ScOpe
Supply Chain and Operations Club

S O M
IIT KHARAGPUR

Srrnkhala

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DISRUPTIVE INNOVATIONS IN SUPPLY CHAIN

EXCLUSIVE INTERVIEWS!

ARTICLES BY STUDENTS FROM TOP B-SCHOOLS

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MESSAGE FROM DEAN, VGSoM

Welcome to Vinod Gupta School of Management (VGSoM), IIT Kharagpur. VGSoM is the first B-School in the IIT family and holds 6th position in NIRF rankings 2019 and top positions in multiple other rankings. VGSoM offers two-year MBA program to aspiring graduates willing to carve a career in management. The program equips the students with all mathematical modelling, machine learning and analytic tools required by the industry. The School also offers three-year Executive MBA (EMBA) program for working executives, whose classes are held on Saturdays and Sundays.

VGSoM is part of the prestigious Tri-Institute PGD program in Business Analytics (PGDBA), offered jointly by IIT Kharagpur, ISI and IIM Calcutta. As part of this program, students spend one semester at IIT Kharagpur and take up subjects in supply chain analytics, product analytics, data science lab, deep learning, and artificial intelligence among others. VGSoM is also part of a unique inter-disciplinary Dual-Degree program in Financial Engineering. A student pursuing this program takes a total of 5 years to earn the B.Tech (Hons.) in core engineering and M.Tech in Financial Engineering. The main objective of this program is to train students to develop expertise in the field of quantitative finance.

ScOpe, the Supply Chain and Operations Club of VGSoM, is a student-driven activity that helps students in gaining a broad understanding of the opportunities, career paths and trending issues in supply chain and operations management. ScOpe has spearheaded many initiatives – recent ones being Chain Reaction, Sanchalan, Modus Operandi, and Ops Forte.

'Srrnkhala' is one such initiative that brings the latest trends in Supply Chain Management direct to the hands of students in the form of an e-magazine. This initiative is also aimed at giving in-depth and direct exposure to students about some unique concepts and techniques that have developed in this field.

I want to express my sincere thanks to all industry leaders who were interviewed for the current issue of this magazine. I also congratulate bright students whose articles are published in this edition.

With more such interesting and informative material, I am sure that this edition of 'Srrnkhala' will achieve its meaningful purpose. My congratulations to the ScOpe team for bringing out this excellent edition.

Professor Pradip Kumar Ray

Dean, Vinod Gupta School of Management (VGSoM)

MESSAGE FROM FACULTY ADVISOR, ScOpe

We are witnessing trying times. The world is plagued with pandemic COVID – 19. At the macro level, production systems are halted and economic growth and development are being put to serious question mark. At the micro level, daily wage earners and people earning through allied activities of agriculture and industry are severely hit. The nation has gone into a 40-days lockdown. We at VGSoM, IIT Kharagpur have also adopted online methods of communication for dissemination of information and knowledge. At VGSoM, the students have different clubs, the aim of which is to inculcate in them creativity in their areas of liking and interest. The ScOpe club represents students with interest in the domain of supply chain and operations management. The members of the club conduct supply chain and operations management games, case study competitions, used case analysis, quiz and a host of other activities related to supply chain and operations management. The activities and competitions are open for students from all management institutions of the country and are looked forward to with great enthusiasm from all.

As part to the endeavor, the present issue of the online magazine focuses on “Disruptive innovations in supply chain and operations”. The issue contains interviews of supply chain professionals, and topics on innovation, AI, blockchain, humanitarian logistics, smart warehousing, 3PL services, and Covid-19 – all very pertinent in the present times. We hope that like the earlier issues, you will gain insights on supply chain and operations with the present issue.

Dr. Anupam Ghosh

Assistant Professor and Faculty Advisor – ScOpe

MESSAGE FROM THE EDITORS

In times, when the focus is shifting from functional or monetary prospects for competing firms to working on making their supply chain more robust and time-efficient, we hear about different disruptions. These disruptions in forms of various technological changes or process re-engineering help a company break the existing rules and emerge as the cynosure of the industry.

With all the News hassle and different forms of mediums, it is difficult to follow the right leads to gain an understanding of trends in a particular domain and to research the success mantras of a company. To overcome this, we have planned to launch "Srrnkhala," the annual Supply Chain and Operations magazine, which will serve as a one-stop reference for all the important events related to Supply chain and operations.

This edition will have insights about real-life supply chain management, interviews of professionals from the supply chain and operations domain, along with numerous articles that will dissect the complex issues and present them in a comprehendible manner. Mr. V. Venkatraman is the Head of the Supply Chain division of Reliance Industries Limited for Tamil Nadu, Pondicherry and Kerala, Mr. Sandeep Chatterjee, who is an Associate Director with Deloitte with responsibilities for engagements in advisory practices and Mr. Raunak Zatakia who is a manager at Vedant Fashion Pvt. Ltd. Popularly known as Manyavar. These interviews shall help the budding managers to get an insight into how leading managers think.

In times, when the whole world is crumbling at the behest of COVID-19 pandemic, affecting millions of people and facing a shortage of various materials, it has become much more essential that the supply of all the necessary items is up and running efficiently to meet the demands. Firms are trying ever harder to build effective supply chains to cater to the demand with increased reliability and flexibility. In situations like this, the disruptions in supply chain and operations technology will prove useful and help in the timely distribution of different items and materials.

The issue also includes articles from students studying in different B-schools who have shared their opinions and ideas with the student community. The deluge of useful quality articles from students gave us real hard time in selecting the two best articles as all articles proved to be worthy winners.
The release of the magazine is the time when we, as editors, look forward to the most. We, the entire team of ScOpe, at this moment, take immense pride in presenting to you the third edition of Srrnkhala - The Official Supply Chain and Operations magazine of ScOpe. We hope you enjoy reading it as much as we enjoyed getting it published. Feel free to give us your valuable feedbacks

Best Regards,
Editorial team,
Srrnkhala Magazine,
ScOpe

THE SUPPLY CHAIN AND OPERATIONS CLUB

ScOpe Club, The Supply chain and Operations club, is a student-run association of Vinod Gupta School of Management, formed by the Supply chain and Operations enthusiasts. The club aims to bring awareness among students about industry knowledge, current trends, and up-to-date information in Supply chain and operations, to help build successful careers in the domain. The club strives to improve the acumen of students in the field of Supply chain and Operations through various activities and channels.

Social Media Presence

The club communicates to the outside world through social media platforms. One of them is the **Facebook** page. With 2000+ likes, there is growing support for this page among students of various B-schools. This channel is a mode to provide Supply chain insights along with the currents trends and happenings related to the domain with multiple news articles and posts to the followers.
Through the **LinkedIn** page, with 1200+ connections, 20+ groups, weekly posting of articles, the club connects and interacts with the alumni and professionals in the industry, to reap benefits of their invaluable experience. The alumni are immensely supportive, and their valuable guidance and assistance would help us to gain an understanding of the latest trends in the field of management.

ScOpe Handbook

The club members are fascinated with the recent trends in supply chain and operations. Topics related to the domain were selected, distributed among the club members to have deeper understandings. In the course of this activity, we studied numerous reports and papers, which widened our knowledge of the subject. This activity gave each of us a broad idea of the topics. It thus improved our knowledge base in the domain. Finally, each person made a report for their topics, and we compiled the report into a document that was distributed to batch as a mini handbook of supply chain and operations.

ISCEA Certification

ScOpe connects with the prominent industry champions like SCNext, International Supply Chain Education Alliance (ISCEA) to conduct various certifications programs like CSCA(Certified Supply Chain Analyst) and CDDP(Certified Demand Driven Planner). It provides the future leaders in the supply chain industry with a platform to explore their leadership potential while developing the skill sets and knowledge desired by corporations, small and large. Last year, 20 students registered for this certification, which help them to gain a deep understanding of demand planning, Inventory Management, and supply chain management.

Six Sigma Workshop

The Supply chain and Operations Club (ScOpe), in association with KPMG India, organize the "Lean Six Sigma Green Belt Workshop" every year. This program, for four days (32 hours' program), enriches the students and gives them the capability to look at the problem from a consultant's view, thereby broadening their outlook. The workshop receives enormous participation from the students of VGSoM as well as other departments. It has a curriculum involving both theoretical and hands-on exercises to implement the concepts learned. It enables the students to have the upper hand in the panorama of current industry trends.

Sanchalan

Sanchalan is a Supply Chain Management Simulation Game that creates a simplified model of the Beer Game. It relies upon role-playing to evaluate existing skills and impart practical knowledge about a complex topic. It is an excellent way to learn the basic principles of Supply Chain Management (SCM) and appreciate the challenges faced by Logistics managers in a variety of businesses. Participants can learn concepts like the bullwhip effect and supply chain delays. They can learn difficulties faced with regards to supply chain management, forecasting, planning orders while keeping inventory cost low.

Chain Reaction

Chain Reaction is an event conducted for students of VGSoM to help them better understand the supply chain management in some of the top organizations across the world. These organizations chosen for being presented upon were part of 'Gartner's list of the top 50 supply chain companies in the world. Students are given a company from this top 50 list, and they submit a presentation regarding their supply chain. Each team has to submit their presentations and, based on which the top 6 teams present it before judges. Teams are evaluated based on an understanding of the supply chain strategy, logistics, and its advantages and disadvantages.

Modus Operandi

Modus Operandi is the Flagship event of Purvodaya, which is an annual B- School fest of VGSoM, IIT Kharagpur. It attracts 500+ participants from various top B- Schools in India.

It provides an excellent opportunity for students to solve real business problems related to core operations and supply chain. The event has three rounds-online quizzes, case analysis, and an on-campus round. Corporate case analysis tests the abilities of students against operational challenges that are in the real world. Efficiency mixed with effectiveness is the key to perform well in the competition.

Ops Forte

Ops Forte is an online quiz conducted in two rounds, which tests students' knowledge on a wide variety of supply chain and Operations concepts. The quiz involves questions from all possible horizons like Basic concepts and understanding, Real-time issues, Recent trends, Global Supply Chain Statistics, and many more.

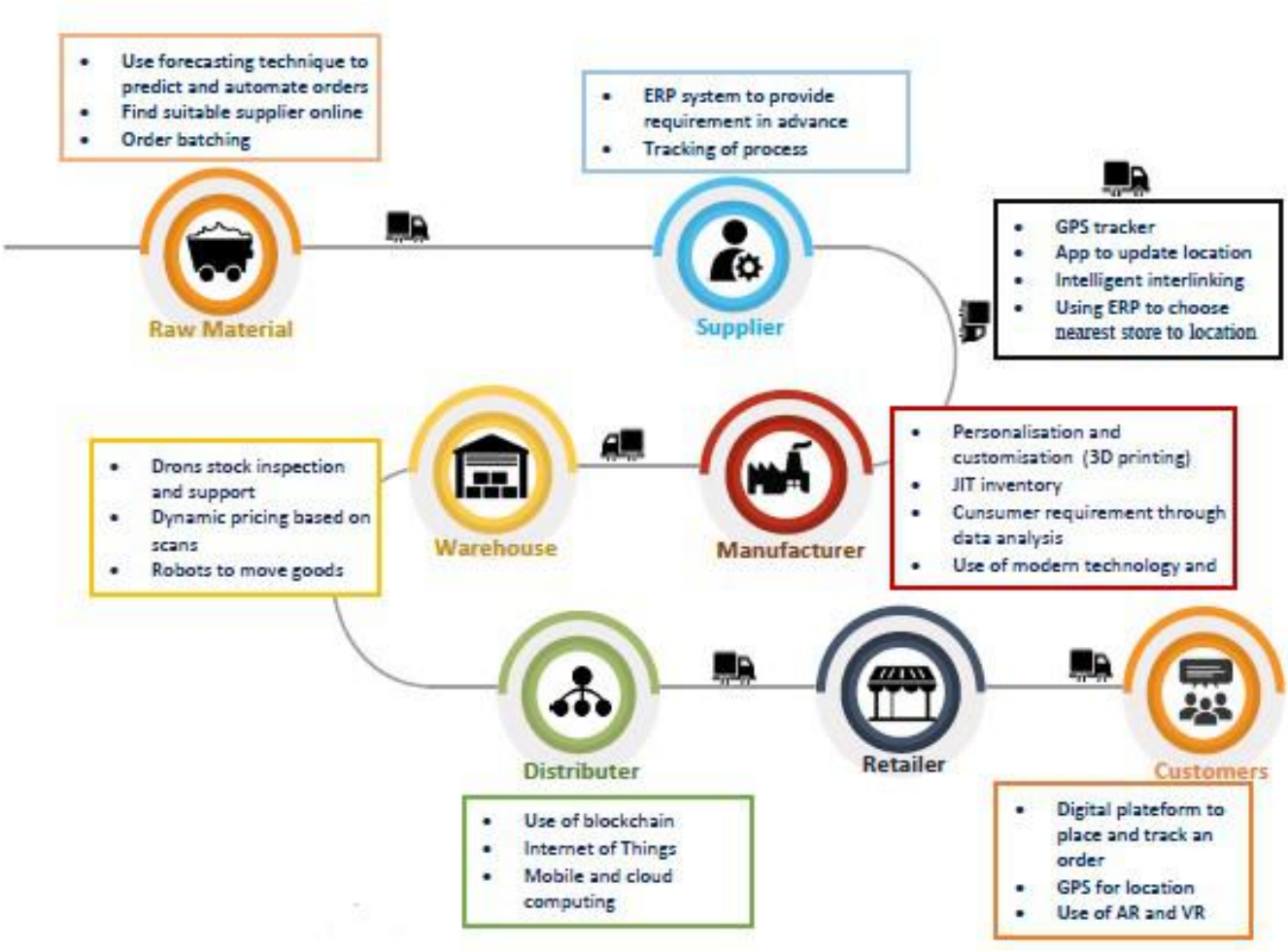
DISRUPTION

"Where there is no standard, there can be no Kaizen"

By Taiichi Ohno

INNOVATION IN SUPPLY CHAIN MANAGEMENT

The primary function of the supply chain is to take products from manufacturers to consumers. Traditionally supply chain optimization was more focused on cost reduction, but in today's world, the supply chain can provide companies a competitive advantage. The supply chain provides opportunities to differentiate companies and gain benefits through innovation, cost reduction, decreasing delivery time, customization, increasing reach, etc. A reliable, efficient, agile, and trust supply chain offers a competitive advantage.



A Typical Modern Supply Chain

DISRUPTION

USES OF BLOCKCHAIN

Blockchain provides information in one place, which is secure, reliable, and cannot be altered, which will help bring transparency reliability and trust in the supply chain. It will help bring the right balance between confidentiality and transparency in the supply chain.

