

Ensuring Supply Chain reliability during disruptive crises



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The COVID-19 pandemic has thrown the world economy, and its operations and supply chain systems in particular, into an unprecedented crisis. So much so that Governments across the world had to impose lock-downs of various degrees in their countries, halting or slowing down most economies. The resultant significant disruption to supply chain systems in India has raised questions on the reliability of supply chains and their susceptibility to such large scale disruptions. This insight reflects on how Indian businesses can implement short term actions to strengthen the supply chain as well as prepare well into the future to sustain a reliable and resilient supply chain system.

Supply chain risk is on the rise in India

In today's ever changing world, the long and complex supply chains have been subject to disruption, be it on account of trade war between two large economies, natural/man-made disasters, or the spread of diseases which have adversely affected almost all economies. These shocks have disrupted both supply and demand; resulting into decreased production and consumption. In an operations resilience survey conducted by dss+ in India, participants highlighted supply chain reliability as the dimension in which they were least prepared when restarting operations following a crisis (see Exhibit 1). In the context of COVID-19, the key segments of Indian manufacturing, transport services, non-essential manufacturing and e-commerce were suspended and had to stop operations resulting in cascaded stoppage in the entire value chain.

Exhibit 1:

Perception of industry operators on 5 business dimensions (1 being top priority and 5 being least)

Business scenarios	1	2	3	4	5
Did not shutdown for COVID-19 & continues to operate, albeit partially ¹	Operational readiness	Employee wellbeing	Agile governance	Supply chain reliability	Risk awareness
Currently shutdown for COVID-19 but preparing to restart ²	Agile governance	Employee wellbeing	Risk awareness	Operational readiness	Supply chain reliability
Earlier forced to shutdown for COVID-19 but have now restarted operations ³	Employee wellbeing	Operational readiness	Risk awareness	Agile governance	Supply chain reliability

