

THE TECH'TONIC SHIFT

The subject matter experts have aptly termed the current decade (2020-30) as the “Decade of Supply Chain” because in the next ten years, we will see supply chain evolving and taking its rightful place at the heart of business organization worldwide. And if you look at the current environment, the Corona virus pandemic has forced the global leadership and policy makers to think about supply chain more seriously than ever before. This pandemic has been a wake-up call for the industry at large to adopt not just incremental ways but big bang technology solutions & services to set the ball rolling for the future. The Cover Story this time takes a deep dive into the technology adoption among supply chain fraternity and how this New Normal is going to bring a ‘Tech’tonic Shift for customers and suppliers alike. Industry leaders from all walks of profession – be it users, consultants and the solution providers have voiced their insightful opinions on the technological landscape that is slowly seeping into the supply chain domain and transforming it for the GOOD, the BETTER and the BEST...



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▶ Technology aided supply chain keeping itself afloat during the current pandemic

It is going to be an acid test for the industry in terms of how they would be able to service the clients quickly. On the other hand, those who are not into social distancing-based technologies or rely on traditional 'contact-based' technologies are likely to see huge setbacks in the days to come. The pandemic has actually offered great opportunity to leaders of the industry for making the most of technology now and draw plans to embrace automation as much as possible in coming times.

Vivek Sarbhai, Ex-Director Customer Service & Logistics, Mondelez

Middle East & Africa: Technology enabled supply chain has helped a lot in preparing and withstanding the onslaught of the pandemic. In other words, it has made supply chain highly resilient. With minimal human involvement, we can manage information, physical flow of goods and cash supply chain. Imagine, this pandemic in 2010 or say 2015 – how much we, as a society, not just in India but globally would have struggled. In a way this pandemic opened our eyes that how much supply chain have become prepared already for an inevitable contact less economy of the future. Noteworthy amongst many tech enabled interventions that helped all of us are:

- (i) Unprecedented scale of work from home and e-education
- (ii) Track & trace capability to trace patients and quarantine them
- (iii) Digital transfer of money directly into the account of people
- (iv) More enhanced usage of digital payments
- (v) E-commerce supply chain for essentials,
- (vi) Aarogya setu App

Anshuj Rathi, Master Principal

Sales Consultant, Oracle: Technology is helping companies to reimagine and remodel their supply chain. Companies which have so far done business using traditional face to face customer interaction are moving to digital

platforms for receiving & shipping customer orders. Technology is helping workers to maintain social distancing in industrial environment by using wearables. Increasing use for Robotics process automation is becoming more prevalent. Emphasis on touchless processing in supply chain is getting more steam in all sectors. It is quite evident that most of the companies will now remodel their supply chain to consider this kind of calamities. Almost every industry would still like to take advantages of global supply chain but will create alternate supply chains as well as some local supply chains to keep minimum required services on.

Nikhil S Gurjar, President, Consulting Connoisseurs:

All technology players are likely to expect a sudden surge in demands post the lifting of the current lockdown. The demand would largely be driven by regulatory as well as epidemiological concerns and would be in the areas of contactless SCMs, SCM visibility solutions, etc. In all, it's going to be an acid tests for the industry in terms of how they would be able to service the clients quickly. On the other hand, those who aren't into social distancing-based technologies, or rely on traditional 'contact-based' technologies are likely to see huge setbacks in the days to come.

Dharmesh Rathod, Independent IT & Cyber Security Advisor:

Through

the advent of Digitization, we have seen technology in the driving seat and prominently leading supply chain functions across several industry segments, be it large enterprises, government enterprises/PSUs and SMEs. Automation in supply chain has been around since past few years, which has offered several vital value-added features such as remote handling, consolidated operations handling, well integrated with other business functions, etc. Pandemic has restricted human movements and thus the controllers of technology. The Pandemic has actually offered great opportunity to leaders of the industry for making the most of technology now and draw plans to embrace automation as much as possible in coming times.

