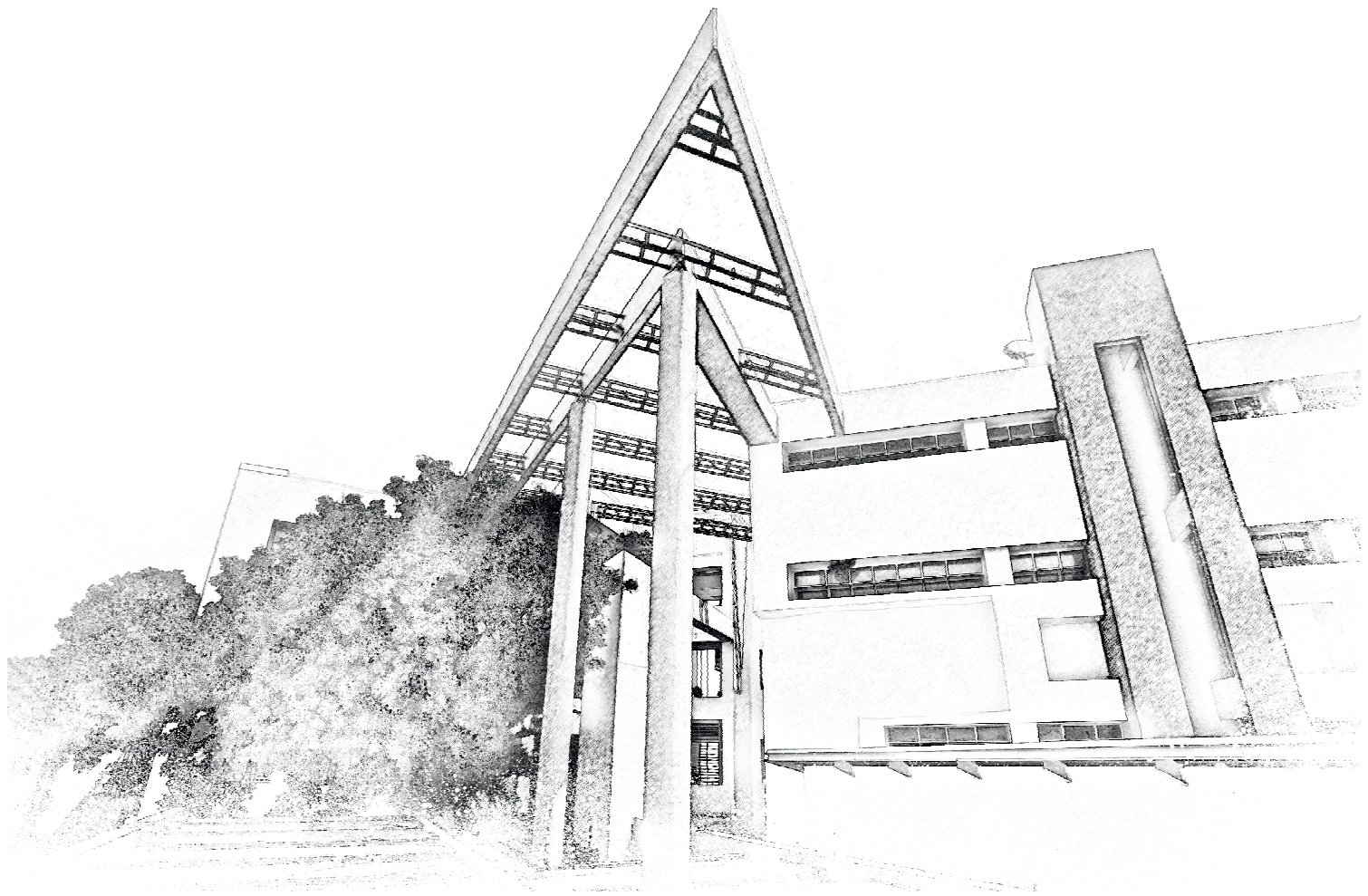

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Editorial

Dear AMBER Readers,

Greetings from Acharya Bangalore B School!!!

