

By Prof. Ravindra Djha

FROM CRISIS TO TRANSFORMATION

The value-adding journey of manufacturing in the supply chain is currently going through an unprecedented rough-terrain of COVID-19 crisis but is definitely going to transform itself to a much more robust chain tomorrow.

Manufacturing is all about the conversion of the bounty from mother-earth to the end usage-product for human being. This value-adding journey in the supply chain is currently going through an unprecedented rough-terrain of COVID-19 crisis but is definitely going to transform itself to a much more robust chain tomorrow. This transformation process in the next few years is going to be challenging but would have useful deliverables.

CHALLENGES

The burst of COVID-19 pandemic in India has severely impacted the entire manufacturing supply chain and is going to have long-term implications. The pandemic has led to a near zero / low market demand, fractured logistics, tight finances for MSME, huge job losses, scant workforce after their migration, changed consumption behaviour, safety and health anxieties, uncertainty in the consumer's mind-set and many more hardships. Such crises always throw up opportunities. The gradual transition from crisis to transformation is bound to manifest itself. The Indian leadership is talking about creating more than 50 percent value-add in the ecosystem by producing in-house. Core self-sufficiency value chain models are being explored. Many believe and also wish that India will evolve as one of the preferred centre for manufacturing products in the Asian continent. The factory of China is definitely under the radar due to the de-globalisation murmurs amongst the world industry-leaders and key policy de-



cision makers.

An attempt has been made to share a few transformational elements in the top five dimensions of the manufacturing supply chain.

SOURCING

A robust supply chain is likely to get built with diverse sourcing in times to come. JIT (Just in time) would continue to play a BIG role where inventory (inventory turnover) is a big ticket item. However, JIT system with the sole supplier which existed earlier shall become venerable tomorrow. Over dependence of automotive, electronics and medical companies on Chinese produced goods has shown the vulnerability. After being hit by COVID the thought is likely to change to JIT but with two or three geographically differently located suppliers. Moving out from a single-sourcing strategy to take advantage of efficiency (least unit product cost) to dual-sourcing and cross-sourcing to build a greater degree of resilience in supply chain, which could lead to a small unit product cost increase, would be preferred. The post COVID supply chain would see a balancing act between efficiency and resilience, ready to face more disruptions. Another key dimension would be a notable shift from globalisation to localisation, referred as 'self-reliance'.

FLEXIBILITY

The uncertainty in terms of quantity and variety due to the new post-COVID consumer behaviour would call



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for increased application of faster and flexible production. Responsiveness in production would be stretched, thereby making Lead time the driving factor for manufacturing supply chain performance. JIT (Just in time) supplies coupled with near-zero setup-change duration would reduce the lead times and would improve the responsiveness for customers. Nimble and smart supply chain will get created with automation and small-batch production but with extra quick changeover systems. Based on the volumes and capacity utilisation, modularisation into production lines will dominate in the future. Remote access of machines and lines would be the new normal.

DIGITAL TECHNOLOGY

Technology driven innovative digital tools for sensing, measuring, tracking and analysing supply-chain performance will be increasingly employed to contribute to lower cost and better predictability and reliability in the manufacturing supply chain. Innovative applications

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tively low market demand the low margins in the products are expected to reduce further, however, margin in services which is already healthy could grow or continue to remain high. Therefore, can adding more services to manufactured products open a new revenue stream? The product-as-a-service business model providing tangible goods as a service is expected to gain momentum. Instead of selling robots for spot-welding to automobile manufacturers, robot manufacturers can not only build, own and operate robots but also sell the client what it really wants and needs - World-class weld-spots, thereby maximising utility and life of robots and delivering more reliable automobiles. It will have the advantages of growth in revenue and profit, improved customer response, product innovation, facilitate circular economy, and new barriers to competition.

LAST MILE

Based on the cascading impact of COVID-19, the number of infected / hospitalized would be substantial, resulting in increasing social distancing and contactless handling. This would give rise to new core service - availability of the goods to the final consumer. The last mile reach out would become the differentiator. This would stretch the suppliers to Partnering with local organisations. Many such innovations in creating new channels to reach out to customers would take place.

In summary, the transformation in the five critical dimensions of manufacturing supply will be witnessed in India. New suppliers, systems, handling processes, technology applications and revenue channels will get created. However, the lopsided structure of Indian manufacturing firms - 80 percent of the Indian manufacturing firms have a manpower of < 50 employees vis-à-vis 15 percent in China, will also have to go through a transformation through reforms in labour-laws, Scalability is critical for technology integration. 📌

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In the competitive manufacturing world and comparatively low market demand the low margins in the products are expected to reduce further, however, margin in services which is already healthy could grow or continue to remain high.

of sensors and RFID (Radio Frequency Identification) would increase manifolds. Cost pressures would result in real-time tracing and tracking of inventory will gain greater importance and hence RFID will find enhanced application. Cost pressures, safety and health priorities and contactless operations would also reduce dependency physical labour across packaging, loading-unloading transportation vehicles, logistics and warehousing. Low-cost-automation, auto pick-and-place systems, small robots for repetitive movements would become a common sight in manufacturing shop floors. This would also accelerate enabling of the core digital technologies for Industry-4.0; Industrial Internet-of-things, Blockchain, Artificial intelligence, Machine learning enabled demand forecasting, algorithm based self-adjusting stock allocations, autonomous devices such as AGVs (Automated guided Vehicles) and drones and many more.

SERVITISATION

In the competitive manufacturing world and compara-