Sanjay Desai, Advisory Consultant Supply Chain:

This is an opportunity for global supply chain leaders and decisions makers to make use of available technology in our social and professional lives and prepare for counter measures during the pandemic period. Indicated below are some of the technology capabilities that came in limelight adding their value during current pandemic period:

A.I. Enabled and/ Machine Learning capabilities:

With such severe disruption in supply /demand chains, it's essential to have accurate data like connected inventory and order status to drive business decisions. AI-enabled solutions

will provide use of real-time intelligence and optimize supply chain performance in various parameters as required. As global supply chains face high level of volatility & disruptions, ensuring right product, at right time, at right place will be challenging. It may take substantial time to re-structure the broken supply lanes, built buffers, and fix broken chains.

Secured PTP/ File Transfer: It is critical that organizations provide secured point-to-point data transfers, html / flat file transfer protocols to their workforce based in remote locations and making it easy for them to execute their deliverables.

Digitally driven service platform: Today as nations are coming together to fight the pandemic, what we need are medical supplies of all types, ranging from critical to complex to simple (ventilators /face masks). We need companies to

collaborate with each other and transfer critical data, which will allow us to develop an interim supply network. This interim supply network will be much faster, easier, and legally compliant to support increasing volumes & complexity coming from various nations with varying degrees of pandemic infections. A technologically driven digitized service onboarding platform or supplier diversity program is the need of the hour.

Automate data integration using Cloud:

Without the Cloud technology, companies would struggle to share critical data, access analytics and much more. Even short physical distances would present a challenge for collaboration between organizations, suppliers, co-workers without the cloud. Real-time wouldn't be as easy, smart phones wouldn't be smart, and managing rapid data would be impossible. Use of Cloud is becoming a

key deliverable of technology.

"Keep the Lights On" people and processes to keep the lights on in critical IT / Support functions particularly call centres, control towers, and customer service functions. During such difficult times, a seamless flow of communication to keep employees, customers, regulatory authorities is so much critical. There are various forms of advanced communication we can use these days to communicate (e.g. Facebook, Twitter).

▶ Inherent challenges in technology adoption

Service providers need to work hard to get into the circle of trust with organizations. Most are strategic partners, but few are in the 'circle-of-trust' when it comes to strategic direction. In such conditions, simulation-based proofs and offline development of technologies using a partnership approach is required.

Vivek Sarbhai: Despite almost all business leadership teams now wanting to tech enable supply chain and drive strong data and analytics enabled decision making, organizations struggle in what I term as "pilot purgatory". This happens due to not having a clear strategy in place, not a well-defined value proposition and hence confusion around the right enablers. So, there are multitude of pilots, which stresses the organizations without resulting in well-defined strategy to pursue technology enablement.

Another mistake that organizations commit is to hire and depute modelling teams, which soon get frustrated with

the lack of alignment and acceptance and end up leaving. While there is no clear way that can be suggested to service providers, my recommendation would be to first assess the ability and willingness of the organization to change and transform. Once established, a small "proof of concept" study is a good start. But once POC is successful, then scaling it up is essential and not to fall into the trap of another POC. Secondly, another parallel track should be to ensure how the capability will be either embedded in the organization or outsourced. Net, a full plan should be decided first before entering into a POC and then get stuck.

Anshuj Rathi: There are quite a few challenges industry has been facing for several decades like complexity of solution, heavy cost and long ROI, long implementation time frame, skilled user base to manage several of more complex solution like demand / supply planning. Internet availability in some of the remote area like mines, project sites add problems to solution adoption. Service providers need to focus on solutions, which are easy to implement, provide faster return on investment, ease of scaling up and down based on actual requirement. These solutions should have some capability to work in offline mode for at least

sometimes when internet connectivity is available.

Nikhil S Gurjar: Cost prudence is going to be a top concern or priority for most companies. This is true for any company. However, this would also mean a huge challenge when it comes to adoption. And late adoption would mean less optimal levels of operations as the regulatory environment will keep tightening the modes of operation. The hesitance to allocate budgets would also be due to the lack of a ready proof of concept that the buying organizations often ask for. To top it, surges in demands due to massive bullwhips created by the lockdown lifting and imposing, would force organizations to push technology to the backburners for sometime. Lastly, lack of knowledge of how new technologies work would also hurt companies at such times. Service providers have to work hard to get into the circle of trust with organizations. Most are strategic partners, but few are in the 'circle-of-trust' when it comes to strategic direction. In such conditions, simulation-based proofs and offline development of technologies using a partnership approach is required. Additionally, if companies are not involving their service providers using the right tools and ecosystems, they are already losing out on opportunity. And this could have serious repercussions.