Logistics and Supply Chain is one of the important sectors of an Economy. It contributes, in general, 12 to 14 % to any countries GDP. The efficiency and competency of an economy mainly depends on the competency of its Logistics and Supply Chain. Development in Cyber Physical System,Artificial Intelligence, IOT, Machine Learning, Block Chain, Data Analytics, Augmented Reality, Additive Manufacturing, Simulation, System Integration, and Collaborative Robots are unfolding disruption in Logistics and Supply chain segment.

Indian Logistics and Supply chain sector needs 'strategic surgery'. Bad roads, poor warehousing facility, regulations, dearth of professionals, poor investment and poor infrastructure are major ills of this sector. There are very few organizations which operate at the national level. Indian Logistics and Supply Chain is at least 10 percent more expensive compared to countries where the sector is highly developed. This makes Indian Agriculture, Industry and Service sector less competitive and inefficient. Keeping in mind the importance of the Logistics and Supply Chain in particular and Indian Economy in general the theme of the this issue (Vol. 9 and Issue 2) of AMBER is 'Logistics and Supply Chain Management'. I thank all the contributors who made this issue to see the light of the day. I profusely thank editors of this issue, my colleagues Prof. Anand Sasikumar and Prof. Ellur Anand. I fail in my duty if I do not thank our Management for supporting continuous publication of AMBER for the last nine years.

The theme for next issue of AMBER is 'Micro, Small and Medium Enterprises'. I welcome research articles for the forthcoming issue.

Dr. H. R Venkatesha, Director
Acharya Bangalore B-School, Bengaluru

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Issue Theme: Logistics and Supply Chain Management

An Overview of Supply Chain Disruptions in the Future

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Abstract

Supply disruption plays a great role in the business of the firm. Over the last few years we have seen major incidents (disruptions) that have affected the supply chains of major global manufacturers, but what is becoming increasingly significant to these manufacturers is the need for access to real-time supply chain visibility. This paper reveals the classifications of supply disruptions and its impact on their business growth, strategies, market share and financial results of the company. This paper also focuses the supply chain disruptions in the future due to Internet of Things (IOT),applications of smart devices, use of mobile technology, quick response- last mile delivery, competition between supply chains, price cut strategies, product availability, managing demand variability and product recalls. Examples such as automobile cars recalls, and packaged food products recalls were also emphasized. The discussion is of qualitative nature covering supply chain disruptions and its impact on business. The study also highlights the various facets of managing supply chain disruptions.

1. Introduction

Lengthy supply chains are increasingly proving to be a source of concern in the face of supply chain disruptions in sourcing, production, distribution of products and services and product recalls. The supply chain disruptions may be caused by natural disasters such as heavy rain and floods, earth quakes, internal conflicts or natural calamities. These situations have created greater demands on companies to keep supply chains flexible and integrate disruption risk management into every facet of supply chain operations (Janat Shah, 2009).

In the past, major supply chain risks were due to delays in supply of materials and issues related to multilateral trade between countries. Maintenance of low inventory often put supply chains at a huge risk. Disruptions in a supplier's operations have caused substantial losses to companies in the past. Supply chain disruptions can be classified on the basis of their effects into six major types: disruption in supply, disruption in transportation, disruption at facilities, disruption in communication and disruption in demand. But, supply chain disruption in the future are due to Internet of Things (IOT), applications of smart devices, use of mobile technology, quick response- last mile delivery, competition between supply chains, price cut strategies, product availability, managing demand variability and product recalls.

2. Supply Chain Disruptions

Over the last few years we have seen major incidents (disruptions) that have affected the supply chains of major global manufacturers, but what is becoming increasingly significant to these manufacturers is the need for access to real-time supply chain visibility.