Source: Operations Resilience Survey, conducted by dss+ in May' 20

1. Number of participants – 176

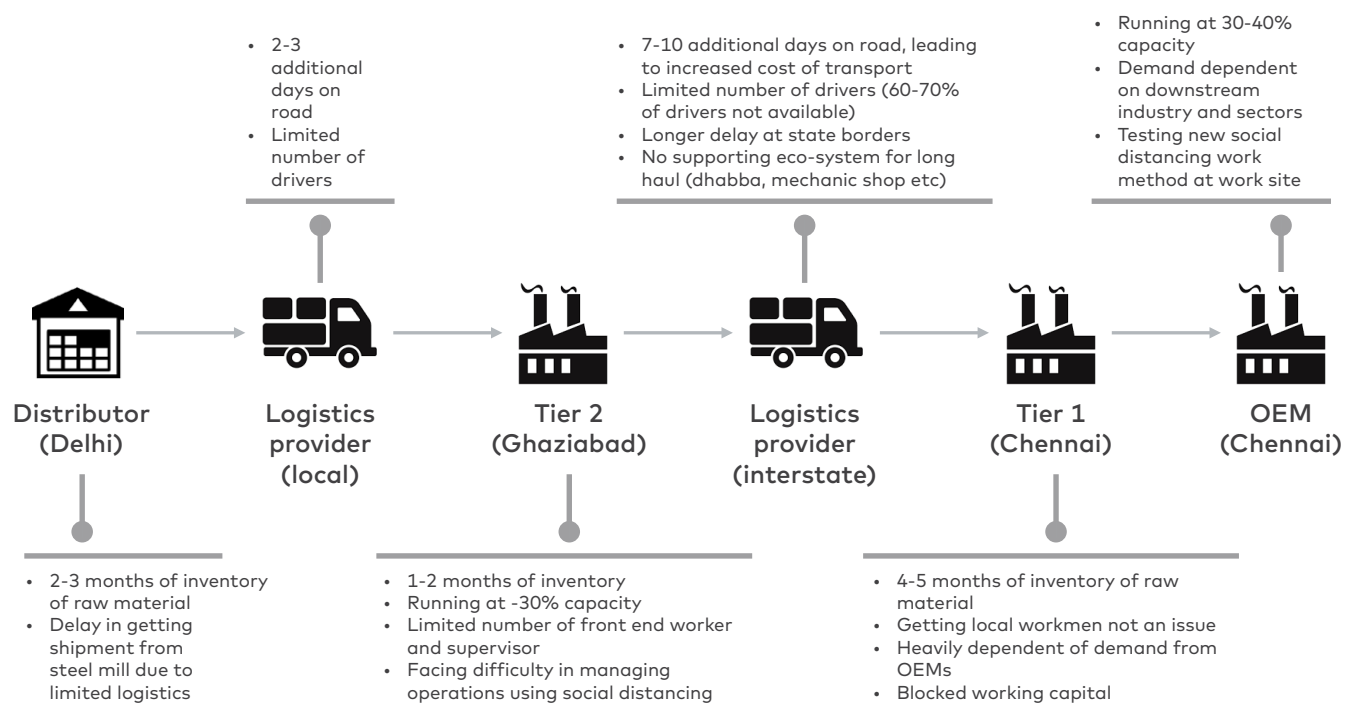
2. Number of participants – 24

3. Number of participants - 88

For instance, major auto manufacturers in the country had to shut down their operations resulting in a breakdown in the value chain. All ancillaries supporting Original Equipment Manufacturers (OEMs) had to stop production, affecting livelihoods depending on the entire eco-system of auto manufacturing. The situation is far worse for small and medium enterprise which are labour intensive and mostly operating with high working capital. Exhibit 2, illustrates how the vulnerabilities manifest for a small and medium enterprise in the country



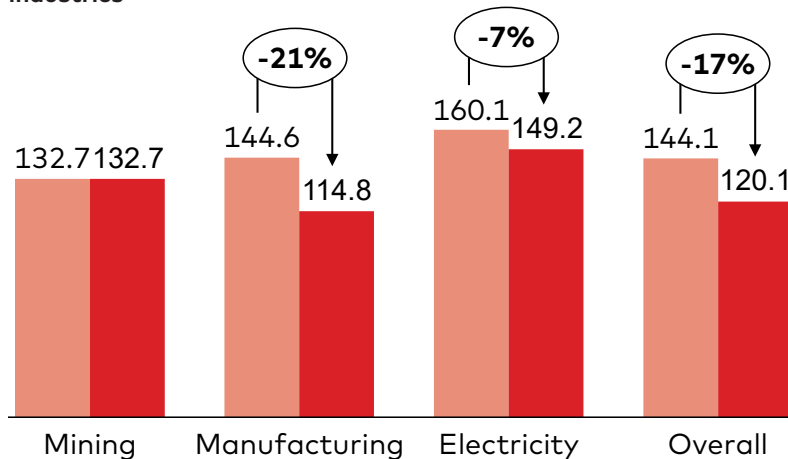
Exhibit 2:
Value chain issues during 1st phase of restart of operations in India (Product value chain: Industrial steel wire ropes and slings)



Source: Interaction with small and medium scale industry operators in India

While the country's lock-down and quarantine is slowly beginning to lift, and as the Government is allowing more industries to operate, Indian businesses will be working alongside COVID-19 risks, by building capability to manage challenges across the entire value chain of organization. According to interviews conducted by dss+, most industry leaders expect best case revival of their businesses by Q2 of 2021. We all hope for safe start-up of businesses, but the world post lock-down will not be the same as before. If indications from March'20 IIP (Index of Industrial production) are considered (refer Exhibit 3), there will be significant drop in productivity and industrial output in the near term and beyond, challenging all growth plans.