Usage: To store information such as financial transactions, shipping information, which increases credibility and trust. Below are a few examples of industries:

- **Pharmaceutical Industry:** Blockchain can play an essential role in increasing safety by tracking and eliminating counterfeit drugs.
- **Automobile Industry:** Counterfeit market in the automobile industry is of millions of dollars, these parts find a way in the supply chain through different means. Blockchain will allow identifying each spare part uniquely, which will help in identifying counterfeit parts.
- **Procurement:** Suppliers can use Blockchain to create a trusted digital identity that can help to identify different buyers uniquely.

- **Food industry:** To identify at which step of the shipping process, the problem is occurring, if the product is being kept in desirable environmental conditions and taking essential measures to optimize the processes throughout the journey.
- **Valuable products:** Products like Diamond, gold, antique, or art pieces that have high value and emotions attached to them have to be genuine. Live tracking of the product delivery will assure the customers that they are buying original products

AGILE SUPPLY CHAIN

Objective: In today's highly globalized world, the bargaining power of customers has increased, customers want unique products within a short period and at competitive prices. The supply chain needs to be highly flexible, responsive, innovative, and cope with unpredictability to cater to the pressing need.

DISRUPTION

- **3D printers:** Customers can design their products with the colours, material, size, shape, etc. they want and receive the same within a week with the help of 3D printers high prototyping capabilities. 3D printers can create forms that might not be possible with traditional methods.

customer's needs, printing and colouring can be done

- **Paint industry:** original paint (usually white) can be kept readily available. The technology can help in deciding the proper proportions of coloured paints to produce desirable products. This technique has been adapted by Asia Paint.

- **Use in aerospace and defence**: This technology can help in creating complex parts cost-effectively. Along with increased efficiency in aerodynamics and engine performance, it can help in reducing weight and part integration.
- **Use in shoe manufacturing:** Nike used the technology to design their Nike Vapor Hyper Agility Cleat to optimize their shoes quickly.
- **Combination of Base material and state of the art technology:** Companies can manufacture the essential basic structure of the final product and modify it at a later stage of the supply chain as per customer needs.
- **Use in the garment manufacturing industry:** Blockchain can help in preparing the initial design in different sizes. Later on, as per the

USE OF AUGMENTED REALITY:

AR, when used effectively and in the right setting, can provide the number of advantages in terms of increased workflow standardization, contextualized information, hand-free assistance, and documentation

- **Warehouse operations:** AR can help increase efficiency and reduce errors in the order picking process. Employees can see the packing list and the most efficient route through the warehouse. AR leads to a reduction in the need for intensive on the job training. AR will help plan the warehouse layout in such a way that it has not just become a storage facility but also give value-added services for effective storing, repackaging and repair.

DISRUPTION

"If supply chain had an arch enemy it would be called Bad Communication"

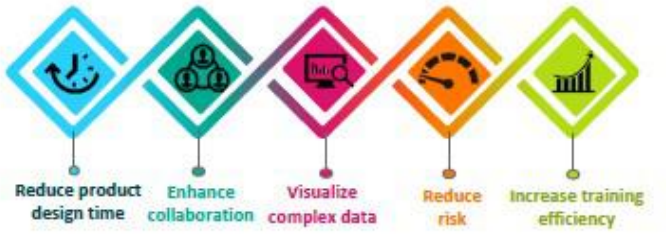
- **Customer Service:** AR-based application will provide users with a fair idea about size, weight, the volume of products
- **Detecting faults and repairing:** AR glasses with high image processing techniques can help employees to inspect and identify defects in machinery, resulting in better services and reducing delays. AR also enables timely maintenance of systems avoiding malfunctioning and delays in supply chain

- **Improve standardization:** Videos captured while performing duties can be analysed and inspect to introduce and improve uniformity, this will lead to enhanced safety

USE OF VIRTUAL REALITY:

Virtual reality is an artificial, computer-generated interactive environment, which can help in processes like product design, experience -based training, virtual collaboration to improve efficiency, safety, and productivity in the supply chain.

- **Improve customer service:** Customers will have a practical way to interact with products, which will help them to make well-informed purchasing decisions as VR will give them a more realistic idea of how the product will look.



- **Training employees through the virtual environment:** Through VR, companies can prepare the employee for high-risk environment jobs. Train employees to develop an ability to identify, analyse, and make the best decision at risky conditions.
- **Facilitate rapid decision making:** 3D data visualization will help companies to identify interdependencies and impact of some decisions. VR will facilitate an environment for quick analysis and hence fast decision making.
- **Increase collaboration amongst the workforce:** Employees can collaborate with colleagues around the world effectively using VR's enhanced audio and video capabilities. These remote interactions will bring the cost down, provide insights in product and process development and increase efficiency throughout the supply chain.

DISRUPTION

"If you think of standardization as the best that you know today, but which is to be improved tomorrow; you get somewhere"

IOT, BIG DATA, AND ARTIFICIAL INTELLIGENCE:

Internet of Things (IoT) devices use sensors to measure specific aspects like temperature, location, speed, force, etc. and provide continuous data to the connected system, e.g., computer for further processing. This data is then analysed to obtain some insights, trends, and patterns which can be used by various machine learning algorithms to make a predictive analysis based on data learning .

- **Predictive Insights:** Availably of vast data and robust machine learning algorithms can help predict highly accurate outcomes. Management can know the cost and revenue of unbuilt stores, and traffic patterns can help drivers take the efficient route, and demand forecasting will lead to better inventory management, etc.
- **Monitoring storage conditions:** Some goods like food, chemicals, and drugs need to be kept in ideal conditions. IoT devices and data can help continuously monitor temperature, humidity, light intensity, etc. and trigger an alarm if the measured parameter breached a certain threshold. It helps in tracking the quality of good and identifying the weak area to take appropriate actions.
- **To locate goods in storage and tracking asset:** In large warehouses, it is hard to find a particular product. If GPS devices are put to them, it will be easier to locate.
- **Scheduled maintenance:** IoT uses smart sensors that will monitor the condition of machinery and detect a fault; this information will help predict and schedule machinery maintenance in advance resulting in the prevention of downtime which is expensive

DISRUPTION

"Almost all quality improvement comes via simplification of design, manufacturing, layout, processes, and procedures."

By Tom Peters

- **Increase sustainability:** The client will be able to monitor the product until it reaches the destination, which will help them know if the product has been tampered with or not.

USE OF AUTONOMOUS ROBOTS:

Autonomous robots can be programmed to perform tasks with little or no human intervention. They can be used to increase the speed and accuracy of repetitive operation, work with humans to improve efficiency and increase safety by reducing risk.

- **Increase productivity**: Robots can work continuously around the clock without fatigue, they also have the potential to improve operations and can provide new opportunities to increase productivity
- **Increase customer satisfaction:** Autonomous robots can help reduce the errors and delays that helps to increase customer loyalty
- **Enable quick ramp-up:** During the holiday season when labour is scarcely available, Demand can be met by effectively using robots to improve operational efficiency
- **Improve safety:** Robots can perform risky tasks assigned to an employee, which will help in reducing potential accidents
- **Create significant abilities:** Robots can pack, pick, sort, move, travel, inspect, count, test, etc. much more efficiently, accurately and faster than humans resulting in improved significant efficiencies
- **Delivery of packages:** Airborne drones can be used for the delivery of packages, which means faster delivery, reduced cost, reduce congestion, etc.

MOBILE COMPUTING:

Smartphones are becoming more functional and affordable with time. The adoption of mobile phones will play a key role in optimizing the supply chain if integrated with devices properly.

DISRUPTION

- Tracking information: Customers can easily track the information regarding the purchased product on smartphones
- Barcode scanners: Scanning the barcode of products using a mobile internet connection will help record real-time transportation information across each stage of the supply chain. It can help make inventory decisions based on extensive data provided by scanners that can read goods at hand and update inventory.
- Placing Orders: Customers can conveniently place an order through apps using a mobile phone

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FACT

OUTSOURCED LOGISTICS REDUCE COSTS

Not only do 3PLs make supply chains more efficient, but they can lead to reduced costs. In fact, 70% of shippers say that a 3PL saved them money while improving their service.The costs saved can depend on the services a 3PL provides. Some common 3PL services include: Fulfillment, Warehousing, Kitting, Reverse logistics and Just-in-time (JIT) delivery. 3PLs often find the most cost-effective ways to perform these tasks, and that could directly correlate to savings. For example, a 3PL could own a warehouse and employ workers that perform tasks for multiple businesses, and only a portion of that cost would be shifted onto each business.

CROSSWORD

SUPPLY CHAIN CROSSWORD 1

Vertical :

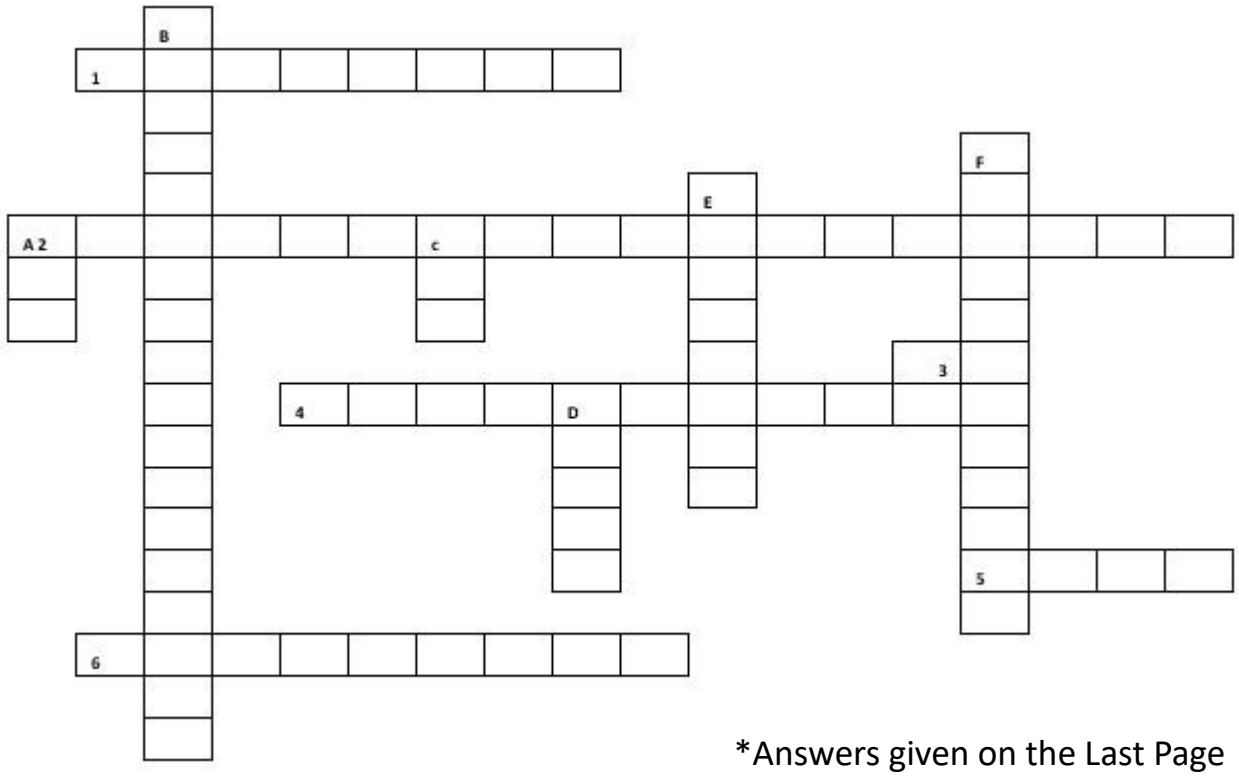
1. The maximum amount of time in which a product needs to be produced to satisfy customer demand_____
2. Place Where finished goods are sorted/shipped to various retailers_____
3. Name the company which is known for Post-It-Notes to the world_____
4. British manufacturing company founded in 1906, known for making customised engines for Airbus-380 _____
5. Name the Indian logistics company which was founded in the year 1990 by Mr. Subhasish Chakraborty?
6. Name of the American engineer who coined six sigma?

Horizontal :

A. Global logistics company which was founded by Adrian Dalsey, Larry Hillbloom and Robert Lynn?
B. The lean manufacturing technique used to analyse and design the flow of materials from the supplier to customer_____
C. ____ shows all sub-assemblies, parts and raw materials that go into making an assembly
D. The amount of time an activity can be delayed without delay in the project.
E. The concept of removing faults at the first instance and making a product fool proof ?
F. First assembly line for mass production of automobiles was set up by _____

CROSSWORD

SUPPLY CHAIN CROSSWORD 1



*Answers given on the Last Page

FACT

Supply Chain Management Software Is Huge and Still Growing

Other countries have even higher employment rates. For example, India's logistics industry already employs over 22 million people, and that number is expected to continue increasing by roughly 7% each year. A recent report showed that SCMS usage grew 9% year over year, a huge annual change for an already massive business. By 2025, the global SCMS market is expected to be over $22 billion. Considering that logistics is expected to be a $15.5 trillion industry by 2023, SCMS usage should only continue to grow.

TALK WITH TITANS

Mr. Alvis Lazarus

CEO Hesol Consulting

"....to produce has been shadowed by the concept of faster to market. Sales and distribution is steadily becoming data driven – massive investment into the space basis of technology are opening new avenues and challenges ...."

LinkedIn Profile: https://rb.gy/phvt7a

Mr. Alvis Lazarus is the Chief Executive Officer at Hesol Consulting, an award-winning supply chain consulting firm from India. Senior leader in supply chain & logistics with almost 2 decades of supply chain hands-on experience in devising country level and global supply chain strategies, Solutions design and spear heading supply chain implementation across 15+ countries. Handled all India operations at 3M, Flipkart and Common floor and served in a Global Consultant Role with Caterpillar. Certified Lean & Six Sigma MBB and TOC Champion - coached more than 500+ Lean and Six Sigma Green belts and Black belts. Holds the distinction of driving supply chain programs across various industries such as Retail, E-Commerce, Automotive, FMCG, Textile, Pharma and Agriculture. Global exposure on handling operations and leading supply chain, warehousing & logistics projects across EMEA, APAC & Americas Regions

1. Who/what helped or nurtured you to be the person/to reach where you are today?

In this contemporary world, every day, we are experiencing new technology and speaking about a lot of nuances. Being strong in our fundamentals and sticking onto it is what helped me to stand where I am today, and I am saying from a consultant standpoint, having a solid foundation in basics guides you to reach greater heights.