Two distinct notions that encompass supply chain visibility:

i. Visibility of products (raw material through finished products).
ii. Visibility of the financial supply chain in terms of money flow and risk.

Impact of supply chain disruption:

i. Disruption can have a major impact on all parties across the supply chain.

ii. It can negatively impact the supply of materials from manufacturing plants through to customers, as well as alter the flow of money.

2.1 Supply Chain Disruptions in the Future

Changes are continuous and also dynamic. Companies are constantly looking for changes in terms of setting their competitive priorities such as cost competitiveness, quick last mile delivery, quality standards, and product flexibility. These changes certainly create some level of disruptions in their supply chains.

The supply chain disruptions in the future are:

i. Internet of Things (IoT)
ii. Applications of smart devices
iii. Use of mobile technology
iv. Quick Response- last mile delivery
v. Competition between supply chains
vi. Price cut strategies
vii. Product Availability
viii. Managing demand variability
ix. Supply chain disruptions due to Product Recalls

i. Internet of Things (IoT):

Gartner says a 30 times increase in internet connected physical devices will significantly alter how the supply chain operates. By 2020, more than half of major new business processes will incorporate some element of Iot up to 26 Billion internet connected smart devices will be installed, generating revenue of $300 Billion by the end of the decade. According to Forrester, 58% to 77% surveyed organizers consider locating objects, containers and personnel as the top priorities for IoT functions. Traditionally, companies were having their own logistics or they use to hire the services from logistics service providers. The movement of goods either from OEMs to their customers or from their suppliers to manufacturing facilities were carried by the company itself or by logistics service providers. But, then, the commonly faced problems were delays in shipment, wrong deliveries and time consuming process of shipping documents, tracking, and receipt of goods due to human errors and limitations in handling large number of documents. But, now, application of RFID tags, WiFi tags, Bluetooth, Block chain technology coupled with predictive analytics etc. are the future of logistics and supply chain management (Arnold, 2018).

ii. Application of Smart Devices :

Kamarajar Port Ltd (KPL) is all set to implement a full-fledged Radio Frequency Identification (RFID) system to track movement of men, materials, and laden vehicles within its premises on real time basis. The implementation of RFID system is one of the initiatives of Ease of Doing Business under the Shipping Ministry.

The implementation of RFID will benefit trade immensely in terms of time and cost reduction. The implementation of RFID system will significantly enhance the security of the port, speed up the movement, track each and every movement of men and material across the port and prevent revenue leakage and any malfunction at the gate.

On an average at least 600 people and 400 vehicles enter the port daily and it takes several minutes for vehicles to enter or exit the premises. So the user can avail single entry or multiple entry passes through online web based request system or they can get it at the entrance.

It is an integrated intelligent system comprising issue of RFID based pass to move and monitor men and materials, for entry and exit of vehicles with boom barriers and flap barriers, automatic

vehicle identification with RFID tags and number plate system. The integration of payment gateway and the display system at the Port entry gates are also included. Application of GPS systems, sensor technologies etc. are creating supply chain disruptions.

iii. Use of Mobile Technology:

The speed of information, access can be a key determinant of a company's success and the supply chain is the most critical one in need to have speed. Installing mobile PCs in service velocity can improve performance when using Global Positioning System (GPS) for accurately tracking the vehicle location. Using mobile PCs or mobile handsets is one of the best ways to improve the visibility and velocity of supply chain to provide excellent customer service (Cheryl Bikdwski, 2018). Example, Asian Paints India Ltd (APIL) a large paint manufacturing company uses mobile technology in inventory and warehouse management. All their Regional Sales Officers (RSOs) are enabled to know and update their warehouse stock on real time basis. This facilitates their RSOs to book the sales and demand management efficiently. E-retail companies are good examples for using mobile technology as part of their Sales and Operations Planning (SOP).

iv. Quick Response- Last mile delivery:

Quick response to the customers requirement are heavily influenced by cost, time, flexibility and inventory. So, last mile delivery is very important for the company to leverage its competitiveness. For example, the Dabbawalas have partnered with Flipkart's delivery network eKart Logistics. The Dabbawalas will collect Flipkart marketplace shipment from the delivery hubs, and deliver it the customers- while packing their 'dabbas' .