Exhibit 3:
Drop in Index of Industrial production (IIP) observed in Indian industries



Source: Ministry of statistics and program implementation, Government of India;
Base Index = 100 (FY 2011-12)

1. Responses from industries have been lower due to COVID-19, the estimates are likely to be revised as more information comes in

Industry views on the impact of disruptions on supply chain

Based on dss+ interactions with industry leaders, we found that the approach towards risk management in supply chain varies a lot from company to company. Key priorities emerging out of such interactions are: ensure the health and safety of personnel, conserve cash, minimize non-essential spend, create transparency across supply chain, and use digital tools to support decision making.

Oil and Gas: Historically, the oil and gas sector has been a troubled industry, seesawing between multiple demand and supply cycles, and now hit hard by the COVID-19 crisis. Although organizations are working on preserving cash, deferring or cutting down on discretionary capital and operating expenditures, they are at the same time looking to navigate the current crisis and become more agile. Some of the initiatives which upstream oil & gas players are adopting include:

- Embrace digital technologies for materials and spare parts management, especially for long lead time items which take a lot of time and effort of procurement and supply chain functions.
- Use of 3D technologies can become new norm for production of small spare parts, non-critical items and safety gloves, reducing dependencies on suppliers.
- Optimize operating cost by 20-30%, by reducing overhead, bringing synergy between different cost centres & Joint Ventures and sharing of resources.

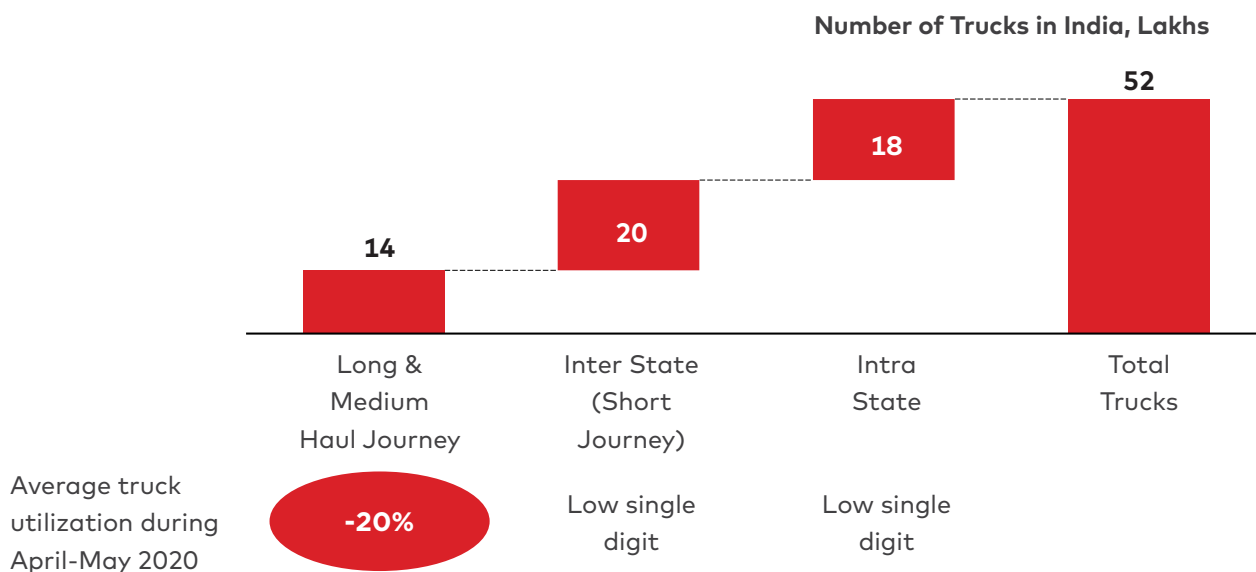


FMCG: "Without change there is no innovation" and this has been particularly true for many small and local brands in FMCG sector. Many small players latched onto the opportunity to increase their production or shift focus to other essential products, from hand sanitizers to ketchup to ready to eat snacks, and other daily essentials. While manufacturing has not been much of a problem for FMCG players, the logistics of materials has been an issue, with deliveries passing through various containment colour coded regions. Often there has been delay in sourcing and distribution of goods. Industry experts see shifting trends in FMCG sector, such as:

- Shift in consumer buying pattern; "Move from shops to online buying" and therefore a feeder supply chain that integrates retail e-commerce
- Uptick in home consumption products with consumers moving from unorganized players to organized players; with greater focus on quality and hygiene parameters
- Improved logistics and mobile-data connectivity set up; rural India to be new demand centre

Logistics sector: The road logistics sector has been hit hard by the ongoing pandemic, with more than 50% of drivers staying off the roads during lock-down bringing road logistics to a stand-still. A study shows that truck utilization fell to as low as 20% for long and medium haul journeys, during the months of April and May '20 (see Exhibit 4). In the marine ports, shortage of staff for stevedoring activities has caused significant impact in the movement of goods into and out of the ports.

Exhibit 4: Truck utilization dropped significantly during the Lock-down phase in India



Source: Ministry of statistics and program implementation, Government of India; Base Index = 100 (FY 2011-12)

1. Under national permit

2. Truck utilization for Inter State and Intra State is assumed to be in low single digit

Experts in this sector believe there will be consolidation in the sector with small time truckers giving way to large players, and tech-based logistics are likely to be the future norm in the industry. Share of road logistics is likely to fall and the railways are likely to gain a higher share in medium term.

Short term actions to minimize loss

In the current context, dss+ recommends that organization focus on five areas to minimize further loss:

1. Inventory: Estimate the existing inventory across the value chain including "work-in progress", finished goods, parts with lower grade or quality issues, stocks in warehouses and distribution centre, products used as promotional stock and feed. Estimating all inventory across the value chain will help in capacity planning and subsequent ramp-up of production. Deploying digital tools will hasten the exercise and data reliability, which is essential for a reliable supply chain. Exhibit 5 provides an illustrative example of inventory estimate across the value chain of organization

Exhibit 3:
Drop in Index of Industrial production (IIP) observed in Indian industries

	Days of Inventory. In the value chain		
	Industrial material handling equipment	Machinery & automotive	FMCG
Tier 2 vendor	30-60	20-30	0-10
Tier 1 vendor	45-60	10-15	5-15
Manufacturing plant	40-60	15-30	20-40
Warehouse	NA	30-40	30-40
Distribution center	NA	NA	15-20
Total inventory in supply chain	115-180	75-115	70-175



2. Market demand and supplier readiness

In order to estimate the input supply requirement, organizations need to assess market demand through multiple channels, beyond conventional channels prevalent prior to the pandemic. Businesses should understand whether the signals they are receiving from the consumer market reflects true demand or if there is an underlying uncertainty in forecast, or if there is a strategic shift in demand patterns. It is important that industries use all channels - market insights, analytical tools, communication with customer's customer - to determine the actual product demand and prepare a robust sales and operating plan that enhances supply chain reliability.

Similar to understanding market demand, organizations need to assess the readiness of their suppliers for establishing a reliable supply chain. There should be greater transparency and information sharing between the mother plant and their vendors. For example; the sales and operations planning team needs to study the bill of material in detail to understand the source of material, location of supplier, ability of supplier to hold inventory, mode of transport to identify any risk in delivery of the desired material, and therefore identify risk mitigating actions such as vendor substitution and product variants.

3. Existing plant condition and labour requirement to operate

Restart of the manufacturing and warehouse facilities, including associated infrastructure, after an extended lock-down of more than 70 days with stalled equipment, necessitates a systematic approach prior to achieving safe start up. This approach includes the following essential actions:

- Provide necessary infrastructure and work processes to protect the health and well-being of workforce as a primary requirement.
- Ensure availability of competent workforce and carry out the relevant training and awareness programmes.
- Carry out risk assessments and develop risk management programmes to eliminate risks. The recent incidents of failed re-starts after lock-down clearly emphasise the need for a comprehensive restart plan focused on safety and reliability of the plants. A careful assessment of the integrity of critical controls, followed by a comprehensive pre-start up safety review, are minimum prerequisites to achieving safe start up.