TALK WITH TITANS

2. How is the cold-chain industry transforming in India?

The cold-chain industry is specific to certain sectors and some commodities. Industries like ice cream, meat industry, etc. require cold storage as well as cold logistics. India, the most significant producer of milk, needs cold supply chain for an end to end logistics for milk and some of the milk products. It indicates the positive trend, but infrastructure development required for this industry growth is actually in fragmented stages. It shows we don't have a single player to reach this vast demography; instead, we need to collaborate with multiple firms to have an end to end logistics. The industry has a lot of opportunities and has a competitive edge to gain an advantage because the market need is at the higher side.

3. What are the prospects of the cold supply chain in the wake of the steep growth of food retail in India?

Nowadays, people are showing more interest in packed-foods in India. Though it is not suitable for health from a specific standpoint, people tend to buy in this mechanized life, and this industry is currently booming. Due to the shortfall of technology, infrastructure, etc. the growth is limited. For example, when e-commerce boom, there were some whopping requirements on the last mile, and currently, last-mile delivery providers have increased in tremendous numbers. The market reacted to their needs. Similar way, in cold-chain industries, when the market responds to its requirement, the industry grows. By placing the technology, systems, and money, there is a lot of potential in the cold-chain.

4. In this VUCA world, what are the critical factors needed to consider to build a successful supply chain?

TALK WITH TITANS

As a consultant, I work on a lot of go-to-market strategies, and in that, the supply chain is one of the vital functions. In building a rigorous supply chain, first and foremost is aligning the supply and demand in most cost-effectively way, shortly optimization. Optimizing the supply chain will give a competitive edge over its competitor. Secondly, forecasting the demand, as well as uncertainties, will help our supply chain to be ready for the next 3-5 years. A various technique like SWOT analysis, risk analysis helps to predict the uncertain situation and identifies the alternate ways. Next, companies should always think beyond their current capacity. Using simulation and modelling techniques, one of its value stream mapping, we can evaluate various possibilities, which saves a lot of time and cost. Simulation and modelling prepare the company for the future-ready. Finally, after building the supply chain, monitoring is the crucial factor. Control plans and measuring the critical to business areas using various technology like IoT, AI, etc. aids in building a robust supply chain. There are other factors like human resources, etc. are essential, but the above mentioned are four pillars of a successful supply chain.

5. High logistics cost in India compared to developing countries reduces the competitiveness of Indian goods, how do logistics start-ups such as Black Buck, Rivigo, and Freight pro helping in transforming the Indian logistics sector?

Technology is reducing the high logistics cost in India. In current trends, start-ups like Rivigo, Blackbuck, etc. and also traditional players like Om Logistics, Gati, etc. are coming in with tech-enabled infrastructure and adapting to the technology. Companies who are cost-effectively implementing the technology and reaching the technology break-even at a scale are highly competitive and thriving in the long run. Not only technology break-even, achieving break even on a service field level at a scale is of utmost importance, which many companies are struggling to reach. So, companies should converge more on optimizing their resources to reduce their cost.

TALK WITH TITANS

6. What are the barriers faced by retail companies while adopting an omni-channel strategy? How to overcome those barriers?

Companies are finding it hard to integrate their infrastructure, resources, and teams, which is most significant for omni-channel. The benefit of the Omni-channel is shared facilities and operations. But companies failed to realize this, as they are doing multi-channel instead of Omni-channel, which means separate infrastructure, resources, the supply chain for an online and offline business. In the Omni-channel, companies strive to integrate their facilities, share their equipment, and utilized it to the brim, and then it would never fail.

7. Give us an example where even an unorganized retail store could use sophisticated supply chain techniques most?

In an unorganized retail store, one of the significant concern is inventory management, because this impacts on your store space, cost as well as customer services. Also, they don't have proper inventory policies and practices to track their stock availability. The next area where they should focus on is collecting customer data and customer experience. Using data, we can do customer analytics and then link with procurement, buying behaviour to enrich the customer experience. Usually, in this sector, they are relying mostly on traditional wisdom that they gain in decades of experience. So, proper documentation of different metrics of customer data and leveraging it will give a competitive edge over the online player.

8. As per you, which things should a young supply chain and operations professional focus upon during his/her initial stage of careers?

TALK WITH TITANS

Let me say it loud and clear. Don't be worried about if you do not know about IoT or Artificial Intelligence or any other jargon you hear. For beginners, companies won't expect you to build an IoT device, but they expect you to create the EOQ model and setting up for procurement. If you are good at the basics, you can do it. So, having strong fundamentals will help you to shape your career, and this is a crucial requirement from a supply chain and a consultant standpoint.

9. Amid this pandemic, how start-ups like Ninjacart, Rivigo can hold their business and scale up using this opportunity?

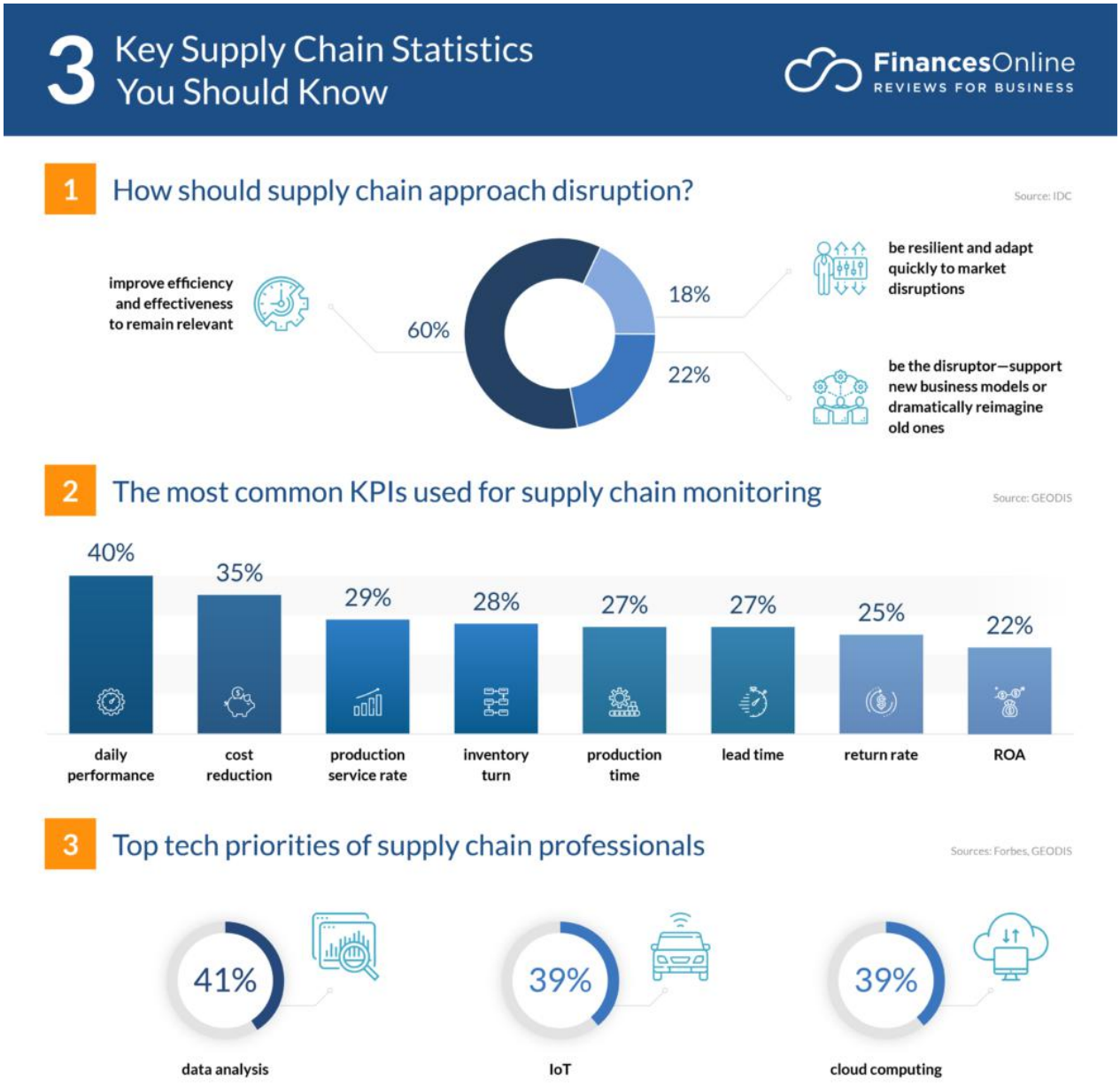
The impact of lockdown goes for at least one or two years. People who come out freely and do shopping is going to be less, which inevitably changes the customer buying pattern. Predominately, last-mile logistics service providers, online players are going to get impacted in a positive drift. Companies who are ready to scale up their business, having precautionary measures that require in this COVID-19 like packaging, delivering the goods/services will get benefitted and give a positive image of brands.

10. Most of the companies are planning for short distance transportation of materials and parts. Is this reliable to develop a supplier base near to the plant?

Automobile plants have an upper edge in developing supplier base near to their plant. But the reason is different because it is a kind of benchmark Industry. Unfortunately, every industry doesn't have this advantage, and it is not easy to develop a supplier base near you. By doing FMEA on suppliers, we can plan for alternate sourcing. Again by sticking to the basics and doing risk analysis on a single source, companies can prepare for an unprecedented situation.

DID YOU KNOW

THE INFOGRAPHIC



DISRUPTION

"Where there is no standard, there can be no Kaizen"

By Taiichi Ohno

RESILIENT SUPPLY CHAIN TO ADDRESS NATURAL DISASTERS

Every year the World Economic Forum releases the Global Risk Reports. A decade ago, the number of geopolitical risks dominated the top 10 risks over the next ten years based on the impact. But this year, the number of environmental factors such as climate action failure, biodiversity loss, extreme weather, and natural disasters have outnumbered the geopolitical factors.

"You can't manage what you can't measure."

-Peter Drucker

Measuring the supply chain risk is the first step in supply chain risk management. The supply chain is affected by several disruptive events such as earthquake, Tsunami, etc. which affects the day to day activities of the business and creates a considerable amount of financial and human loss to the company.

There are two crucial components in measuring risk:

- Likelihood of risk
- Impact of the risk

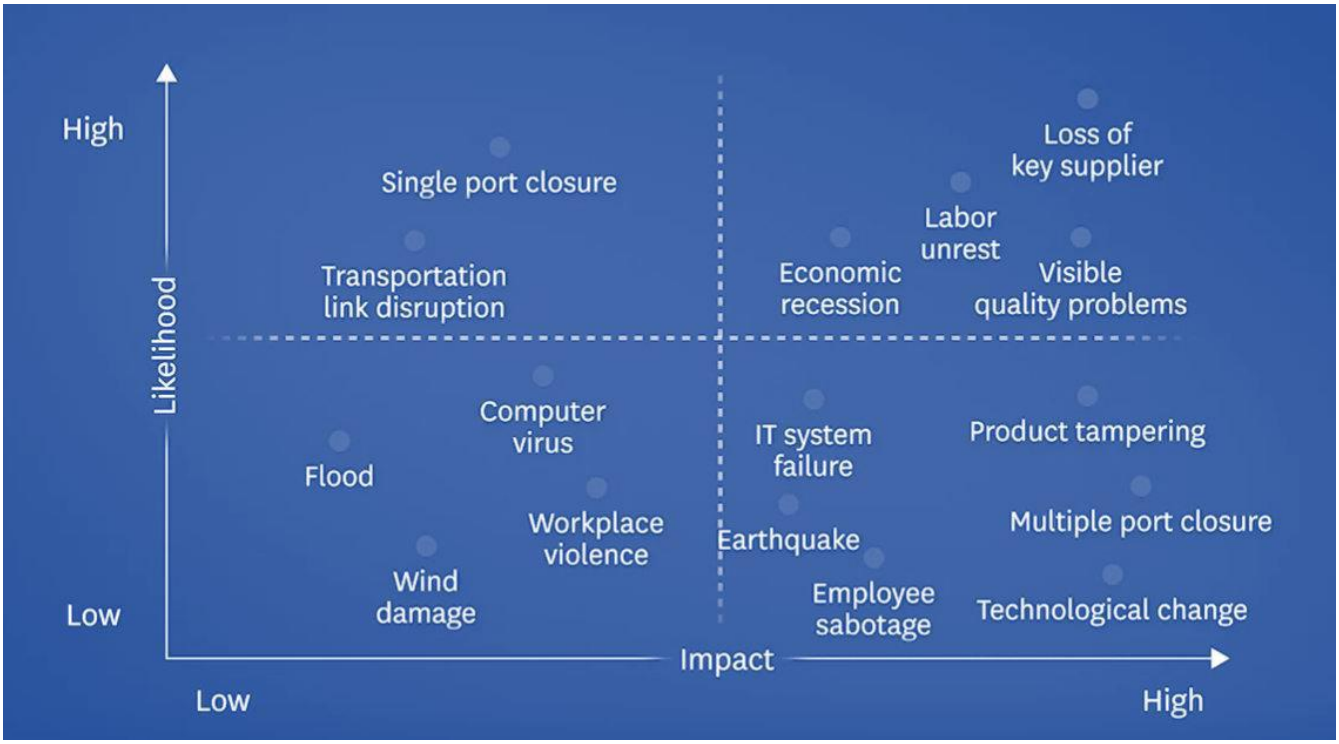
The likelihood of the risk is estimated by the probabilistic models and frequency of the occurrences. To measure the effect, we should look at the quantitative factors such as expert opinions, historical data, or machine learning models, which can measure the impact through simulation. At an elementary scale, fall in the stock market prices and the decline in the revenue signals the effects of natural disasters.

In March 2011, Earthquake and Tsunami hit Japan, and the whole Japanese Auto Industry fumbled. Toyota and Honda, which had 10% and 5% respective market share in the auto industry across the globe in 2011, halted their crucial manufacturing operations in Japan. But Toyota and Honda acted so fast to resume their normal functioning within two months. They were also able to regain the pre-tsunami market share in the global arena well before the market estimates. Since the Toyota and Honda supply chain extends well beyond Japan, so there is a risk of any disruption quickly traversing upstream or downstream. Before the Tsunami, Toyota had developed many risk mitigation measures through expert interviews, risk surveys, and SWOT analysis. After analyzing the results, the automakers developed an impact-likelihood matrix or risk heat map to establish a risk mitigation plan.

DISRUPTION

"Good is the enemy of great. That's why so few things become great"

By James C Collins



Most of the time, supply chain managers go with high impact risks, which have a high likelihood. In 2007 Nassim Taleb published a book called The Black Swan whose fundamental concept is that when there is no signal for the occurrence of disruption doesn't mean that it will never occur. From the above matrix, Earthquake and Tsunami is a less likelihood event with very high impact. So neglecting the importance of such an event will create disastrous consequences in the supply chain operation of the company.