This partnership is an effort to explore newer delivery channels and opportunities by partnering with this unique community of experts. The initial pilot will be for prepaid orders and when the service expands the company will roll-out for cash on deliveries also.The Dabbawalas of Mumbai are one of the most reliable and trusted brands in the city. Their unique delivery system has been smooth, reliable and has survived the test of time-even under extreme conditions in a typical city like Mumbai. So, Flipkart is partnering with Mumbai Dabbawalas and leveraging this unique expertise to enhance their last mile delivery capabilities.

v. Competition between supply chains:

As more and more companies compete on a global basis and have supply chain that span the globe, that their competitive position in the market increasingly does depend on their SCM processes. Excellence in SCM dictates significant aspect of customer satisfaction, operating performance (industry, profit margin etc) (Randy Liitleson, 2018). For example, Apple Inc, The company wouldn't be Apple without excelling at SCM. (Supply Chain Excellence at Apple). Further, AMR Research study demonstrates that there is a direct correlation between supply chain excellence and the key performance indicators (KPIs). So, competition is no longer between companies but between supply chains (Fastener News Desk, 2017).

vi. Price Cut strategies :

Pricing is one of the four pillars of marketing, along with product, promotion and place. Companies may use temporary discount or permanent price reductions as part of marketing strategy. Companies may also offer extra quantity on selling units or additional services by maintaining price (Sam Ashe-Edmuds, 2018). Examples, packaged food products 13% extra on 53 grams of biscuits or 175 grams plus 50 grams extra for the same price in the case of detergent soaps.

vii. ProductAvailability:

The level of product availability is measured using the cycle service level or the fill rate. The level of product availability measures the fraction of customers' demand that is satisfied from available inventory. The level of product availability is also referred to as the customer service level. The level of product availability is an important component of any supply chain responsiveness.

A supply chain can use a high level of product availability to improve its responsiveness and attract customers. This increases revenues for the supply chain by increasing sales and ensuring products availability when customers come to make a purchase. High level stock out can create lot supply chain disruptions, so, cost of understocking (CU) has to be minimized.

viii. Managing demand variability:

Demand variability in supply chain is measure of how much variability can occur in the demand from customers. In other words, it is the variability between what is expected to happen and what really happens. The demand variability can lead to 'Bullwhip Effect' in SCM. Bullwhip effect is a phenomenon occurs in supply chains due to distorted and inaccurate information. Companies do adopt to reduce the demand variability by taking measures such as accurate forecasting, tailored sourcing, and backordering, order gaming, postponement strategy etc (Sunil Chopra & Peter Meindle, 2013).

ix. Supply chain disruptions due to product recalls:

Product recalls can create supply chain disruptions in both upstream and downstream supply chains. Examples, Car makers have recalled 2 million vehicles in the past four years to fix manufacturing defects. The ratio is one car recalled for every four sold in the country. Nestle Maggis two minute noodles recall has created lot of supply chain disruptions for the company.During 2015, Nestle recalled its popular noodle brand Maggi. 27000 tons of finished products were recalled from their Retail Outlets (ROs) across the country. Disposal was a challenging task to Nestle. This has resulted in market loss, business loss, consumer brand fell from 98% to 3%, and all their eight factories were idled for six months across the country. Hundreds of their suppliers had stopped their supplies. Sometimes companies are considering the supply disruptions / crisis are great opportunities.

