

COVID-19 era: How supply chains are adapting to coronavirus lockdowns

The coronavirus might linger on for many years, but effective e-commerce and hybrid fulfilment methods will help propel the retail industry forward and help retailers weather such storms now and in the future

[Ushasri T.S & Jitamitra Desai](#) | June 26, 2020 | Updated 18:44 IST



Organisations must strive to strike the right balance between efficiency and resiliency to satisfy customer requirements

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Long queues outside essential services establishments, strained supply chains, rapidly shifting customer purchase patterns, wildly disconnected demand-supply requirements; these are just some of the visible impacts of the current COVID-19 situation in India.

Disruptions to supply chains have been unprecedented in their scale and severity, and these are further amplified when the underlying supply chain is global in nature.

The current situation has truly brought to forefront the interconnectivity and interdependency that exists in every aspect of our lives, but nowhere else has this been more acutely felt than in the global supply chain.

In this article, we highlight some of the expected changes and deliberate on impending issues in the supply chain industry in the 'COVIDian' era, from both customer and business perspectives.

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An often repeated mantra is that supply chains need to strike the right balance between efficiency and resiliency. While both these metrics are often at odds with one another, effective supply chains are the ones that strike the right balance between efficiency and resiliency.

Moreover, a supply chain also needs to be seamlessly integrated with many different components, and a large human workforce supporting and serving as its backbone.

However, with rising competition, profit margins in today's business environment (particularly in the retail segment) have become razor-thin, and this has led to a skewed emphasis on cost reduction and just-in-time deliverables, which in turn have created very efficient but globally dependent and not necessarily resilient supply chains.

The COVID-19 pandemic has laid to bare the weaknesses in such supply chains and underscored how essential supply chains are to people and the global economy.

At the onset of the lockdown in India, demand surge for essential products led to some organisations scrambling for suppliers and raw materials while other organisations saw their demand completely stagnate or worse, wiped out in its entirety.

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This, in turn, required an unprecedented increase in warehouse capacity in certain sectors, and furthermore, to navigate this unanticipated demand surge, we observed ad hoc, inefficient processes being implemented, which is often the case in many organisations that routinely deal with severe off-season peaks and demand troughs.

However, in this pandemic environment, without the right systems and processes in place, these ad hoc processes fall short of the mark and can often be a drain on an organisation's resources and profit margins.

As customer behaviour and shopping patterns undergo a rapid transformation, businesses must also rethink and rejig their supply chain strategies and processes to match these new requirements.

In recent months, the foremost (and safest) behavioral change in purchasing patterns as seen from a customer's perspective has been to replace in-person activities with online alternatives.

Going forward, it is fair to anticipate a further acceleration of e-commerce activities and a mushrooming of online shopping options in India.

In addition to home delivery, which is already prevalent in major cities in India, new fulfillment methods such as curbside drop-off and contactless pick up from stores, etc. will soon become the norm, as in the west.

It is also becoming increasingly evident that along with this consumer-driven shift will come the need for backend technologies that allow retailers to maximise online opportunities in the most efficient, environmentally friendly, and cost-effective manner.

This proliferation of e-commerce may well represent a new coming-of-age moment for store-based fulfilment as well.

However, several questions still remain: do retailers in India have the back-end technological systems and operational capabilities in place to effectively manage omnichannel (online and in-store) fulfilment in a seamless and effective manner?; Will all industries be equally affected by such major disruptions?; which industries are more resilient and can recover faster than others?

While there are several well-known examples of supply chains having been upended due to a major geographical or pandemic disruption (e.g., the impact on the automotive sector due to the tsunami that hit Japan in 2012; the SARS epidemic in 2003, which caused an around \$40 billion loss to the global economy, etc.), these disruptions have so far been localised or usually have tapered off within a few weeks.

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It has only been in this recent COVID-19 pandemic that global supply chains are facing increased pressure and scrutiny over a sustained period (at the time of this article, several months). Consequently, modern supply chains need to be designed with the ability to continuously gather data, analyse it in real-time, react quickly to a rapidly changing environment, and develop cushions to absorb such abnormal periods of (in)activity.

It is worthwhile to note that, for businesses, the supply chain management literature is replete with articles on product diversification and underlying strategies, but most of these articles have neglected to study the advantages of location diversification.

While outsourcing and offshoring activities have become fairly standardised over the last couple of decades, most businesses often pick an offshore location purely from a cost reduction perspective, but not a diversification viewpoint.

Of course, while such a diversification strategy would be relatively easy to obtain for certain industry segments (e.g., an apparel manufacturer can spread their operations across multiple global locations), a more high-tech operation might need to centralise offshoring to a single yet cost-efficient location in close proximity to their main customer base.