After identifying the risk impact by plotting them on the heat map, the automakers develop four different strategies according to the type of risk.

1. **In Risk Avoidance**, the firms move their operations entirely to other countries where the probability of natural disaster is minimal. Through this measure, their objective is to zero down the impact of risk by altogether avoiding it.

2. **In the Risk Mitigation strategy**, the firms develop safety measures to reduce the impact of natural disasters rather than eliminating them. There focus here is to reduce the risk impact and frequency of occurrence as much as possible. To reduce the likelihood of natural disasters is impossible since it is not controllable. Still, few of the other problems, such as employee sabotage, technological change, and factory fire, the likelihood of occurrence can be controlled. The majority of the automakers can avoid one of the disruptive events in the supply chain by creating an in-house quick-fire response team.

3. **In the Risk Transfer strategy**, the risk is transferred to the third party. The majority of the company subscribe to this strategy by ensuring all its factory equipment and supply chain components. In that case, the risk of financial loss due to the destruction is passed to the insurance company, but other damages such as reputation loss and human capital loss persist.

DISRUPTION

4. **In the Risk Acceptance strategy,** the firm accepts the risk and thus had to bear the consequence of its impact. Since it is impossible to create a plan for all possible risks, the firm decides not to have any mitigation measures for low impact risks. Risk Acceptance is not a strategy to be adopted for high impact risks such as natural disasters.

Adopting these strategies also clearly indicate the importance of supply chain resilience, which measures the ability of the supply chain to get prepared for any risk events so that the response and recovery are quick enough to restart the supply chain operations to pre-disaster level. Two strategies adopted to improve the supply chain resilience are to enhance the flexibility or to increase the redundancy. In the case of manufacturing, redundancy means having excess inventory. Most of the automakers have inventories, which are a combination of safety stock and cyclical inventory. Cyclical inventory is kept based on the forecast to meet the demand, and the purpose of safety stock is required to meet any sudden changes in the demand. To mitigate the supply chain disruption, safety stock is kept high so that any spikes in demand are usually met. But during 2011, Japanese car manufacturers follow just in time system to minimize the inventory to nearly zero. In this case, the inventory is majorly work in process inventory or pipeline inventory, and there is no raw material and finished goods inventory. So, after the Tsunami, the significant issues with Japanese manufacturing plants were a lack of components. Toyota and Honda, through their manufacturing facilities in Europe where they had redundant capacity, were able to meet the loss of production capacity in Japan for a short period. By flexibility, a single asset has multiple purposes, and the asset can be either a facility or human labor. In 2011 most of the auto manufactures in Japan were dependent on a handful of suppliers like Renesas for components. Thus, the room for flexibility was tiny, and they had to rely on the government to recover their facilities and supplier facilities.

Apart from the above two supply chain resilience techniques, the firms which can detect and respond quickly to natural disasters can save millions of dollars. In this case, Honda and Toyota were able to save the production loss of more than a million vehicles. During such uncontrollable disasters, the firms should let go of their competitiveness and had to act cooperatively. As seen earlier, both Toyota and Honda were dependent on Renesas was components, so they, along with other car manufacturers like Hitachi, NEC, and Mitsubishi, helped Renesas to resume operation within a few months. Thus, the critical lessons learned by the Honda and Toyota were put into test during April 2016 disaster in which these auto manufactures were highly successful in overcoming the crash within a month.

To build a resilient supply chain against the natural disasters; the firm has to take a complete survey of their suppliers and identify the weaker links, spread the risk between different suppliers, build a robust infrastructure for plants and offices, ensure that suppliers are highly flexible and improve the redundancy to a level so that supply chain is unaffected.

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TALK WITH TITANS

Mr. V Venkataraman

"...technology up-gradation, coupled with the personal touch by individual executives, will lead to penetrating a new market while sustaining the existing market..."

Mr. V Venkataraman is a Graduate in Physics and did his Management in Marketing from Symbiosis. Started his career with Lupin Labs in Mumbai before joining Reliance Group way back in 1988 in their Corporate office in Mumbai. Initially Worked in various discipline in the Organisation before elevation to be part of Supply Chain Operation of Southern States. Mr.Venkataraman has been part of Supply Chain Division for 14 years before assigned to handle Polymer Marketing for Nine years in one of the tough Markets of Southern and Western Tamil Nadu where the consumption centers are spread across the districts. During the Marketing stint he had close association with all Major Customers, end users and Plastic Associations. He was instrumental in creating new markets by developing new Products. Mr. Venkataraman has been elevated to head the Supply Chain Division of Tamil Nadu, Pondy and Kerala in the year 2017. Since then he has been efficiently Guiding the Supply Chain team towards achievement of customer delight.

ScOpe

1. Everyone has someone or something that helped them achieve/reach where they are today professionally. So, who/what helped or nurtured you to be the person/to reach where you are today?

Our Founder, Chairman Shri Dhirubhai Ambaniji, was my motivator, and one of his slogan "Think big, Think fast and think ahead" motivated me to deliver my responsibilities. I always had a fire in the belly to achieve something in life professionally, and I have always been a motivated person. My Superiors have given me a lot of responsibility and freedom, which has made me reach this level.

TALK WITH TITANS

I have never seen time in the evening before closing down my PC to wind up for the day. Of-course my family stood with me even at a difficult time of my career and supported me fully without which I would not have reached this position

2. In a competitive business aspect like yours, the disruptions in the Supply chain is inevitable. As a leader, how do you approach such disruptions?

Yes, of course, disruptions are part of the business. Nowadays, the expectation of customers are very high. We have been taught in our company that customers are god to us. Proactive approach and anticipating issues are my natural strength. Periodic meetings with my team, prompting them on expected matters, and taking suggestions are few to face the inevitable disruptions. As a supply chain head, I have to balance Customer interest and Management expectations. Ensuring inventory at stock points without affecting its carrying cost is one of the most crucial points to meet those disruptions.

3. Leaders today, however, face a big challenge when it comes to disruptive innovation. Many executives rise through the ranks of management, where predictability and control are valued and rewarded. What are your views on this?

Yes, of course. I am one of the examples of having risen to this position by continually learning and updating myself to current world technology. Our company has been successfully managing those during the last 25-30 years, i.e., why we are leaders of the Industry. Our management has continually adopting system up-gradation by continuously investing in R&D. We are consistently offering proper training and development to existing talents. In the meantime, we have been continuously inducting young talents to meet the current challenge. Controls are part of the system without which the destinations are not met.

TALK WITH TITANS

4. What exactly is a disruptive innovation, and how does it apply to your operations?

In our organization, though disruptive innovation may not apply directly to the supply chain but in a different manner. For example, in the past lot of manual interventions were required to process customer orders for deliverables and were experiencing delays. However, we have upgraded and implemented so many changes like the implementation of SAP, enhanced warehouse management system, dash boards, infrastructural developments at our stock points, etc. which has changed the way of operations. Automation has been done in all stages so that customer experience with us has been enhanced.

5. How does disruptive innovation assist Reliance industries in its everyday operations?

Yes, of course. The world is fast changing with respect to disruptive innovation. Like every organization, our management motivates everyone in our organization for good ideas and offering awards/promotions. We have successfully implemented a few of the innovative ideas of our strength and enjoyed the results. We have made changes in every step, so that information flow is online between customer and supplier.

6. What benefits does the successful application of disruptive innovation bring to the table apart from a competitive advantage? Can you cite any working examples drawn from the industry?

TALK WITH TITANS

We are ahead of the competition only because of such innovations. We have recently implemented a new system in dealing with customer requests which none of our competitors have tried it. We are really having the edge over the competition because of such rolling over of programs, which is leading to customer delight.

7. To summarize, what do you regard as the steps firms need to take to deliver on the promise of disruptive innovation?

I strongly feel that both technology up-gradation, coupled with the personal touch by individual executives, will lead to penetrating a new market while sustaining the existing market. Young professionals need to be enthused & nurtured while existing bench to be motivated and appropriately trained to adopt new systems to deliver on the promise of disruptive innovation.

8. How do you choose the critical buffer points and the quantity of safety stock needed to meet the demand variability?

Good question. Gone are those days that the suppliers or the customers are ready to keep inventory, which will increase their cost. Most of the industry, especially in Automotive, Medical, Health care, etc., customers' inventory maintaining pattern changed to "Just in Sequence" from "Just in Time." Our think tank has already worked out solutions for the same. We have impressed upon our customers for better planning, and our Salesforce ensures that the most accurate planning fed into the system and our automated system will decide the production based on the running plan. In a supply chain, the movement of material from Plant to customer/stock point in time is a big task considering transit delay/availability of Trucks, etc. As the industry has moved to the transport of material by Water/Rake trying to save cost and leading to a reduction of air pollution.

PUZZLE

SUPPLY CHAIN PUZZLE

Vertical :

1. Find the Indian logistics industry that partners with American and German-based logistics company.
2. Find the logistics company founded by Pawan Jain.
3. Find the Indian logistics company introduced a unique franchise-based business model.
4. Find an American based multinational logistics company.
5. Find the company which is the largest trucking platform in India.
6. Find the company that uses relay trucking model in India.
7. Find the Bangalore based logistics company founded by IIT Kharagpur alumni's.

Horizontal :

1. Find the logistic company that partnered with Paytm mall.
2. Find the Bangalore based company which is the marketplace for Intra-city logistics.
3. Find the logistics company owned by the largest Indian e-commerce company.
4. Find the logistic partner of formula 1.
5. Find leading India's Largest Domestic Courier Company founded in 1986.
6. Find the logistics start-up based on Gurugram, which became a unicorn in 2019.
7. Find the logistic company headquartered in New Delhi and founded in 2012.
8. Find the Indian start-up using following images:


PUZZLE

SUPPLY CHAIN PUZZLE

M	H	U	H	B	V	O	S	E	H	V	T	N	I	X	V	N	U	V	T
H	X	X	B	I	R	M	Q	X	P	R	E	S	S	B	E	E	S	F	S
K	E	C	U	D	I	N	V	R	T	W	D	H	X	L	E	M	D	S	C
D	E	L	H	I	V	E	R	Y	R	H	I	V	R	A	D	D	C	A	N
K	I	B	E	G	I	S	R	U	P	W	B	M	Z	C	F	J	K	F	E
D	H	F	W	V	G	N	U	I	V	W	Z	X	O	K	P	K	B	E	I
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E	J	U	I	B	Y	V	K	L	F	W	Y	V	T	U	D	Y	X	P	S
T	L	F	I	R	S	T	F	L	I	G	H	T	G	C	B	Y	S	R	A
S	I	E	S	J	S	Y	B	N	N	I	W	B	T	K	A	K	O	E	X
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*Answers given on the Last Page

FACT

Trucks Are Still Dominating Shipping…

Despite all the buzz about drones and airplanes, trucks are still dominating shipping — and it isn't close. Trucking is a $721 billion industry, and it accounts for 63.3% of all freight transportation in North America. Trucks remain an affordable, reliable, and increasingly sustainable way to ship goods. However, North America is facing a growing shortage of truckers, which could cause problems going forward.

DISRUPTION

"Without data, you're just another person with an opinion "

By Edward Deming

ENHANCING DEMAND FORECASTING ACCURACY THROUGH AI

In a supply chain comprising of manufacturers, wholesalers, and retailers, demand forecasting is a significant determinant of enterprise business success. Proper demand forecasting helps in inventory management, identifying seasonal trends, reducing stock-outs. Each of these stakeholders has their part of the planning process to play, such as production planning, order acceptance, shipment planning, sales planning. Now it is increasingly difficult to forecast demand using available information and know-how because markets are now saturated, a variety of choices for the consumers, decreasing the size of workforces, which leads to dependence on technologies for addressing the complexities involved. Many techniques that are being developed over time focusing on improving the forecast accuracy, which has even achieved up to 50% increase in accuracy over previous methods such as ARIMA and Exponential Smoothing methods. This forecasting comes with the ability to handle many variables simultaneously. As AI technology evolves, it is looking like a solution for increased accuracy and a dependable demand forecasting method.

Traditional solution and its drawbacks:

In many cases, moving averages based on past results or simple values by linear regression is used. Although such methods are useful when demand is stable, companies also use two traditional time-series forecasting methods, Holt-Winter's and Damped trend, to create monthly product demand forecasts. These account for a relatively narrow range of demand-influencing factors such as seasonality. In real life, numerous market and macroeconomic forces affect demand patterns. Such limitations cause traditional solutions to produce poor forecasts. They also do not meet the forecasting of intermittent demand and demand for new products. Since new product sales cannot be forecasted with conventional statistical methods due to lack of data, forecasting for the reference of similar existing products needs to be made. The level of Information and Communication Technology utilization differs from using spreadsheet software to statistical methods and demand forecasting systems by machine learning, which is moving towards automation and efficiency improvement. Various ways can be selected according to the characteristics of the demand data and the type of products. The automatic selection of an optimum forecast method for each product is a practical approach to achieving forecast accuracy.

DISRUPTION

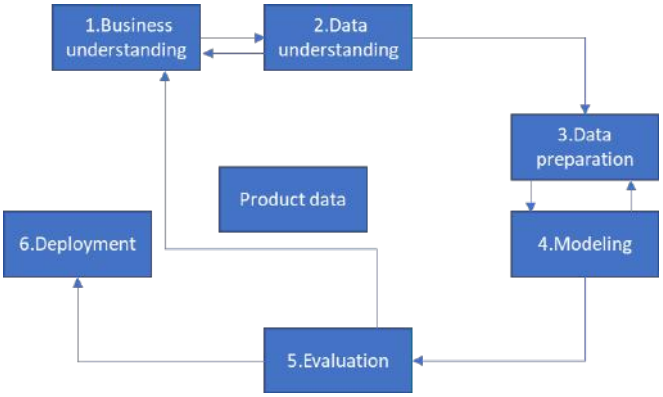
Created upon statistical models, machine learning and AI uses additional internal and external sources of information to make more accurate, data-driven predictions. ML can work with both structured and unstructured data, including past financial and sales reports, marketing polls, macroeconomic indicators, social media signals, weather forecasts, and more.

How AI helps in increasing accuracy?

AI can enable the process of gathering the external data, including factors such as demographics, economic data, so-called leading indicators appropriate to the company's markets, known or anticipated competitive actions, such as pricing changes or promotions, and the like. As instructed by the users, the AI system can, at first, apply these factors, measure the results and incrementally improve the process depending on what works and what doesn't.