3. Conclusion

Managing supply chain disruptions involves managing certain events that have low probability of occurrence but have high impact on supply chain performance(Sengottuvelu, 2008). Firms that have configured their supply chain design and operations to handle high level demand uncertainty effectively are known as responsive supply chains. Firms that have configured their supply chain design and operations to handle high levels of demand uncertainty and supply chain disruptions effectively are known as agile supply chains. For functional products, the supply chain should be physically efficient and for innovative products, the supply chain should be more market responsive. The Dell Computer Company showed that shifting from the traditional efficient supply chain used in the computer industry to a supply chain can be profitable. This is not followed, then, we could anticipate supply chain disruptions. In future, the supply chain disruptions are more of technology centric, data analytics, quick response, managing demand variability, and event based disruptions etc.

References

1. Andrew Arnold (2018). How the Internet of Things Impacts Supply Chain. Forbes Media LLC, USA.
2. Cheryl Bikdwski (2018). Five benefits of using mobile technology. Supply Management, CIPS, USA.

3. Fisher (1997). What is the Right Supply Chain for Your Product?.Harvard Business Review, March -April 1997 Pp. 83-93.
4. Forrester & Zebra (2014). Internet of Things Solution Deployment Gained Momentum Arising Firms Globally.
5. How to reduce demand variability in SCM (2016). Westford University College, School of Business & Information Technology, retrieved from www.westford.com on October 15th, 2018.
6. Janat Shah (2009). Supply Chain Management - Text and Cases. Pearson Education in South Asia, New Delhi.
7. Lee J.Krajewski& Larry P.Ritzman (2000). Operations Management -Strategy and Cases. Addison Wiley -Pearson Education, Delhi.
8. Randy Littleson (2018). Companies do not compete, supply chains compete. Supply chain optimization. Purdue University, Manufacturing Extension Partnership.
9. Sam Ashe-Edmuds (2018). Is cutting prices a good marketing strategy. Newspapers LLC, USA.
10. Sengottuvelu,C (2008). Measuring supply chain performance in FMCG and Manufacturing Industries. Ph.D Thesis submitted to Aligarh Muslim University, Aligarh.
11. Sunil Chopra & Peter Meindle (2013). Supply Chain Management: Planning, Analysis and Strategies. Upper Saddle River, N.J. Prentice Hall of India, New Delhi.

Supply Chain in India-
The Dawn of Industrial Revolution

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Abstract

The performance of logistics sector in the economic development of India has never been more compelling. A robust logistics sector can go a long way in boosting India's quest for being a manufacturing giant given that several initiatives like 'Make in India' have been launched by the government. Increasingly, companies across the globe are looking at the world as both a unified production base and a market that a competitive logistics sector can successfully tap into. The industry has seen rapid growth in the last few years due to increased planned outlay of the government, improved infrastructure facilities and greater access to global markets. However, our services have not adequately capitalized on the opportunity in the global market as multiple challenges continue to mire the sector.

The effort in the years ahead is to build a more robust logistics network in the country. With better infrastructure planning, increased coordination among stakeholders and improved operational efficiencies, India aims to unlock the potential of the sector needed to fuel economic growth.

Major Challenges Faced by Indian logistics sector

With globalization, logistics is expected to play an increasing role in driving the Indian economy. In 2016, India was ranked 35th in The World Bank LPI Index that ranks countries based on their logistics performance,moving up from 54th in 2014. While this is reflective of improvement in the sector, multiple challenges of infrastructural deficiency, lack of integration amongst stakeholders, lack of skilled manpower and slow adoption of technology continue to weigh it down.

Infrastructure

It is one of the hindrances that has confined growth of the logistics sector. It gets reflected in inadequate and low-quality modal and terminal transport infrastructure, suboptimal modal mix, inefficient and ill-designed storage facilities for cargo and containers and inefficient operational and maintenance protocols, and poor adoption/adaptation of technology. This leads to high and inconsistent cargo transit time, inefficient use of resources and poor fleet management. The selection of the mode of transport, or even storage and terminal handling protocols are rarely linked to cargo characteristics (distance of travel, parcel size, density, etc.). As a result, there is overuse of high-cost modes like road at the expense of cost-effective and sustainable modes like inland waterways and railways. The continuing and prolonged suboptimal system, which erroneously appears to be in equilibrium, needs to be changed. The way to strengthen the Indian logistics infrastructure is about deconstructing the old and building a new rational equilibrium.