Dharmesh Rathod: Technology adoption has never been an easy show. In fact, long way to go, the journey of technology adoption through

Digitalization journey has started few years back and sufficiently I believe will drive itself for few years more as far as coverage is concerned. This implies brown-field landscapes with existing old technologies, primitive SOPs, integration with other human/technological functions pose various challenges during the technology adoption journey.

Service providers, I understand, by now have their right sense of adoption and are taking leverage of large contractor/vendor community ready to help attain their technology adoption goals. However, SP's native challenges such as budget, adoption drive, cultural shift, etc., are the ones that I assume matter more. An organized engagement of technology adoption with well thought and outcome-oriented project management can ensure SP's achieving all these goals.

Sanjay Desai: While the benefits of embracing new technology in business are well known, there is a still a large proportion of organizations, which are unsure and hence lagging in technology adoption. A large proportion of these organizations belong to MSMEs. Captured are few major reasons below:

- Must have or nice to have:** Most organizations fail to read correctly if a technology is "nice" to have or is a "must" have. A must have technology will help your business to stay ahead in a competitive market.
- New technology can be complex:** New technology must be integrated into

current business to realize the full potential and the cost as well. If, new technology is not implemented correctly, then chances are high that it would go waste and fail to offer competitive edge.

- Fear of unknown:** This is possibly the biggest reason that many organizations are averse to implement new technology. Usually organizations hire a consultant to get over this fear factor.
- Lack of skills within the organization:** If an organization lacks necessary skills to decipher and implement technology correctly then it becomes even more difficult and most likely the efforts of implementation results into failure. Fear of failure is a huge factor in leadership decision making.
- Fear of Obsolescence:** Many organizations usually fear that in today's world, technology can be a moving sand, meaning it evolves very quickly. Within a short span, existing technology can be replaced by much advanced & more efficient technology. This is a huge cost to the company.
- Previous bad experience:** Surprising but a true phenomenon is historical experience from a previous technology implementation, which was a failure and the organizations were ripped off very badly.

Requirements of customers from their service providers in deploying technology solutions

Traditionally, companies ask for 'Proven Track Record' and 'Proof of Concept' from their service providers. Customers need to de-risk themselves using advanced methods like simulation-based assessments. This would ensure adequate reliability and good deployments. What is important from service providers is flexible pricing, quick deployment, high uptime, easy adaptation and strategic extensions of service offerings at regular intervals.

Vivek Sarbhai: There are three main requirements:

Clear Value proposition and link to competitive advantage: This will help in establishing an organization wide acceptance to the change and collaboration needed to transform. Importantly, it will help in identifying where to first begin and clear end state. It will help in ensuring the right enablers right through the path of this change journey.

Cost model – fixed or variable: I would recommend that service providers need to show flexibility here. While they should protect their base level cost, the profits should get somehow linked to value or gain that gets created and generated over period of time. The more variable the component, more likely are the chances of success.

Sustainability and embedding: It is very important to engage the organizations on the plan of embedding and sustaining the capability. Who will do what, and what will be roles and responsibilities of the service provider and customer. What is the level of governance needed and most importantly how continuous evolution needs to happen is very important.

Anshuj Rathi: Most of the customers are looking for solutions which are fast to implement, easy to maintain and reduce capital investment. The solution should use latest technology

so that these can be assessed anywhere anytime but still be very secure. Customers are also looking for solutions, which support Industry 4.0 targets like connected supply chain, digital twins. Every industry has different requirements such as banking industry is looking for faster, secure online transactions for their customers, whereas Industrial manufacturer may look for predictive maintenance for better plant utilization. Besides product functionality, customer will look for better support and delayed payment from service providers to meet the current situation.

Nikhil S Gurjar: Traditionally, companies ask for 'Proven Track Record' and 'Proof of Concept' from their service providers. Often times, the proven track record is less reliable as solutions require significant modifications before they can be applied. Moreover, innovative solutions are, often times, untested in production environments. The proof of concept using pilots is an expensive proposition in itself. Hence, both these would delay their implementation without significantly adding value. Customers need to de-risk themselves using advanced methods like simulation-based assessments. This would ensure adequate reliability and good deployments. What's important from service providers is flexible pricing, quick deployment, high uptime, easy adaptation and strategic extensions of service offerings at regular intervals.