Artificial intelligence and machine learning should be able to handle much more data than humans, test far more possibilities and be more sophisticated in its analysis by checking hundreds of models and options and being more precise in its analysis and refinement of the process. AI for demand forecasting will be better able to adapt to new data and emerging changes, such as new product introductions, supply chain innovations, or sudden changes in demand -- in turn, improving the accuracy of demand forecasts. AI can also be used to normalize the cleaned master data.

However, the mode/ technique to be used should be determined by the type of product and the demand pattern. Machine learning algorithms such as MLP and a new technology by H2O called Driverless AI are implemented along



side traditional statistical models such as ARIMA and Theta method. By splitting the existing data into a train and test set, the accuracy of each algorithm is evaluated using the Back-testing technique. The models are built using the train set, and the demand for the products are forecasted for a current year, the forecasted values are compared with the values of the test set to compute the MAPE. Errors are calculated for these models, and the future demand is forecasted for the products using every algorithm stated. The results show that ARIMA couldn't handle the products with a strong pattern and returned a generic model, Theta method, and MLP can decompose the data and forecast for products with a definite pattern. ARIMA outperformed the Driverless AI and theta for all the products and the MLP for most of the products. This research concludes that different statistical and machine learning algorithms need to be implemented when forecasting the demand for a set of products to identify the best performing algorithm for each product.

How AI helps in making insights?

Intelligent sensing and forecasting are more than making estimates on revenue or deals closed. It is transparent and explanatory, which informs

DISRUPTION

"One of the only ways to get out of a tight box is to invent your way out "

By Jeff Beroz

workflows, helps improve marketing and sales strategies, and opens the door to increasing run rates. Two major approaches to gaining insights are propensity-based predictions and aggregate forecasting. Propensity-based models examine individual opportunities and score them. Total forecasting looks at aggregate sales volumes across segments of the business (i.e., channel, geography, product, etc.). It is best to combine both approaches to maximize value. Once implemented, the insights are then integrated into user workflows within the CRM and presented as recommend actions. Finally, the data models are tuned and redefined. Creating an intelligent experience is a journey because, as business changes, so does its data. For ML to remain successful over time, it also needs to change and adjust.

How AI explains the dependable factors?

In a highly variable environment, dozens of factors driving buying behaviors, many types of data involved — all these often make demand planning too complex to be successfully performed with simple tools. The significant complexity of supply chain, short-term demand spikes, and the high cost of errors prompts organizations to transfer from spreadsheets, and manual databases to AI-fuelled planning system with enhanced predictive capabilities.AI/ML models are high for discovering non-linear and complex relationships in your data, without needing to preselect the exact model type or make assumptions about external factors. Instead of explicitly weighting variables or variable interactions, many of these methods allow you to determine variable importance without worrying about the effects of multicollinearity. So it depends on you as an organization which methodology to choose finally.

Where is all this technology used?

Various industries have already started employing AI-driven methodologies like retail, pharma, insurance, paints, etc. successfully in solving problems in

- New product introductions
- Products with short life cycles
- Weather sensitive products
- Planning promotional events etc.

However, no matter how smart your forecasting solution is, the critical decisions still rest with human capital. You need industry specialists to define which factors should be considered in your predictive models. Human logic is yet required to evaluate the relevance of outcomes produced by digital brains and to make conclusions based on common sense and deep domain expertise. That's why even AI-powered demand planning systems often include a collaborative platform that allows for inputs from different specialists in a forecasting process. Only by taking the best of what both artificial and human intelligence offers, you can see and plan a better future for your business.

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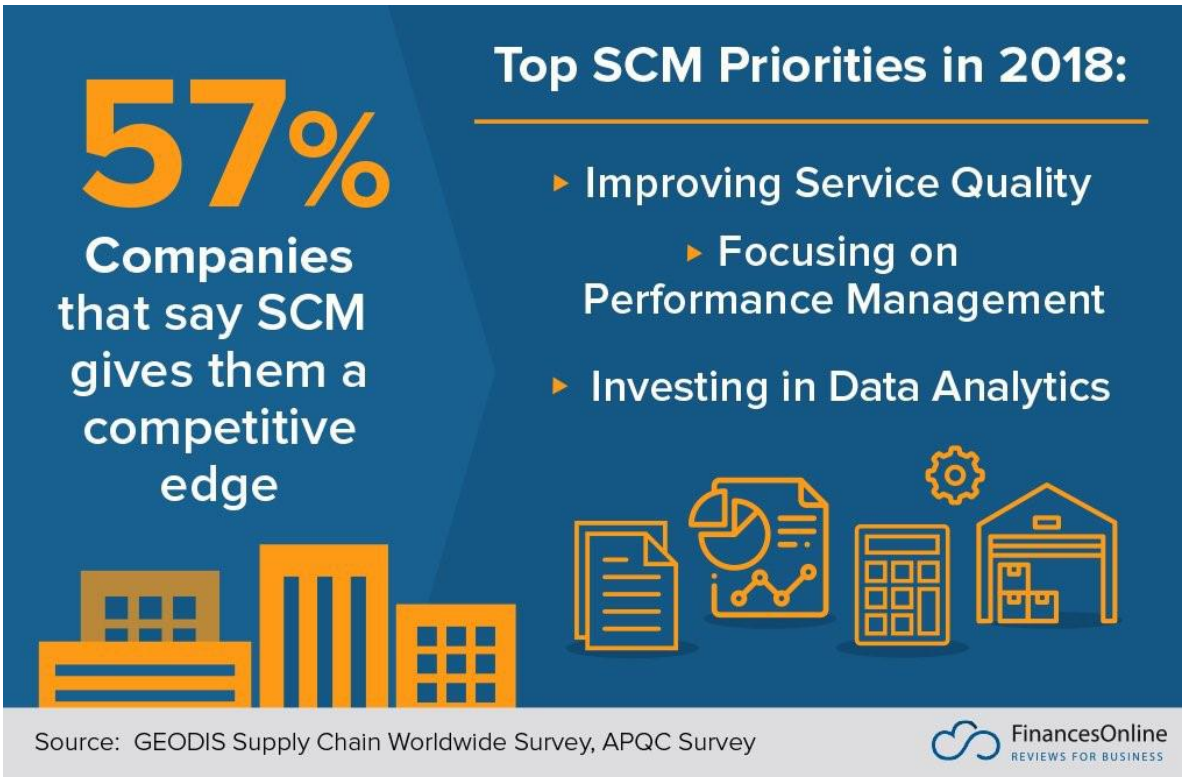
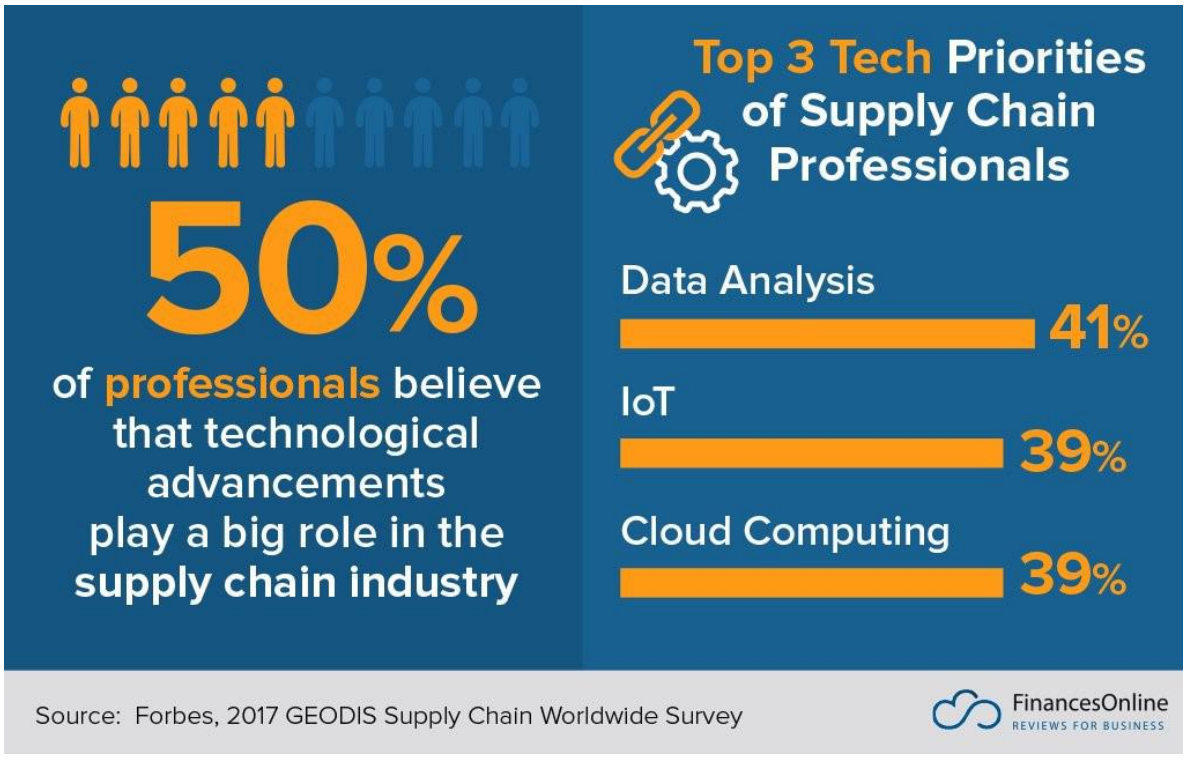
DID YOU KNOW

THE INFOGRAPHIC





TALK WITH TITANS

Mr. Sandeep Chatterjee

CEO, ISCEA & Associate Director, Deloitte

"....disruptive innovation is something that has the potential to change the market-place drastically. It is a variant of the Blue Ocean strategy sans the low-cost part...."

LinkedIn Profile: https://rb.gy/rwran6

Mr. Sandeep is an Associate Director with Deloitte with responsibility for engagements in advisory practice. Prior to Deloitte, he has worked with KPMG, Tata Motors, Lafarge, Infosys and Oracle Consulting and his key strengths lie in the areas of supply chain management, business process reengineering, emerging countries enablement, network optimization, ERP Implementation and ERP Footprint Review across multiple industries and geographies. He holds an MBA from Indian Institute of Management, Kozhikode and a Bachelor of Engineering (Mechanical), Bengal Engineering and Science University, Shibpur (formerly Bengal Engineering College). He has presented several academic and technical papers at International Conferences. He has written several supply chain cases for IIM Kozhikode, NITIE, XLRI Jamshedpur and IIT Bombay. Among his various accolades and awards, Mr. Sandeep became the recipient of the coveted MTC Global Awards for Excellence, 2017 as an outstanding Corporate Award: Consulting. Sandeep is also the Member of Board of Governors, IIM Kozhikode & the Chairman of International Supply Chain Education Alliance (ISCEA). Additionally, he belongs to the coveted MLE℠ – Member of Leaders Excellence Group.

ScOpe

1. Everyone has someone or something that helped them achieve/reach where they are today professionally. So, who/what helped or nurtured you to be the person/to reach where you are today?

I went to a boarding school at the age of 10 and hence always took decisions on my own. Therefore, decision making comes naturally to me. Ramakrishna Mission Vidyalaya, Narendrapur, was a real melting point where people from all backgrounds went through the same routine. This has helped me in being fair in my judgment and has added the inclusivity element in all my decision making. I was fortunate to be educated by

TALK WITH TITANS

teachers who gave away their present for our future. As a result, I have always believed in taking everyone along in the journey. I was lucky to have a few bosses who gave me full freedom, and hence I thrive in environments where I can make decisions. Micro-management throttles me.

2. What exactly is a disruptive innovation, and how does it apply to your operations?

The way I define disruptive innovation is something that has the potential to change the marketplace drastically. It is a variant of the Blue Ocean strategy sans the low-cost part. Consulting thrives where there is ambiguity, and disruptive innovation leads to ambiguity. With the world becoming so uncertain and with cut-throat competition, incremental breakthroughs may not give you substantial gains. As a result, we always attempt to define the marketplace through new radical offerings, and we have a guideline to have more revenue from the new services.

3. In a competitive business aspect like yours, disruptions in the Supply chain are inevitable. As a leader, how do you approach such disruptions?

As a leader, we must watch the marketplace very closely. Anticipating the demand and supply signals become key here, and hence we do sufficient homework in terms of what-if-analysis scenarios. We also try out newer algorithms and models in our innovation center to be better prepared. Use of Industry 4.0 technologies like the Internet of Things, Augmented Reality, Virtual Reality, Cloud Computing, Artificial Intelligence has helped us immensely, and the world is going to move in that direction.

TALK WITH TITANS

4. What benefits does the successful application of disruptive innovation bring to the table apart from a competitive advantage? Can you cite some working examples drawn from the industry?

In today's world, as we compete and collaborate, disruptive innovation can help us until a particular time frame. We need to continuously move up the value chain to maintain this competitive advantage. Other than a competitive advantage, disruptive innovation creates DNA within the organization, which gives employees a purpose in life. As more and more routine jobs are being taken over by robots, this is critical in a gig economy. Also, the name of your firm becomes synonymous with the innovation which defines the marketplace. For example, for a long time, e-commerce and Flipkart were synonymous as Flipkart had challenged the basic rules of doing business and brought a radical change.

5. To summarize, what do you regard as the steps firms need to take to deliver on the promise of disruptive innovation?

First and foremost, there will be more failures than success. The company should have the appetite to absorb this and not penalize failures. Secondly, this requires coordination across multiple departments, and hence the KPIs should be company-specific and not department-specific. Thirdly, it is crucial that the top management has a buy-in and is involved in the project. Also, it should not be perceived as a CEO's project, and no one owns it. And finally, people should get their due so that they push themselves.

6. How can leaders be more effective in not only promoting change but getting more significant support from their employees for the change initiative?

TALK WITH TITANS

A leader is someone who creates more leaders. There should be an atmosphere of mutual trust so that any change does not frown upon a particular person or team. A leader should also be willing to dirty his hands if there is a need. But he should not come in the way of decision making and refrain from micro-management. A leader needs to have smarter people in the team because it is the team that finally wins and not an individual. And as a leader, we need to acknowledge that there are smarter people who should be provided a platform to work together.

7. Apart from all of this, what basic things a supply chain and operations professional should focus upon to maintain an upward trajectory in his/her career?

Lifelong learning is key here. Typically, we stop learning and reading once we are in a job. The world is changing so rapidly, and one life is not enough to witness all experiences. Also, we must contribute to the supply chain community and network well. Attending conferences and presenting a viewpoint is a good step. Additionally, publishing articles and connecting to fellow practitioners help in building the platform. In the beginning, the brand adds value to you, but at a later point in time, you start adding value to the brand. Hence it is vital to go beyond a particular firm where you are working.

