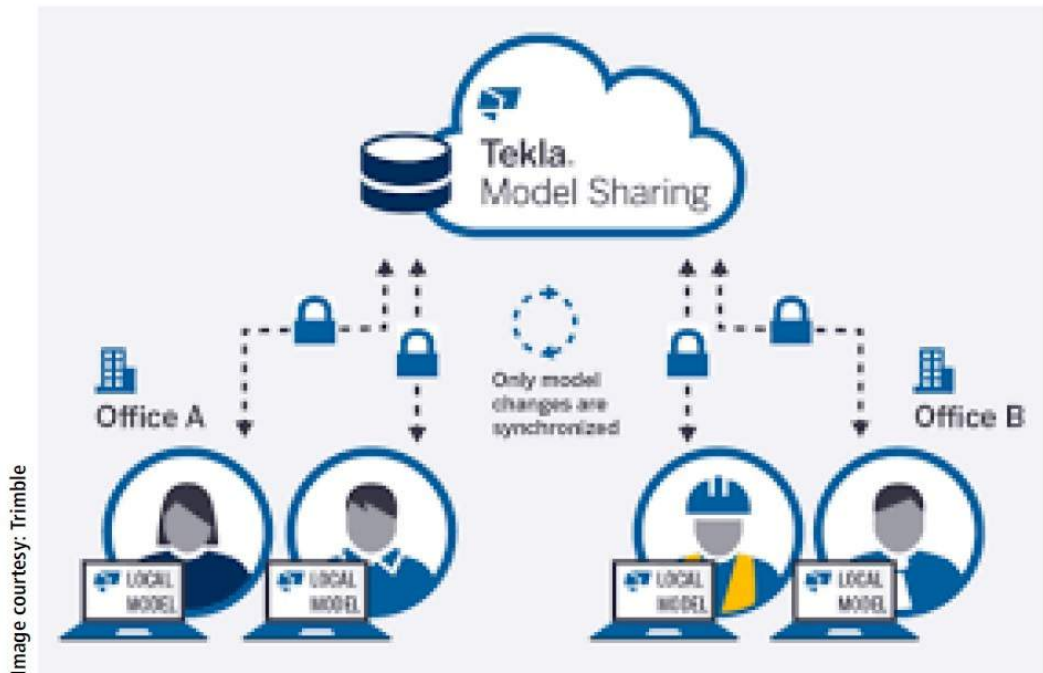


Image courtesy: Trimble

site tours and online booking features are made available to enhance the customer's experience. Our virtual site tours are appreciated by the customers and we feel that reputed developers like us will have an edge in retaining and adding into sales pipelines," says **Bhasker Jain, Head – Sales, Marketing & CRM, Wadhwa Group.**

#### Moving Ahead

**Says Sandeep Singh, Managing Director, Tata Hitachi,** "As technology evolves and adoption rates of modern communication extend to all spheres, even the construction industry will be positively impacted. At a very basic level, computerization of drawings and use of CAD / CAM started the era of digital construction. Today, a range of technologies from drone based monitoring, machine learning, object identification and warning, improved safety devices etc. are already being used or available in construction sites – especially road construction, given its wide geographical coverage and dispersion. Construction equipment is also equipped with advanced data logging that give real time information of the health and performance of the machines. We believe that the digital technology in construction will evolve and the use of Building Information Modelling (BIM) and construction management software will accelerate. All attributes of construction will be in one single place and will interact with all stakeholders, greatly improving efficiency and speed of execution, as well as cut costs.

**Rakesh Reddy, Director, Aparna Constructions** says, "Drone footage of construction sites, combined with advanced analysis and design methodologies, allow the construction of increasingly more efficient buildings with minimal

environmental impact. Building Information Modelling has also been a growing trend and is now a necessity in the industry. Energy modelling tools can optimize a building's architecture and layout, so efficiency is integrated into the design. This maximises the natural light, improves resource allocation and optimises energy management. The goal for the construction industry must be to improve the lives of residents and overall community, while safeguarding the environment. Technology plays a big role in these efforts."

According to Wallett digital transformation of the construction sector involves a confluence of a number of factors that need transformation in the sector including unproductive sites, time management, safety, staff acquisition, and project management costs. What the industry owners really need is to adopt a holistic view of the full construction lifecycle or 'continuum' to address this matter. The construction continuum for buildings is spread over the five key stages of planning, designing, engineering, construction, and finally occupancy and maintenance, and each stage of the lifecycle is rapidly being transformed by technology the world over through a holistic approach and engagement, often driven by the owners themselves.

Various technologies, construction processes and methods such as Constructible BIM, Prefabricated construction, Mixed reality, Cloud computing and Internet of Things (IOT) amongst others can drive a massive change in how we design, build and operate projects. As disruptive technologies, they not only have the potential to create new benchmarks of value for all stakeholders in the construction ecosystem, but also shape new competitive advantages in the post Covid world.

And that is the way forward...

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