Dharmesh Rathod: Value of services, ease of usage, comprehensive coverage instead of partial service deliverable and finally most important, privacy of their data/information – Customers in today's times are well adverse with these expectations from their service providers and these can be certainly achieved through technology solutions.

Sanjay Desai: Since last 10 years, the landscape of third-party logistics (3PL) has changed in many ways and is poised to grow and modify with emerging 'smart' working practices and mobile technologies. Global organizations have realized that logistics service providers can improve their bottom line by allowing them to focus on their own core competencies. 3PLs offer a lot of benefits to mainstream organizations like flexibility in the network, value added service in warehouse, kitting, labelling, boxing, and postponement strategies. With the rising complexity and competition to serve customers, client organizations' expectations from 3PL are also growing with time. Let us cover a few major expectations below:

- Form long term partnerships, which will motivate 3PL service providers to invest large capital in technology as well as other fulfilment applications & efficiencies. Generally, the clients are willing to pay additional costs if these are embedded in monthly service Invoice over a longer period.



- Bring in those skill sets and efficiencies that the principle client has a clear lack. Expectation is that the 3PL service provider will complement the client's capabilities, which will allow the client to build solutions for their own customers.
- Invest in advanced technologies like Robotics, Autonomous Vehicles, Drone deliveries, AR/VR in their fulfilment centres, which will enhance fulfilment service performance to the customers at large. For example, transportation management systems type software solutions will lower inefficiency and costs while saving valuable time in preparing for deliveries and logistics services.
- Make use of Big Data analytics to help them understand shipping alternatives, assessments of trade lanes & origin-destination pairing in terms of cost and service scenarios. With increased transparency, clients will be able to better serve seasonal trends efficiently and meet flexible operation demands. Sharing of such information will help item track and tracing throughout the supply chain.
- Operate in more sustainable manner adhering to environment friendly greenhouse emission norms and reduce carbon emission. This is one of the most stringent requirements that clients want to synergize with their own efforts. This is the norm today as it has huge impact on global warming & carbon emissions laws.
- Participate in "Sharing of Economy" in selective manner and provide low-cost personalized service with real-time visibility into fulfilment deliveries to customers. 3PLs will employ holistic approaches for their supply chains and emphasize external visibility by collaborating with manufacturers on production schedules and delivery plans.
- Seamless co-ordination in "Last Mile Delivery": Last mile delivery performance contributes a big deal to end user satisfaction since the end users will judge a company based on its last mile delivery efforts. It is indeed the most essential part of the supply chain besides being the most challenging and cost / value additive.

▶ Harnessing the tech muscle

Technology adoption and their value within any supply chain company generally is geared by uplift shift within its automation landscape, end to end integration with seamless and flawless results, cost effective budgets enriched by higher ROI. When all these factors achieve their end goals, the real power of technology can be felt by supply chain businesses.

Vivek Sarbhai: Organizations need to first change their strategy and insert technology enablement as an intrinsic part of the strategy. To me, three words are truly relevant to be included that reflect the insertion of technology mindset. They are "Interconnected, Asset Lite and Intelligent". Interconnected reflects the desire to make products / services as accessible, asset lite reflects the plethora of choices available without capex and intelligent reflects the willingness to step up AI/ML in data and analytics driven business decision making. Secondly, it is important to identify where is the maximum value – is it in the front end i.e. commercial and marketing or middle of the organization – procurement, manufacturing and logistics or back end – Financial analysis, talent analytics, shared services, etc.

Lastly, it is important to visualize the capability needed in an intertwined

triangle of Business, Analytics and Technology. There needs to be the creation of Centre of Excellence team comprising of Business Translator (intersection of Business skills and Analytical skills), Data Architect (intersection of Technology and Business skills) and Data Scientist (intersection of Analytics and Technology). Together these three would drive the technology enablement under a strong sponsorship of business leadership teams.