FACT

Over 5 Million Are Employed in Transportation and Warehousing

According to the Bureau of Labor Statistics (BLS), the U.S. alone is home to over five million transportation and warehousing employees. While the BLS classifies transportation as "the transportation of passengers and cargo," it still shows the sheer size of this industry. In fact, warehousing and storage alone account for over 1 million employees.

CROSSWORD

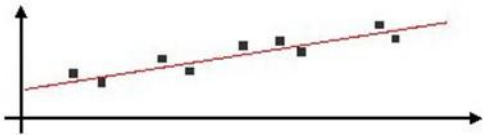
SUPPLY CHAIN CROSSWORD 2

Vertical :

A. Name of the company that developed Six Sigma.

B. Name the concept that uses to play the beer game.

C. Find the demand pattern of below image



D. In process improvement, a tool that summarizes the inputs and outputs of one or more processes in table form. Name of the tool is

E. Name of the lean techniques which focus on continuous improvement in all levels of employees

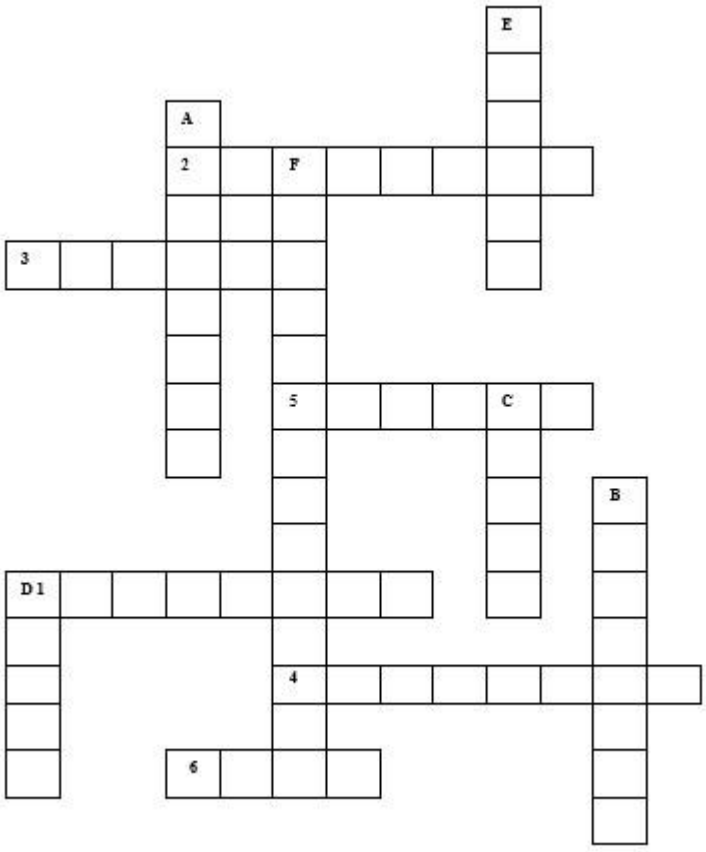
F. One of the wastes in lean six sigma methodology.

Horizontal :

1. Name the quality guru who introduced the concept of Control Charts.
2. What does the "O" in DMADOV stand for?
3. Name the company that introduced the JIT manufacturing concept.
4. Name the quality guru who is associated with the Fishbone Diagram.
5. A team wants to illustrate which defect types are occurring most frequently. The quality tool they would use is a ?
6. Name the quality guru who developed a model of customer satisfaction.

CROSSWORD

SUPPLY CHAIN CROSSWORD 2



*Answers given on the Last Page

FACT

3PLs Improve Customer Service

Because 3PLs are often in charge of large parts of the shipping process, they're going to impact your relationship with your customers. Fortunately, 3PLs have a positive effect. According to 83% of shippers, 3PLs improved their customer service. This could be due in part to complex actions, such as reverse logistics, that directly impact the customer but can be difficult for businesses to handle in-house.

DISRUPTION

"You will not find it difficult to prove that battles, campaigns, and even wars have been won or lost primarily because of logistics"

By Dwight D. Eisenhower

3PL SERVICES

3PL Service: What is it?

A third-party logistics provider handles supply chain management logistics, a service that can include transportation, warehousing and delivery or a combination of these services but may also incorporate additional value-added services such as production or procurement.

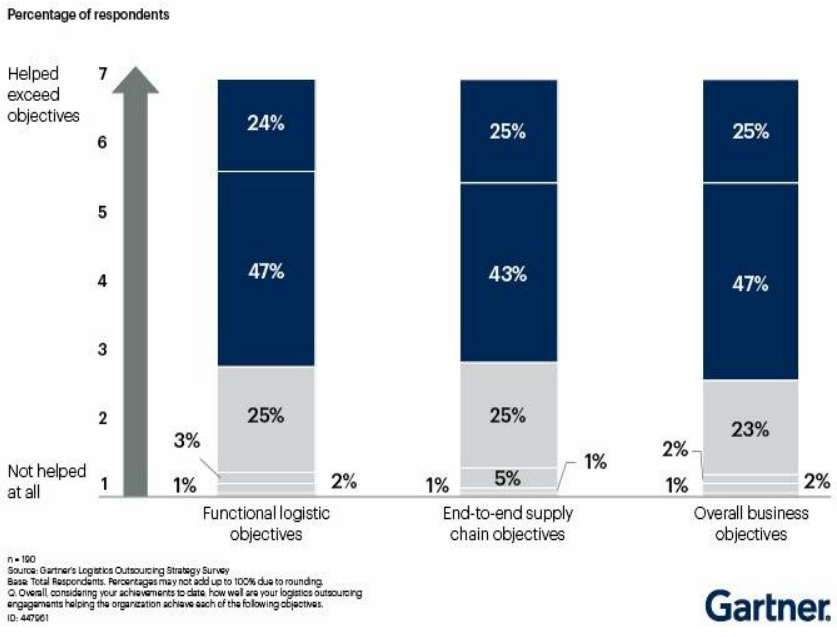
There are different types of 3PLs which serve different needs. Some specialize by a specific industry or just a particular part of logistics.

No matter what aspect they specialize in, a 3PL helps manage the supply chain. These companies provide the number of services including transportation, warehousing, picking and packing, inventory forecasting, order fulfilment, packaging and freight forwarding in the supply chain.

Why so Important?

Outsourcing logistics services had become common, 85% leaders of logistics companies expect their outsourcing budget to increase by more than 5% in 2020; 85% reported a similar budget increase in 2019, finds Gartner's 2019 Logistics Outsourcing Strategy survey.

One reason leaders expect budgets to increase is that logistics outsourcing supports their core business objectives. About 70% of respondents say they have met or exceeded functional, end-to-end supply chain and overall business goals with the help of logistics outsourcing, such as third-party logistics providers.



***The Bar Graph shows the extent to which Logistics Outsourcing is helping the organization achieve objectives**

DISRUPTION

Why industries need third party logistics?

- **Warehousing and Distribution Management may not be a core skill of the company**

Outsourcing helps companies to spend less time focusing on these tasks and more time on their core competencies which make their respective businesses a success.

- **Reduction in capital tied up in Distribution Centres**

Maintenance of warehouses is costly; So often, companies try to remove the warehouse assets from their balance sheet and redirect capital gained from a sale of assets to other parts of the business.

- **Flexibility and Scalability**

Ability and willingness to quickly adapt to market and customer-driven changes. Globalization leads to cost-saving opportunities on the supply side and opportunities for new markets on the demand side which further generated a need for the fast, flexible and efficient supply chain. It is not possible to quickly respond to market changes if there is a rigid network of warehousing and transportation.

What 3PL Offers?

- **Cost Reduction**

Third-party logistics provider have more leverage with logistics companies than individual shippers. 3PLs work with carriers on behalf of multiple customers, and they can negotiate pricing based on volume and order frequency.

- **Expertise**

Shipping delays do happen for several reasons. When unforeseen circumstances pop up, a 3PL is responsible for making alternate arrangements to fulfil your orders as quickly as possible. They will also protect the companies in the event of damage or loss of goods.

- **Improving Customer Experience**

Customers expect next-day or same-day shipping under the current scenario. Using a third-party logistics provider allows you to offer fast shipping no matter where the order is being sent.

- **Presence in Foreign Markets**

If you're selling internationally, 3PLs can take care of documentation, customs, duties and other issues that come up at the borders that can delay your shipments and result in high costs if not done thoroughly. Plus, you save time trying to work out complicated rules about different countries.

- **Product return management**

The role of the 3PLs in e-commerce product return management is not only the enforcement of the return management process but also giving a lot of insight into why the product is coming back.

Therefore instead of e-commerce companies struggling to invest heavily in last-mile delivery management. The 3PLs will ensure more visibility into returns and also make e-commerce companies gain more profits on customer behaviour and demand for their products.

Limitations of 3PL

- **Loss of control**

While choosing a 3PL provider, an organization is giving up a certain amount of control of the sub-processes. When a business decides to take the help of a third-party logistics provider, they are entrusting the 3PL to meet the agreed-upon SLAs, and that requires a major leap of faith for

DISRUPTION

"During the last war, eighty percent of our problems were of a logistical nature "

By Field Marshal Montgomery

functions that can directly impact customer satisfaction.

- **Losing touch with the customers**

One of the most significant advantages of providing support service yourself is the possibility to collect direct feedback from your customers. Feedback offered by the customer might not reach the parent company; this might result in the loss of customer trust.

- **Communication problem**

Working with different companies towards achieving the common goal; in such a scenario, communication is of very high importance. Since the message must travel from one company to another, problems in the conversation may lead to misinterpretation of facts.

Latest Trends in 3PL Distribution

More Collaboration between Shippers and 3PL Companies

Dependence on technology to collaborate, connect and engage with customers. Vendor managed inventories will be standard even in the smallest 3PL via web-based portals, ensuring both shippers and 3PL companies can function independently without relying on possibly faulty information exchange.

The Rise of Robotics

The explosion of e-commerce lead to demand in the labour force, coupled with a recent labour shortage, warehouses are reaching a production limit. Many third-party logistics companies are beginning to deploy mobile robots to increase their productivity. While the robots take care of regular and monotonous tasks, the role of humans is changing drastically to mentally challenging works.

Use of Big Data

3PL providers can leverage the potential of big data to solve supply chain problems. Big data is an emerging phenomenon, reflecting the significance of data in terms of volume and variety. They can use the growing volume of data to gain insights to achieve their business growth objectives.

Cross-Border Commerce

Companies are moving to global sourcing due to accesses to better technology, quality and cost benefits. Estimates say that cross-border shopping will make up 20% of E-Commerce in 2022, with sales reaching $627 billion. With the world economy on the way to being more integrated, 3PLs expected to work on a large scale with a distinctly global outlook.

Conclusion:

Supply chain management as a whole is one of the most integral parts for a company be it any industry. Outsourcing the same can be controversial as you are letting one crucial component to the hands of others, but if you are running a successful business is having too much to handle on your own. It can be challenging for any company to maintain and grow its client base while using only in-house services. Thus by the help of 3PL, the parent company can concentrate on its

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TALK WITH TITANS

Mr. Raunak Zatakia

Manager of Project Managment, Manyavar

"....to produce has been shadowed by the concept of faster to market. Sales and distribution is steadily becoming data driven – massive investment into the space basis of technology are opening new avenues and challenges ...."

LinkedIn Profile: https://rb.gy/ycwsmv

Mr. Raunak Zatakia is the manager of project management at Vedant Fashions Private Limited - Manyavar. A Management graduate from the prestigious XLRI Jamshedpur and a master of the operations domain, Mr. Zatakia has worked in various roles with well known organisations such as Rivigo, OLA and TaxiForSure. Mr. Zatakia being highly Interested in Start-Up is Passionate about execution of ideas which look workable and aren't yet working. His forte being Operations Management, he enjoys roles of those pertaining to Growth and Expansion. He is Data driven by nature and strongly believe in having the right team and right skill-sets in the right place.

1. Who/what helped or nurtured you to be the person/to reach where you are today?

Today when I look back at my career span (so far) – I primarily divide my Journey based on four pillars – education and learning, family and friends, failure and resilience, ethics and integrity. Education is the first, for in today's date is the only investment with positive returns – it has been by far been one of the most rewarding investments I've made for myself and continue to do so even today for there is no end to learning and developing oneself. Skill development beyond one's forte is what I see significant for the next 20 years as global businesses evolve drastically. Family and friends contribute to my second pillar of success, for the

TALK WITH TITANS

ones who've held me up, cared and nurtured me, rebuked me when I was wrong and celebrated equally no matter how small or how large the accomplishment. My wholehearted credit will, although go to my parents – for the have given me the biggest GIFT, the gift of LIFE. My best friend and life partner, Saakshi, holds an equal share of being a constant support system over the years. Failure and resilience, and yes, there been quite many instances over the years – overcoming the fear of failure and bouncing back have been at the core at a personal level. Ethics and integrity – something which is subject to zero compromises, walk slow if you have to, but that way, you'll walk far. The slow lane based on trust, ethics, and honesty has historically always been more rewarding.

2. What is the current scenario of logistics and supply chain in India & how is it going to change in the near future?

I personally very strongly believe we have not even scratched the tip of the iceberg when it comes to both logistics and supply chain in India. With a population of over 120 cr, we are an incredibly gifted country – for the problem statements are unique and manifold. First to produce has been shadowed by the concept of faster to market. Sales and distribution is steadily becoming data driven – massive investment into the space basis of technology are opening new avenues and challenges – something as simple as tech adoption basis literacy rate or aligning all states to bring all tolls under a cashless transaction model or even something as simple as working on Goods Return to origin model which even existing e-commerce companies are yet to successfully solve, the opportunities are endless. Given the magnitude and scale at which the country consumes – I strongly believe the next 15 years it is a sunrise industry if we are to meet global standards of logistics and supply chain.

3. In a competitive business aspect like yours, disruptions in the Supply chain are inevitable. As a leader, how do you approach such disruptions?

TALK WITH TITANS

My personal opinion is that more than the leadership, in India, it is businesses as a whole that have not aggressively accepted or adopted tech, automation, or even basic operational processes when it comes to Supply Chain. Businesses in India have continued to be very aggressively people/labor dependent and have in accordance built their Supply Chain leadership; likewise, furthermore, we need to bridge the gap around seamless transaction models when it comes to an end to end life cycle of inventory movement and control. Constant upskilling of Supply Chain leadership is a – 'must-do.' Alongside ease of access to tech development facilities for SMEs is a need of the hour if small businesses and enterprises are to compete on a global scale.