Skill Development

India has a demographic advantage but the availability of appropriately skilled manpower remains a challenge. This is particularly so in the logistics sector as it is seen more as a support industry than a mainline one. Lack of skilled manpower is the result of inadequate training and proper leadership and support. The sector needs to specifically build a pool

of personnel comprising truck drivers, seafarers, warehousing managers, quality inspection supervisors, among others. There are limited institutes for soft skills, and operational and technical training. Also, due to the unorganized nature of the sector, which is characterized by poor working conditions and low pay scale, it is not a preferred choice among skilled personnel.

Information Technology

Slow adoption of new technologies has been another big constraint. Awareness about the economic benefits of using digital technology is low and collaboration among stakeholders far from satisfactory. As a result, the logistics ecosystem is fraught with operational inefficiencies and poor asset utilization. Lack of technology systems and insufficient technical knowledge add to the pain. Technological infrastructure has remained inadequate, marked by slow network speeds, subpar performance, and unreliable hardware and software, all leading to high costs and underperformance.

Regulatory Hindrances

The introduction of GST could change the contours of the logistics sector completely but such disruptive reform requires proper implementation. Multiple regulatory agencies, if not coordinated and brought under a single umbrella, could slow down the creation and operation of logistics infrastructure. Obstacles in land acquisition and consolidation, and change in land use still continue to be major impediments. Lack of transparency in compliances further adds to the woes of the sector.

Performance Standards

With a diverse customer base, consumer behaviours and expectations are also diverse. Both individual and corporate customers demand personalized services, flexibility and faster services. Due to these complexities and prevalence of fragmented suppliers, there is a need for integration of services in order to meet performance standards. There is a need for standardized services, transparency and compliance. Therefore, logistics service providers need to align their strategy with the business model and targeted customer segments. Additionally, initiatives such as real-time track-and-trace and other value-added services, will help service providers cut cost, raise productivity and optimize the supply chain. It is clear that the Indian logistics sector faces challenges and there is a lot to act upon. Use of innovative models, new technological systems, international best practices, research and adequate implementation approach can all help to improve the sector, which in turn can stimulate growth and employment in the country.

Integrated end-to-end logistics

A shipment is a set of horizontal flows which together constitute the chain interspersed with links, and which involves multiple stakeholders with varying business models and consequent expectations from the chain. Integrated logistics is the seamless flow of cargo across the value chain involving multiple stakeholders with varying business models. It helps to accomplish the task most efficiently, thereby reducing the cost and time of movement. Integrated Transport and Logistics Policy is a step in the right direction. The Government of India is in the process of preparing an Integrated Transport and Logistics Policy that aims to transform India's logistics from a 'point-to-point' to a 'hub- and-spoke' model, thus evolving centralized strategic networks for shipment distribution rather than relying on direct route operations that may not be efficient. As part of this initiative, the government plans to set up 50 economic corridors, 35 multimodal logistics parks (MMLP) at 15 locations, ten intermodal stations, among other things. While a policy is already being considered for integrated logistics to be successfully implemented, several elements need to be integrated with the horizontal flow across the chain - services, infrastructure and information.