Anshuj Rathi: Industry should start looking for solutions, which are agile, quick to implement and easy to reconfigure in case of changes. These solutions should quickly provide analytics on 'what if' scenarios. Industry must quickly look for solutions, which help it to achieve Industry 4.0 objective. It should try to adopt new technologies like Internet of Things, Blockchain, Machine Learning, Artificial Intelligence

& Data Science to complement their supply chain solution. Industry needs to start looking for solution, which needs minimal human intervention and needs to reduce human interaction for every event.

Nikhil S Gurjar: In the rapidly changing SCM landscape, static roadmaps extending over long horizons of 3-5 years is now history. One is going to see an increase in integrated systems that are fluid, in the sense, they go with the flow and easily embrace technology. Having extendable solutions is the key; whereby systems would need to gear up for easy enhancement or new functionality integration. Modularization and the ability to harness data would be vital, as a wide range of solutions would be used in the interplay at each stage. The other key area is to ensure the right choice of architecture and the solution

so as to integrate agility and the ability to enhance their systems. Company executives need to continuously explore value adding opportunities from their existing systems and from their buyer landscape.

Dharmesh Rathod: Technology adoption and their value within any supply chain company generally is geared by uplift shift within its automation landscape, end to end integration with seamless and flawless results, cost effective budgets enriched by higher ROI. When all these factors achieve their end goals, the real power of technology can be felt by supply chain businesses.

Sanjay Desai: Digital technologies are redefining and reinventing new trends and models in consumerism. The pace of change is accelerating, and industry leaders are imbibing digital DNA to drive exciting new business models, which have been truly transformational. In this environment, an interesting shift has happened. In recent years, traditionally product-based companies are shifting or expanding in their use of service-based revenue models and the service-based organizations are selling their service and skills. With the fundamental shift in the role of a CSCO, supply chains need to focus on 3Ps – People, Platform and Process. They need to make use of technology to build robust processes, which will enhance their performance further. Let us address major efficiencies that supply chain leaders need to exploit fully:

- Digital Innovation:** Supply Chain leaders should develop a "dual" approach to innovation. They should use innovative capabilities to drive efficiency & optimization in supply chain ecosystem to drive cost out and improve quality and customer experience.
- Use Case, agile approach:** It is important to adopt an incrementally agile, case study-based approach, whereby using case studies within or outside the industry will complement the creative innovations. It is critical to bring in more contextual & impactful use cases for prototype study and learnings.

- Increased elasticity & customer centricity:** Customer centricity helps to create global business models, which drives supply chains to be flexible and elastic. Great organizations leverage use of technology like IoT, Big Data coupled with AI to build predictive and prescriptive scenarios in demand and supply management as well as enable efficient insights into quality and manufacturing yield management.
- Improved visibility in end to end supply chain:** Cloud-based tracking and shipping technology paired with RFID technology and IoT help in enhancing the visibility of demand and supply in Tier II and even Tier III supply network / and demand channels.
- Improved demand supply forecasting using Machine Learning:** Many F100 FMCG companies have started to use machine learning capabilities to realize significant improvement in their working capital. Machine learning has the capability to provide predictive & prescriptive analysis in relation to variations in demand forecast in advance, providing valuable decision support for supply chain leaders.
- Demand driven planning model:** Using AI coupled with Big Data can create right predictions for risks such as suppliers' delays, political instability, natural calamities, etc. Companies can adjust their manufacturing, pricing, and promotions to shape the changes in demand and supply accordingly.
- DLT (Distributed Ledger) or Blockchain:** Blockchains are public and private ledgers with a decentralized data structure. It is an extremely efficient way of distributing the process of verification for large applications e.g. from financial transactions to logging and shipping information. Blockchain can track supply chain flow from start to finish including security, visibility, transparency in an encrypted manner.
- Site based intelligent demand sensing:** Demand sensing is a next generation forecasting methodology that greatly improves current levels of forecasting by employing a set of mathematical techniques, which are designed to analyze daily demand information, thereby creating a much more accurate forecast of near-term demand based on the current realities of consumer sell through. This is lot different than traditional statistical forecast method using smoothen or MAD into future forecast.
- Advanced weighing technology:** Modern technology includes the ingenious onboard truck scales, which allow for seamless operations when access to platform scales is not available. They enhance productivity by ensuring a truck carries the maximum weight right from the point of loading while also saving time and money.
- Control Tower structure:** A control tower is a hub for visibility, decision-making, and action, based on real-time analytics. A control tower allows you to focus on transparency, get visibility into the order to reduce the risk of potential issues as well as gain data on how to better manage orders, pre-alerts, and customer communication.
- Drone deliveries:** Drones have terrific uses across multiple sectors from delivering parcels, advertising, cinematography, site surveying, mining, humanitarian projects, environmental projects, and other areas. Besides the Pharmaceutical industry, other industries which will use drone as vehicle for last mile delivery to customers are agriculture, construction, exploration, etc.
- Automated guided vehicles (AGV):** Most 3PL operators agree that the controlled environment of large warehouses are perfect locations to bring in automated guided vehicles for loading / unloading operations. AGVs were introduced in Netherlands by Maritime logistics in Rotterdam Port. In the last 5 years, there has been significant demand from open market.