Assessing the availability of workforce to run the plants, warehouses and supply chain segments at desired capacity is of utmost importance. Labour shortages are bound to happen in short term, hence organizations need to plan for the shortfall and make adequate arrangements for continual training of the new workforce. Labour intensive industries are most likely to have a long recovery time compared to automated/semi-automated industries.

4. Transportation and logistics requirements

Organizations should secure the logistics contracts to minimize exposure to potential cost increases and losses due to potential off-time delivery issues. Having long term partnership with selected logistics players can be an effective strategy which is built on re-negotiated win-win agreements. The sector is expected to be more organized with large players moving towards Tech-enabled logistics.



5. Communication with stakeholders in the supply chain

Clear communication, both internal and external to the organisation, is critical to ensuring that everyone associated with the restart and subsequent business ramp-up programmes are well informed in order to take the right actions in a timely manner. Critical communications include transparent communication with employees and key partners on the restart plan, understanding and managing customer expectations, and negotiated alignment with service providers in the supply chain.

In addition, organisations should periodically review the status of progress as per the restart plan, and realign priorities to ensure the supply chain responds reliably and consistently to support the business restart and subsequent ramp-up. It is useful to set up a cross functional empowered task force to review and provide direction to the programme, as well as allocate requisite resources. Use of digital tools for reliable and transparent communication are expected to be adopted by various players in the supply chain.

Building a resilient supply chain for the future

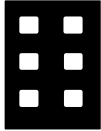
Building a resilient supply chain starts from understanding the inherent risks associated with business. To build a reliable and resilient supply chain, organizations need to have a full picture starting from market research, demand plans, product design, component supply and procurement, logistics mode and network, to organizational capability to solve supply chain issues.

The role of digital technology is becoming increasingly important to the reliability of global supply chains. Current and future technological solutions will influence the reliability of supply chains and make them robust enough to be resilient to disruptions. These technologies include:

- Cloud and mobility based solutions for continual interaction with the supply chain constituents over a digital platform,
- Online digital view of supply chains with risk alerts and work-flows to mitigate disruptions, minimise adverse impact on the supply chain and facilitate prompt recovery after any disruption,
- Integrated supply chain performance dashboards, predictive analytics, risk assessments, scenario planning and digital enterprise solutions for managing operations improvement actions,
- Robotic automation of material handling to minimise the dependence upon manual labour,
- Autonomous vehicles to move materials in warehouses and ports, and
- Intelligent automation and decision support systems for supply chain planning, monitoring and optimisation.

Exhibit 6:

Understand the inherent risk across the network

Complete view of supply chain and allied functions				
Product development	Vendor management	Logistics planning	Operations planning	Supply chain organization
 • What is the possible degree of freedom in design change? • How easily the parts of product can be substituted with alternate material? • What is the overall lifecycle cost of product	 • What are the various risks associate with supply of material? • What is degree of risk resilience in the entire vendor network?	 • What are the risks associated with the entire logistics network	 • How integrated is the supply-demand channel? • How flexible is the manufacturing process with demand change?	 • Is the supply chain organization authorized to make critical decisions in anticipation to disruptions?

Conclusion:

As Albert Einstein once said "Learn from yesterday, live for today, hope for tomorrow. The important thing is not to stop questioning". By asking relevant questions and acting on priorities, organizations can come out of this crisis better prepared for future disruption. The key is to reflect on the vulnerabilities of the supply chain and implement a cascaded plan for achieving high levels of supply chain reliability and resilience, starting with a pilot implementation and following it with an improved supply chain programme to rapidly scale up across the organisation.

These insights draw on interviews conducted by dss+ with industry leaders on supply chain aspects, as well as practical experience of dss+ in successfully implementing operations excellence programs at various client sites worldwide. These programs have facilitated the business mission to protect their personnel and assets, preserve the environment, realize operational efficiencies and maximize shareholder value safely throughout the business lifecycle.



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