4. In a competitive business aspect like yours, disruptions in the Supply chain are inevitable. As a leader, how do you approach such disruptions?

It is the last man who is the touchpoint who will tell you about the maximum number of problem statements as well as their solutions. Take, for instance, when cab aggregators were solving the taxi problem. In essence, aggregators had their employees spend the maximum amount of time taking cab rides and understanding an end-user perspective as to why or why not the application developed to solve the problem statement was useful and what would make the user experience better. Similarly, we've been spending quality time at the shop-floor and understanding if tech introduction has resulted in a massive change in time and motion – has it or has it not helped to move away from dependency(s) and is there a need for skill-development to better pursue the job.

5. What benefits does the successful application of disruptive innovation bring to the table apart from a competitive advantage? Can you cite any working examples drawn from the industry?

TALK WITH TITANS

To put it briefly, by and large, the benefits have been as follows, 1. Reduced dependency(s) 2. Improvement in quality of work 3. Workers achieving maximum distance with minimum displacement. The simplest example which can be brought to notice is that of TAT analysis steadily used in the industry over the last few years with the advent of e-commerce companies. The TAT (turn around time) analysis gives a real time visual to every end consumer regarding their stock/inventory/order. This real-time visual makes receiver availability for receiving goods/inventory/orders fine-tuned, thereby preventing loss of delay of time to market or time to consumption hence leading to a seamless experience which E-commerce today provides at aa click of a button.

ScOpe

6. How can analytics be leveraged in the field of supply chain & how can it be a game-changer going forward?

Data science, data analytics, data reporting, and process mining will make and shape the industry over the next 15 years. As previously mentioned, the problem statements are manifold – truck time in, truck time out, driver availability, TAT of movement of trucks, picking of inventory, consumption versus replenishment time lags, and fulfilling the vacuum. The opportunity of loss of sale if it has to be mitigated can only be done if we continue to conquer the root cause of inventory availability, which can be solely done by data.

ScOpe

7. How can leaders be more effective in not only promoting change but getting greater support from their employees for the change initiative?

TALK WITH TITANS

Change, in my opinion, is a time-bound process – to implement something today and expect it to be the new normal from tomorrow is a folly. Resistance and fear of change is something which should always be in a controlled environment, especially when you lead from the front; you drive based on trust. Always keep that reputation of trust intact, bring everyone on board, address their concerns, solve the problems as and when they come about and where they do exist for it is not merely transactions which build businesses it is the people – both internal and external and hence an influential culture of teamwork is what makes effective changes to take place.

8. Apart from all of this, what basic things a supply chain and operations professional should focus upon to maintain an upward trajectory in his/her career?

Focus on the last man, she/he is your most valuable critic as well as your most valuable team player. Data, process, science everything will go for a toss if your last man in the pyramid is not aligned. No doubt that data, technology, and automation are here to stay, but a large part of the industry will continue to be people-driven. Strong industrial relations, especially in a country like India, remain to be of primary importance.

FACT

Most Fortune 500 Companies Use 3PLs

Back in 2001, only 46% of Fortune 500 Companies used 3PLs. In 2017, that number jumped to 90%. Not only are more businesses using 3PLs, but bigger businesses tend to lean on 3PLs more than anyone else.One reason big businesses use 3PLs is scalability. Scalability allows businesses to rapidly change the size and scope of their supply chain, and 3PLs provide the flexibility to scale as needed.

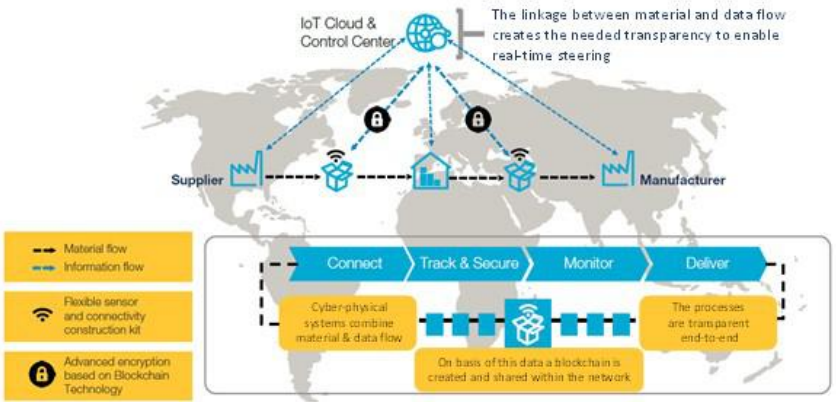
DISRUPTION

"The line between disorder and order lies in logistics "

By Sun Tzu

BLOCKCHAIN:

OPPORTUNITIES IN SUPPLY CHAIN MANAGEMENT



In simple words, Supply chain management is the management of the flow of goods and services. It includes all the parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturers and suppliers, but also transporters, warehouses, retailers, and even customers themselves. Within each organization, such as a manufacturer, the supply chain includes all functions involved in receiving and filling a customer request. These functions include, but are not limited to, new product development, marketing, operations, distribution, finance, and customer service. Supply chain management can, therefore, be said to be primarily concerned with the constant flow of information, product, and funds across different stages of the value chain.

Modern supply chains have distinct characteristics that have developed due to the novel structure of businesses in the 21st century. Increasing demand for high quality & innovative goods and services at a reasonable price is the voice of the customer. But satisfying these demands is not enough. These products should be readily available in the market. The businesses thus strive hard to ensure that the time to market is as less as possible so that the opportunity cost is abbreviated. They achieve this by harnessing the power of a force called Globalization.

Globalization is bringing the world closer than ever. The tightly knit network of suppliers, manufacturers, warehouses, retailers, and consumers across the globe results in low-cost, high-quality products available for consumption. This is beneficial for the customers as their needs are met completely. But, the pros are not without cons. The global network of entities means that a vast amount of information transfer is required. This information is essential to ensure the efficiency and performance of the supply chain. The criticality & the amount of information leads to challenges in data collection, storage, and handling. It also makes the data susceptible to manipulation, thereby leading to corruption. It can lead to huge losses not only for the organizations but society as a whole.

One way to solve this problem is to make use of **Blockchain technology.**

DISRUPTION

"Supply Chain is like nature, it is all around us"

By Dave Waters

Blockchain technology, first invented in 2008 by an unknown individual or a group of individuals, is a revolutionary technology that has the potential to change the way the world operates. Blockchain is a public electronic ledger that is decentralized and distributed. It consists of records of data managed by

a cluster of computers not owned by a single entity. Each of these blocks of data is bound together using chains. As information is available for anyone to see, anything on the Blockchain is hence transparent.

To create a new block, the transaction is verified and validated by thousands of computers on the internet. The verified block is added to the chain, which has been stored across the internet, creating not just a unique record, but an exceptional record with a unique history. Manipulating a record means manipulating the entire chain of such instances. It is a difficult task. Thus, it's an effective way of passing Information from A to B while ensuring accurate auditing.

Blockchain can significantly impact the supply chain management function in organizations of all sizes. It can help in provenance tracking. Huge organizations have a lot of elements in their supply chains. Due to this, it's challenging to keep track of every record even for MNCs. This apparent lack of transparency leads to cost and customer relations issues, which diminish the brand value. In the Blockchain-based system, provenance tracking is facilitated as product information becomes easy to track through RFID tags. The entire history of the product right from its origin to the point of consumption can be traced. It helps in fraud detection in the network. Blockchain can also help reduce the cost of operating the supply chain through traceability, transparency, and trade-ability. Transparency builds trust in the system by capturing critical data points, such as certifications and claims, and then provides open access to this data publicly. The information is available in real-time.

DISRUPTION

"If anything is certain, it is that change is certain. The world we are planning for today will not exist in this form tomorrow "

By Phil Crosby

Furthermore, it can also track the progression of assets, record the information, and show previous asset records. It gives a high-level view of the entire value chain, thusenabling cooperation based on trust. The technology also allows efficient ownership and licensing as past ownership records can easily be verified. It can be used to precisely license services, products, and software through the use of smart contract payments. This leads to lesser disputes in the chain as everyone has the same version of the ledger. These benefits and applications are just the tip of the iceberg. The technology can further help improve inventory management, reduce delays from paperwork, and identify issues faster, resulting in reduced cycle time. Blockchain technology sounds utopian. Though, it is not something that is just a concept on paper. It is being adopted nd used widely in various industries across the globe. For example, GlaxoSmithKline, one of the world's biggest drug producers, is deploying Blockchain technology to ensure unit-level tracking and traceability by 2023 in line with the U.S. Drug Supply Chain Security Act. Another compelling use case is in the fishing industry. Traditionally, the fishing industry suffers from several problems like manual record-keeping, improper food storage, mislabeling frauds, and the prevalence of unregulated practices. The quality of fish that finally reaches the customer is thus compromised. World Wildlife Fund is revolutionizing Tuna fish industry by making use of technology. The fresh catch is marked with RFID tags on a per unit basis and tracked throughout the production stages, thereby improving the process. It might seem that innumerable problems can be solved with the use of Blockchain. Yes, it's true. However, adoption is likely to face a few roadblocks. Blockchains are resource-hungry systems. Their distributed nature and high energy consumption can devour the planet. The system is susceptible to frauds if the number of nodes is less i.e., the system is small. In such cases, the entries can easily be manipulated and duplicated if the data set is small. This also means that the listings will not last forever, which defeats the whole purpose of investing in the technology. Scalability remains an issue, given its sluggish transaction speeds.

Interestingly, the anonymous character of the chain poses problems as well. Businesses need to protect their confidential data to achieve sustained competitive advantage. Too much information out in public represents a significant threat to their survival. Despite all the hurdles, the future looks bright for the applications of this technology in SCM. Some challenges have to be conquered before the technology is adopted widely. But, with investment pouring in from many VC funds, it's only a matter of time before we see the world around us building blocks one at a time.

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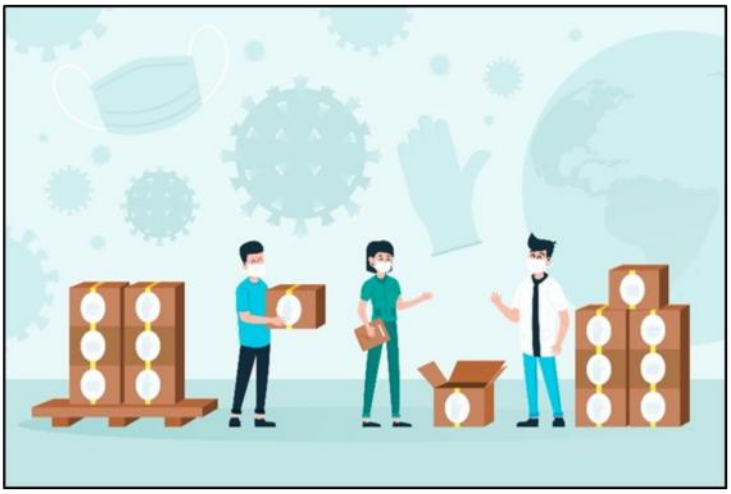
DISRUPTION

IMPACT OF CORONAVIRUS ON SUPPLY CHAIN

Introduction:

The spread of the coronavirus is impacting the world, businesses, and supply chains in a similar way, with hundreds of new cases, announced every day. We see increased supply chain disruption expanding the gap between supply and demand. This outbreak has left businesses around the globe, counting losses. A health epidemic like coronavirus is one of the most dangerous threats that the world can face. The virus has killed at least fifty thousand people and has infected more than a million worldwide, mostly in China, Europe, and the United States. Empty supermarkets and lack of essential goods are just a visible picture of the impact. However, the depth of the problem goes much beyond this.



Why is it so critical?

This situation might look like a localized crisis in the short run but has a global impact because supply chains are a network, and international processes link companies, network designs and rely on each other both domestic and international for supply and demand. The current supply chains are global, improvising, and getting more complicated than they were even a day ago. The most exposed companies are those who bank heavily or exclusively on factories in China for parts and raw materials. Chinese factories affected by lockdowns and quarantines have not only impacted them, but production sites in other countries are also already running low on material because of shortages from China.

The impact of coronavirus on supply chain globally occurred mostly in mid-March, forcing thousands of companies to temporarily shut assembly and manufacturing plants in the U.S., Europe, and probably around the globe. But the problem doesn't stop there, and it extends beyond supply chain disruptions, which, by the way, is severe for industries such as electronics, pharmaceuticals, and automobiles. In a situation of a global recession midway, exports, which are not growing even now, could take a deeper hit, further slowing down one of the pistons of economical engines.

Why is supply chain not ready for this pandemic?

It's the supply chain of the firms that fight nowadays for capturing the market. This fight has increased pressure on the supply chain to maintain a perfect balance between efficiency and responsiveness. It

DISRUPTION

has motivated companies to pursue strategies such as offshoring, outsourcing, and lean manufacturing. These cost-cutting measures mean that when there is a supply-chain disruption, production will stop quickly because of a lack of material. Most global companies can't estimate their risk exposure concerning what is going on in the world on a real-time basis. As more infections are recorded outside of China, this may also start to affect operations in Europe, North America, and elsewhere. Critical and terrifying situations may arise for firms, and they might have to operate with lower productivity due to labor shortage and material shortage for an extended period or remain shut altogether should employees become infected.

Real-time management of stock and integrated supply chains has been the disruption in the supply chain in the past decade. After this outbreak, companies will likely look at how they are managing inventory, how they are organizing production around the world, and possibly we will see another organization of supply chains.

The impact of coronavirus on supply chains will be more broadly a function of

(a) how large businesses remain closed
(b) the extent to which there's an impact on downstream supply chains and
(c) the extent to which corporations including logistics firms take precautionary measures.

Traditional methods for managing supply chain risk depends on knowing the likelihood of occurrence and the magnitude of impact for every potential risk that could disrupt a firm's operations—using historical data to quantify the level of risk for frequent supply-chain disruptions—poor supplier performance, forecast errors, transportation breakdowns, and so on.
But it's a different story for low-probability, high-impact events—mega-disasters like Hurricane Katrina in 2005, viral epidemics like the 2003 SARS outbreak, or significant outages due to unforeseen circumstances such as factory fires and political upheavals. Since historical data on these unpredictable events are very limited to non-existent, their risk is hard to quantify using traditional methods. As a result, maximum companies do not adequately prepare for them. That can have serious consequences when mega-disasters do strike and can force even operationally savvy companies to scramble after the fact—think of Toyota following the 2011 Fukushima earthquake and tsunami.