Other dimensions such as cultural norms, historical backgrounds, etc. would also need to be considered in selecting a location diversified supply chain. Steps such as these will build resiliency while yet retaining the select advantages of global supply chains.

In addition to location diversification, businesses must also come to terms with various notional definitions of 'capacity'. In a business-as-usual (BAU) scenario, capacity would be defined as the (theoretical) maximum of some performance metric that can be achieved by the system.

However, given the seasonal nature of products and consumer behavior, businesses have also expanded their understanding to accommodate for 'surge capacity'.

Here, surge capacity refers to a requirement from the system to produce higher output as compared to its BAU capacity, but such stretched output levels are expected to be sustained for relatively short periods of time that are known as a priori.

Continuing in the same vein, under a pandemic situation, we arrive at the notion of 'crisis capacity'. In crisis mode, organisations must be able to leverage their broader network of suppliers/sub-contractors, etc. and sustain a significantly increased level of output (as compared to even surge capacity) as necessitated by their customers for extended periods of time.

Moreover, transitions to increased capacity levels are recommended to be done in a phased manner. Despite this, when the capacity level reaches crisis capacity mode, it is often accompanied by a commensurate loss in related performance metrics, typically product quality or customer service levels.

This flexible understanding of capacity under various operating scenarios and the corresponding ability of an organisation to manage upstream and downstream supply chain operations will become a key factor in ensuring the survivability of an enterprise in the COVID world.

When addressing an important yet often neglected aspect of supply chains, namely order fulfilment, it is imperative to look at advancements in robotics and automation, which have grown to become an integral part of warehouse management systems.

Warehouses, which involve repetitive and labor-intensive tasks, are at the forefront of man-machine interactions and are often a testing ground for new automation ideas. Every resource - man and machine - will need to be orchestrated through efficient workflows to maximise performance and, to further accelerate such transformations, a people-centric approach that includes strong employee engagement, as well as labour efficiency, is critical in these times.

Warehouse managers will need to have employee performance data and related analytics at their fingertips, while making them readily accessible for agile decisions by management.

Modeling and algorithmic solutions that help conduct 'what-if' analysis to determine optimal staffing requirements will also be essential in a fast-paced, rapidly evolving world.

Conversations around sustainability, another key component of supply chains, will also increase as things stabilise in the near future. Most companies begin their sustainability efforts by focusing on their transportation operations.

While organisations will need advanced transport management systems that optimise and execute logistics operations, helping to reduce the overall carbon footprint of supply chains is a much broader task.

Organisations will need dashboards that provide visibility into all sustainability metrics (e.g. manufacturing facility operations using internet-of-things compatible sensors), thereby enabling them to understand tradeoffs, not only between logistics costs and service operations, but rather from a more comprehensive greenhouse gas emissions and carbon footprint standpoints.

Switching gears, note that at the far end downstream of any supply chain lies the all-important customer. As e-commerce orders begin to proliferate, customer order fulfilment directly from stores is bound to grow along with fulfilment from distribution centers.

Prior to the current crisis, BOPIS (buy online, pickup in-store) was merely viewed as an added capability to existing fulfilment options, typically only in developed economies.

However, in the current situation, it has become the preferred medium of transaction even in India between retailers and their customers. A recent study indicated that BOPIS orders surged more than 200% globally in April as compared to the same time last year, and retailers who had already put these capabilities in place were able to continue attracting consumers into coming to their websites and storefronts, maintain and engage with their brands while giving their customers an optimal experience.

As lockdown restrictions get eased worldwide, social distancing has already been mandated in retail stores and as a result, in-store checkout systems and POS terminals will also have to undergo a radical change to reflect the new normal.

Customers have always preferred to avoid queuing up in stores, and this behavior will be further exacerbated by social distancing norms.

Having a mobile point-of-sales mechanism that gives store associates the freedom to walk the shop floor and deliver personalised experiences and recommendations, while simultaneously educating, upselling, and cross-selling products before seamlessly accepting payments on their mobile devices would significantly reduce check-out lines or use of self-service devices, and yet provide an enriching and transformative shopping experience.

Our society has never had a bigger need for effective supply chains, transformative technologies, and the people that make these complex systems work seamlessly.

In such critical times, continuity and resiliency of supply chains become essential towards maintaining some semblance of normalcy for people and businesses alike.

Organisations must therefore strive to strike the right balance between efficiency and resiliency to satisfy customer requirements. 'COVIDity', which we define as the unease that we all feel living in the new normal, is here to stay but leading companies that demonstrate agility and embrace innovation in this ever-changing world are going to pave the way towards a new future.

The coronavirus might linger on for many years, but effective e-commerce and hybrid fulfilment methods will help propel the retail industry forward and help retailers weather such storms now and in the future.