Integration of service providers and services

An end-to-end service provider is one who performs or consolidates, on one platform, a full range of logistics services - transportation, storage/ warehousing and other value-added services - required for the cargo to move seamlessly from the

origin to destination. The stakeholder groups involved in the flow of cargo on the other hand, are vertically integrated businesses targeted towards their own profit maximisation and/or other goals. Integration of service providers can be accomplished primarily through consolidation among existing stakeholders or the emergence of third party service providers. Therefore, a complementary set of service providers could get together for mutual benefit, or one large logistics player could bring others from across the value chain into its fold. Globally, the logistics market has undergone consolidation largely based on scale and operational efficiency. Partial service providers in the chain merge, acquire, and collaborate among themselves to provide comprehensive third-party logistics services at competitive pricing. In India too, service providers, who until recently were fragmented across domains, have begun to merge businesses. The objective of an integrated system is to better sync the vertical integration of individual businesses with the horizontal flow of the supply chain. Emergence of third-party logistics service providers is an evolutionary process and is linked with economic development of the country. Indian firms are looking at new logistics capabilities and more complex solutions from third-party logistics service partners. Another aspect of creation of end-to-end integration is the creation of performance standards for adherence that are achievable and acceptable to the diverse set of logistics service providers and other stakeholders.

Integration of Infrastructure (Multimodal transportation)

A prerequisite for service integration is the development of a robust multimodal infrastructure network that will enable the use of different modes of transportation to seamlessly transfer cargo. Such a transport network would ensure that freight is channelled through the most efficient mode for faster, safer, cost effective and pollution-free movement. This would be driven primarily through the development of multimodal logistics parks, streamlined economic corridor routes for efficient freight movement, and intermodal stations to connect various transportation modes.

Transport modes in India, typically operate as isolated entities, with a skewed modal mix that relies heavily (about 60%) on the already congested road transportation. The Indian coastline and river network has historically remained under-used, even though it is energy-efficient, eco-friendly and reduces logistics costs. Cost for coastal shipping is INR 0.15-0.2 per tonne km compared to INR 1.5 for railways and INR 2.5 for road. Addressing these anomalies alone provides a huge potential to lower logistics cost in the economy by INR 21,000-27,000 Cr by 2025. The Eastern Dedicated Rail Freight Corridor (1,856 km) and Western Corridor (1,504 km) projects are under implementation. Once operational, they will strengthen India's present rail infrastructure to carry freight many times over, possibly leading to a reduction in cost of transportation. The government has also announced the Sagarmala Program which focuses on development along four thematic areas - port modernization & new port development, port connectivity, port led industrialization and coastal community development.

Large lumpy investment in logistics infrastructure with high gestation periods - for instance in rail track, port sub-structure, among others - should remain a state responsibility given that the private sector has not shown any appetite for it. The baton should shift through the penumbral area between the public and the private towards greater private investment through a range of appropriately structured models including PPP. In fact, more private sector participation will likely follow as the investment requirement increasingly shifts towards smaller and service focused infrastructure. The logistics industry in comparison has a modest financing need; it mainly requires working capital funding. Therefore, it can get by without any, or minimal, state support.

To ensure seamless flow across physical infrastructure, intermodal transfers should be efficient. Terminal infrastructure, comprising multimodal logistics parks (MMLPs), inland container depots (ICDs), container freight stations (CFSs)/ private freight terminals (PFTs), ports, and airports should be designed with

cargo specificity and operational requirements in mind. Such terminals lead to a break in the logistics chain and therefore impede the flow. Hence their presence in the chain is justified only when they either add value to the shipment or meet a regulatory requirement.

Multimodal infrastructure is often incorrectly assessed without considering the first and last mile. This can be the stumbling block in the end-to-end chain. Port and inland terminal/warehouse connectivity can be a part of the terminal plan, but the state needs to step in where land and other regulatory impediments arise. The location of terminals is its master key to success and its efficacy rests on good connectivity to the network.