▶ Transforming the shape of things to come for the small players

Tech adoption is not always profitable. In fact, one needs to ensure that adoption is for the right reasons. Therefore, those who would have a calibrated plan would succeed, others might burn cash and even perish. Smaller players who use tech to directly connect with end-users or consumers would certainly have an edge over the others.

Vivek Sarbhai: Small players have the biggest opportunity to compete with large players. The advantage of scale enjoyed by large companies is no more that significant due to higher accessibility, lower IT cost and availability of shared networks, resulting in overall lower costs. There are now start-ups that are offering data intelligence services in the field of procurement, commercial spend and that again will help the small companies. Small companies are now going to be constrained mainly by their own mindset and courage to run an ambitious enterprise.

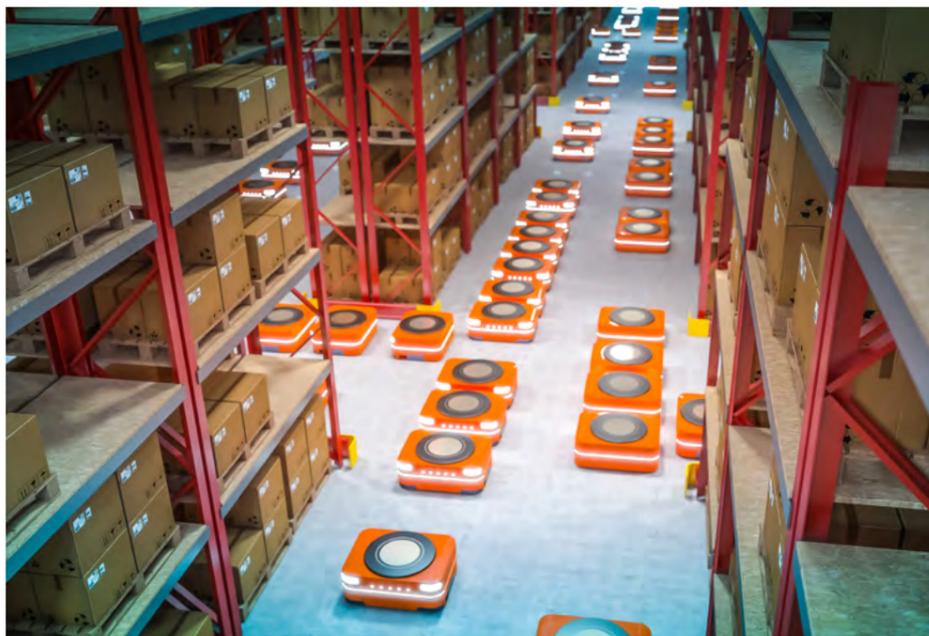
Anshuj Rathi: Cloud technologies make level playing field for big and small players looking for technology adoption. Smaller companies don't need to incur massive capital expenditure to benefit from latest technologies. For most of cloud providers, every customer is very important, and they understand the value of every customer. In the times when nothing is certain, a decent size company can suddenly become big and household name like Zoom to make them very attractive customer for cloud technology providers.

Nikhil S Gurjar: Tech adoption is not always profitable. In fact, one needs to ensure that adoption is for the right reasons. Therefore, those who would have a calibrated plan would succeed, others might burn cash and even perish. Smaller players who use tech to directly connect with end-users or consumers would certainly have an edge over the others.