Global Impact:

Dun and Bradstreet, a commercial data and analytics company, have estimated that there are around 22 million businesses (90% of all active businesses in China) within the regions impacted by COVID-19. It is likely to affect at least 56,000 companies around the world with suppliers either directly or indirectly found that the virus could potentially cost $559.7bn annually to the industry, which would amount to nearly 37% of the industry's total 2020 forecasted global spend as seen by a poll by the Global Business Travel Association (GBTA). Primary destinations likely to be affected are Europe, China, North America, and the Asia Pacific region. In its Interim Economic Outlook, The Organisation for Economic Co-operation and Development (OECD) found that global GDP is predicted to drop from 2.9% in 2019 to 2.4% in 2020. Still, it is estimated to cause global growth to fall to 1.5%, as the virus is spreading at an exponential rate across Asia, Europe, and North America.

DISRUPTION

But there is trouble ahead for the U.S. economy as companies ranging from Apple, NVidia to Procter & Gamble, and Adidas are in difficulty because of their significant exposures to the Chinese market or their reliance on suppliers from China. Consumer goods giant Procter & Gamble has warned around 17,600 products could be affected by the coronavirus. Many tech giant companies like Apple have said that as both production and sales had been hit, their revenues would now fall short of forecasts following an extended break for the Chinese New Year to deal in continuation with the outbreak of coronavirus.

Impact On India:

The impact of the coronavirus epidemic on trade for India is expected to be about US$348 million. Pharma, automobile, solar, and electronic sector are already in distress because of a lack of raw materials, most of which is procured from China. A 12-15 % decline in meat exports, falling global demand for rice, restrictions on outbound shipments of medicines is also affecting supply and demand hotspots across the globe. India's import from China has already reduced which is not a good sign considering the trading sentiment of India in mind.

The impact will be huge for those selling products not considered essential such as apparel, furniture, furnishing, toys, etc. Earlier this week, online cosmetics and fashion retailer Nykaa informed vendors that it had suspended operations because of the lockdown. Nykaa has temporarily shut retail stores and offices, and it told the All India Online Vendors Association. It also informed vendors that its cash flow and income have been impacted and would, therefore, delay payments of outstanding invoices.

Some steps forms should take to deal with the crisis:

(1) Companies should immediately review their inventory levels on a real-time basis – and request suppliers to do a similar review. They should then work with their suppliers to identify the timing and scale of their exposure within the supply chain
(2) Communicate with every supplier that the relationship will not be affected even if they need to pause current production, and we have a couple of options to support them during the period.
(3) Strategies a disaster recovery plan is in place, and understand that it will take time for production to resume and goods to be moving freely again.
(4) Location risk across the tiers can help in managing supply chain disruptions. It is crucial to avoid the clustering of suppliers in one region and particularly around similar supply chains.

DISRUPTION

As a potential solution, some companies may allow employees to work from home for the time being which is feasible for administrative functions as well as tech companies that operate mainly online or highly-automated industries such as semiconductors, but will be challenging to implement without operational impact on logistics and manufacturing companies that have a lower automation rate.

Summary:

I believe we should brace for a significant effect on the supply chain globally. It is still uncertain how far this global health hazard will spread and impact the world. But we should be fully prepared and ready to counter it. It is better than all of us collectively prepare to face this threat. It's said that "expect the best and prepare for the worst." We have not encountered a public health crisis in contemporary times at the scale that the current crisis threatens to unfold. It is, therefore, vital to launch a full-scale mission -mode operation to counter this threat immediately.

Creating something out of nothing has been human nature. This drive to create something different is making the world a better place every moment. So take this moment to thank our ancestors for making the world such a beautiful place for us to live. Now, it's our time to lead with example, dignity, and integrity to make it even better. To implement science, technology, and management to make society the best. May God bless our earth, and may God bless science and technology.

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FACT

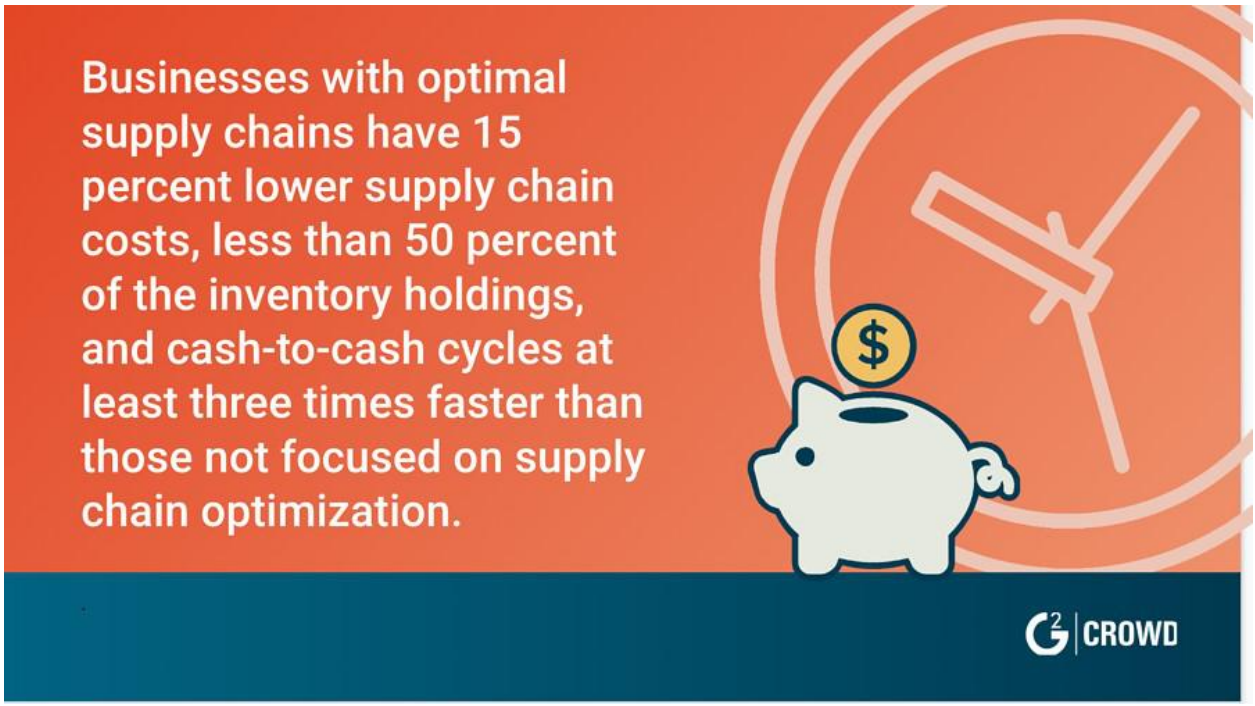
Last Mile Is Still Changing

One of the biggest hurdles for shipping is last mile, the term given to any delivery that is within one mile of its destination. In the final mile of shipping, delivery vans often have to deal with auto and pedestrian traffic, lights, stop signs, and complicated routes that take them around a city. This is the least efficient part of shipping, and logistics companies are eager to improve this. Better last mile shipping will cut costs and increase customer satisfaction.

Right now, the future of last mile could be drones. Drones are able to avoid many of the physical barriers that delivery vans face, and they are significantly less expensive to operate. Of course, drones still aren't viable, and it may be a while until we see them delivering our packages on a regular basis.

DID YOU KNOW

THE INFOGRAPHIC

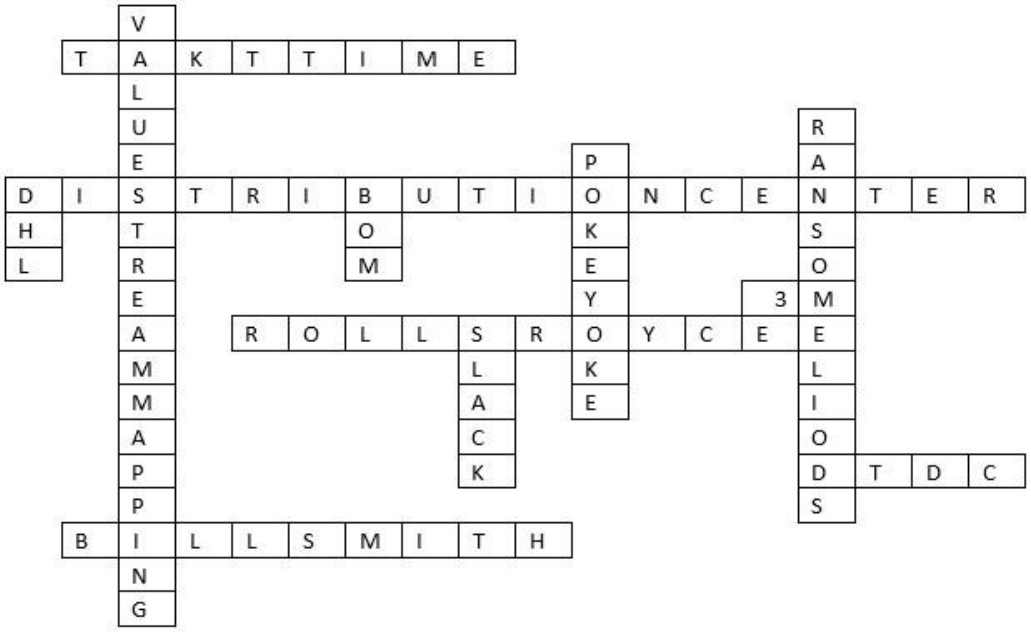


QUICK BITS

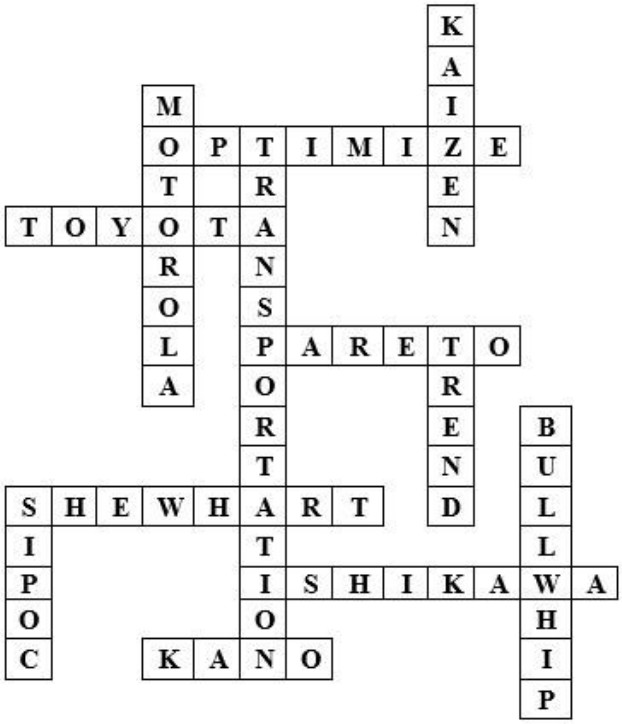
- The word “logistics” comes from a 19th-century French word, “logistique.” This French word was originally exclusively associated with the transportation of soldiers and military supplies until it was later adopted for civilian applications.
- The logistics industry is big business. In the U.S., over 9 million people directly depend on the logistics industry as their main or major source of income.
- American businesses spend big dollars every year to ship their products. Companies spend approximately $1.5 trillion on logistical expenses, which is equal to almost 8 percent of the entire U.S. GDP.
- There are 15.5 million trucks in the U.S., but only 3.5 million qualified truck drivers. The country’s truck drivers are responsible for more than 70 percent of the total amount of freight transported in the U.S.
- Even with so many people already working in the industry, there are still a lot of job opportunities. Each year, 300,000 new logistic-related jobs are created.
- There are more female long-haul truckers than you might expect. In the U.S., there are over 200,000 women that drive big rigs professionally, and that figure is expected to climb in the coming years as more women become aware of the opportunity.

ANSWERS

SUPPLY CHAIN CROSSWORD 1



SUPPLY CHAIN CROSSWORD 2



ANSWERS

SUPPLY CHAIN PUZZLE

Horizontal:

1. Xpressbees
2. Portor
3. Ekart
4. DHL
5. FirstFlight
6. Delhivery
7. Ecomexpress
8. Ninjakart

Vertical:

1. BlueDart
2. safexpress
3. DTDC
4. FedEx
5. BlackBuck
6. Rivigo
7. LetsTransport

M	H	U	H	B	V	O	S	E	H	V	T	N	I	X	V	N	U	V	T
H	X	X	B	I	R	M	Q	X	P	R	E	S	S	B	E	E	S	F	S
K	E	C	U	D	I	N	V	R	T	W	D	H	X	L	E	M	D	S	C
D	E	L	H	I	V	E	R	Y	R	H	I	V	R	A	D	D	C	A	N
K	I	B	E	G	I	S	R	U	P	W	B	M	Z	C	F	J	K	F	E
D	H	F	W	V	G	N	U	I	V	W	Z	X	O	K	P	K	B	E	I
L	T	U	N	W	O	J	C	W	Q	A	N	V	H	B	K	D	E	X	G
E	J	U	I	B	Y	V	K	L	F	W	Y	V	T	U	D	Y	X	P	S
T	L	F	I	R	S	T	F	L	I	G	H	T	G	C	B	Y	S	R	A
S	I	E	S	J	S	Y	B	N	N	I	W	B	T	K	A	K	O	E	X
T	U	D	H	L	O	S	N	G	H	J	U	D	T	W	Q	V	Z	S	M
R	Y	E	Q	O	J	T	D	E	C	O	M	E	X	P	R	E	S	S	X
A	J	X	C	Y	C	D	N	R	E	T	B	L	C	U	K	N	O	M	R
N	T	O	P	O	R	T	E	R	I	A	L	E	O	V	G	N	S	H	I
S	P	L	Y	P	U	D	O	R	O	P	U	T	U	I	E	D	T	O	F
P	I	T	O	E	B	C	K	E	A	S	E	K	A	R	T	R	W	E	A
O	A	N	T	H	K	S	D	R	V	Q	D	L	H	V	U	N	T	C	I
R	G	J	M	J	M	G	Y	P	B	Y	A	B	Z	U	Q	O	Z	K	H
T	H	U	O	N	I	V	I	M	Y	U	R	N	O	M	U	B	Y	Z	N
I	O	W	N	I	N	J	A	K	A	R	T	U	P	I	H	I	S	T	P

Team ScOpe

AKSHAY GUPTA

DHANANJAY CHAVAN

KAMAKSHI GARG

MANOJ V

RAJAT GUPTA

SATHIYARAJ SUBRAMANI

SAURABH KUMAR

SHREYASH WANKHADE

SHRINIDHI RAGHUVEERA

"IT'S NOT THE ORGANIZATIONS THAT ARE COMPETING.
IT'S THE SUPPLY CHAINS THAT ARE COMPETING."

-WAEL SAFWAT

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