Dharmesh Rathod: Thanks to the start-up industry, most of the value-added factors do not get restricted to big enterprises, rather they are very much in reach of small players as well. Cloud Computing has made them available to be utilized from any corner of the world. In fact, for small players, majority of them can afford greenfield implementation of technology due to lesser existing investments and thus less adoption challenges.

Sanjay Desai: It is a known fact that for small players, the first initiative to digitalize a part of the business is the most challenging, but once this has been accomplished, incremental improvements come more naturally and easily thereafter. The first step

to support MSMEs' digitalization is to deliver proper information on digital technologies, level of effort and % success in implementation of these technologies to MSMEs. To provide up-to-date and varied content, the governments' best approach would be to partner with digital platformers. They are in direct contact with many MSMEs and they are knowledgeable about types of MSMEs that have successfully utilized their services to digitalize businesses operations. Another thought process is to provide financial support to MSMEs that are considering embracing digital technologies, can be an effective way to encourage them to move forward if it is properly designed.



▶ Trends set to rule the supply chain domain

Advanced Edge Computing, Machine Learning/Artificial Intelligence, Cognitive computing, IOT/Smart Technologies and Cyber Security ensuring secured end to end solution are the major upcoming trends that supply chain domain is in fact embracing now and long way to go for coming times.

Vivek Sarbhai: There will be majorly two trends – there will be an enhanced adoption of technology to prepare for upcoming contactless economy. The execution domain, management of people in the execution processes will be the target of automation. Digital payments will get more and more accepted and that will provide another fillip to this trend. The second trend would be use of technology in data and analytics. Eventually, organizations will tend to outsource more and more and stick to finetune and sharpen their own core competence. Another trend that has started to emerge and will gain momentum is the development of shared networks. Pooling will become easier and will gain importance.

Anshuj Rathi: Industry will keep adopting digital supply chains at faster pace. Supply chain will be dominated by use of Artificial Intelligence, Internet of Things, Blockchain and Robotics process automation. Industry will heavily rely on machine learning and analytics to understand future predictions. Increasing use of 3D printing in supply chain is becoming evident in several industries where customer requirements are highly customized. We will see mashing of data from customer ERP, Planning, Warehousing, Transportation systems with real time sensor data to get better operational efficiency & machine utilization.

Nikhil S Gurjar: Contactless manufacturing and contactless supply chains would hold the key. Distribution challenges would prove vital for most retail organizations. The reach to the end customer will need to be focused on. More and more companies will integrate with e-commerce companies or set up their own e-commerce Apps. This would be extremely important

for survival. It's going to be a digital world, with a greater centering around the customer. And digitally seamless supply chains would be the winning formula for most. Some technological shifts would also be on the anvil. For instance, automotive companies making ventilators, cosmetic and chemical companies making sanitizers, building automation companies making thermal scanners, etc., all mean that their core businesses have shifted from mere products to capabilities. This would be the degree of automation required in the near future.

Sanjay Desai: Let us see some of the newer supply chain trends that will shape the way for new normal:

- ▶ **Digital Twins:** A digital twin is an end-to-end virtual model of the physical processes and/or objects that make up your supply chain. Digital twins can stretch across multiple companies to include suppliers, resellers, and any other external providers.
- ▶ **Increased importance to reduce wastage and cost control:** Disruptions of all kinds are becoming the new normal like trade wars, climate change & pandemics added to that are slow economic growth making life very difficult. In response, smart leaders are scouring every corner of the business for cost savings and strong focus on disposing-off obsolete assets.
- ▶ **High focus on "value chain" instead of supply chain:** Effectively, supply chain is the business; it connects everything from customer demand through raw materials and manufacturing to fulfilment. However, many great F500

companies are shifting from seeing supply chain as a linear process (raw materials -> manufacturing -> inventory -> customer order -> fulfilment) to a web of relationships between the customer, multiple internal departments, and even any external companies. The value chain (or value network) is a concept that's been gaining more traction since last couple of years or so. Matured organizations look beyond their own enterprise to form partnerships / collaboration with their customers, suppliers, and vendors.

- ▶ **Green supply chain / circular economy:** There has been a rising trend towards ethical sourcing, sustainable procurement, and sustainable logistics to control carbon emissions in the environment. Concerns over issues like climate change, conflict minerals, and labour slavery are forcing businesses to rethink their supply chains network strategy including their Tier II and Tier III suppliers.
- ▶ **Procurement as a function will transition:** Procurement function is slowly transitioning into primary channel for finding new ways to create value from the global supply base, whether by streamlining new product development or outsourcing non-core functions. Key expectations from procurement functions are:
 - o Prioritize value creation over price management
 - o Supplier relationship management as a core competency
 - o Transfer of innovative strategy for supply chain success
 - o Align internal and external collaboration.

▷ **Alternate revenue models will be on the rise:** Many companies today handle their supply chain activities inhouse. Still, we may see more businesses adopting 'Supply Chain as a Service' {SaaS} business model by outsourcing activities like manufacturing, logistics, and inventory management. The new revenue models are gaining prominence with the use of Cloud are (PaaS) Platform as a Service and (IaaS) Infrastructure as a Service. These are alternate revenue models which allow companies to reduce

overhead spending by avoiding fixed costs in infrastructure, upgrades, and maintenance.

▷ **The rise of Elastic Logistics:** Supply chains need to be flexible and responsive to market fluctuations as well. As a result, more businesses are adopting a flexible approach to logistics. "Elastic logistics" allows the supply chain to easily expand or shrink logistics capacities according to current market demands. Technologies such as artificial intelligence, machine learning allow

supply chains to adjust as needed with minimal disruptions in their fulfilment operation in Warehouse. Elastic logistics provides flexibility to many variables in the supply chain, including warehouse space usage, pick and pack schedule, carrier space, container usage, and route optimization.



▶ Opportunities for service providers and customers

Leverage solutions with comprehensive coverage and end to end integration without any hassles with existing technology – this is the baseline to be tapped for any service providers who depend on supply chain domain.

Vivek Sarbhai: The opportunities are in driving synergies and synthesis around the theme of interconnection, asset lite and intelligence. It is very important for organizations to decide where they will focus and where they will enter into long term relationships with service providers who will use technology to sharpen their core competence. Technology enablement will be not just the responsibility of an organization but its partners as well. Creating this mesh of capability is what will eventually succeed.

Anshuj Rathi: There are massive opportunities for both service provider and customers as supply chains get redesigned due to pandemic. Countries may still depend on global supply chains for near future but will start building up supply chain, which will be resilient to these kinds of pandemics. Rather than depending on single source of supply, industry will work on alternative supply

chains and to a certain extent more local supply chains. This will provide new opportunities for service providers to meet new customers' requirement.

Nikhil S Gurjar: There needs to be a growing partnership. Dedicated partners are required to ensure success. Many companies believe in diversifying their tech portfolios with a wide range of service providers. These operate well if the effect is largely localized and the costs or the margins are below 2% of their operational expenses. Anything above 2% would need a reasonable overhaul and a good teamwork with good contracting practices and trust building. It's important for both companies and service providers to realize that they have to work on win-win paradigms that work on leveraging capabilities, pivoting profits using competence, transparent solutions and shared ownership. Many vertical integrations are likely to happen in the

next few quarters, if the partnerships don't succeed in practice.

Sanjay Desai: The 3PL sector is rapidly changing and evolving into a major collaborative & service enhancing function by adapting to logistics demands of today's business. At the core of this evolution is a realization by companies of the need to provide a service that adds real value to client's business. The core services provided by 3PL companies include warehousing, transportation, orders fulfilment and track tracing last mile. However, high impact third-party logistics companies are going beyond this traditional role to add extra value to their services aimed at providing a service that far exceeds clients' expectations.

THE LAST WORD

On the changing dynamics, Sanjay Desai concludes, "New technologies should never drive the adoption of a new business model or strategy. It is just the opposite; the business strategy must drive the adoption of new technologies. Instead of racing to adopt the latest technology, businesses first need to adopt a top-down approach that looks at the business model first, and then acquires the capabilities, skillsets and people needed to create that change. In doing so, businesses greatly reduce the risk of making heavy investments in technology solutions that later need to be completely rebuilt. It's taking a step back to look at the "WHY" and "HOW", instead of just the "WHAT." A company might arguably lose ground by waiting to adopt technology, but a slightly cautious approach reduces the risk until it becomes more acceptable. The trick is not to be left too far behind!!!