Integrated Digital Platform

Another important aspect of integrated end-to-end logistics is digital integration. A single stakeholder visibility across the chain is generally limited to his own part, or sometimes to related domains too; but a complete end-to-end view is possible only through such a platform. For a stakeholder to become its inherent part, the benefits of such association must be clearly visible to him. The objective of a common digital platform is to enable seamless flow of information across various service providers and modes of transport. Such a platform should ideally be able to integrate all documentation related to the cargo flow, provide cargo visibility through track-and-trace, facilitate a seamless information flow and link the chain to invoice and payment points. The state has to play a role in this whole process. It cannot just be an enabler of digitalization across the board, but it can also address potential pain points for various stakeholders and even promote awareness among the stakeholders.

Industry 4.0 revolution - Adoption of digital technologies

In the current era of digital transformation, several technological disruptions have come together to create powerful tools that are reshaping industries across the globe. As various industries, such as retail with close links to logistics, are being redefined by digital technology, it is inevitable for such disruption to also revolutionize the logistics sector.

Digital transformation has the potential to have far-reaching payoffs for a leaner and smarter logistics by ensuring smoother interface among logistics stakeholders for seamless delivery. According to the World Economic Forum (2016), digital transformation of the logistics sector could translate into value of $1.5 trillion for players in the logistics sector and an additional $2.4 trillion worth of societal benefits by 2025.

Countries like Germany, Singapore, Hong Kong and USA, all of which possess more sophisticated logistics ecosystems have gone on to showcase how digital transformation has benefited their entire logistics value chain, including warehousing operations, freight transportation, and last-mile delivery. As a result, these countries have consistently ranked higher ranked than India in the World Bank's Logistics Performance Index. Multiple digital technologies can potentially impact different activities across the entire logistics value chain to bring in operational efficiencies, maintain cargo safety, enhance customer interface, revamp business models and bring about rationalization of logistics costs.As is being witnessed across the globe, applying these digital technologies to logistics operations in the Indian context may help improve the performance and efficiency of the sector in the following ways:

Internet of Things (IOT)

IOT is the networked connection of physical objects that can help capture information for generating new insights and adding value to business. It presents a unique technology transition and can enable the logistics ecosystem in India in the following ways:

Predictive diagnosis and monitoring performance

IOT may be used to monitor the status of assets in real time throughout the value chain. In several countries, advanced sensors are being used to monitor and detect risks pertaining to breakdowns, helping avoid process delays and fatal accidents. For instance, Union Pacific, the largest railroad in the United States operating around 8,500 locomotives that haul freight over 32,100 route miles of track in 23 states, uses

IOT to predict equipment and component failures. Acoustic and visual sensors are embedded in the tracks to monitor the condition of train wheels. This has reduced bearing-related derailments that can result in costly delays and up to $40 million in damages per incident for Union Pacific.

Providing visibility for in-transit carriers

Additionally, IOT, which includes Global Positioning System (GPS) and Radio-frequency Identification (RFID) systems, is being used to provide logistics carriers with real-time information on key location states. This has helped make the logistics ecosystem more responsive. While on the one hand this provides greater Control to service providers to predict delivery times and improve asset utilization, it also enables customers to track and trace their consignment on a real-time basis.

Automation

Automation technology in the logistics sector allows the use of control systems for operating machinery, processes, vehicles, vessels, and aircraft through the use of artificial intelligence. From the use of robots to self-driven vehicle and drones, automation technology can be adopted in the logistics sector for:

Reducing manual intervention to bring down costs:

Artificial intelligence (AI) can help automate business processes to reduce/eliminate manual interventions for freight handling, to improve quality, speed up processes and subsequently bring down logistics costs. Almost two-thirds of the logistics costs are hidden, which is attributable to theft and pilferage of cargo, and holding of inventory. Therefore, automating processes may help in eliminating hidden costs, bringing down the overall high logistics cost in India. Additionally, reducing manual intervention may also help speed up inspection by regulatory agencies, ensuring minimum handling damage and reducing the inventory holding time.

Blockchain Technology

It can be used to create common networks among entities unwilling to share information, without compromising on the integrity of the data. This technology becomes especially relevant in the Indian context, given the fragmented nature of the sector and lack of common platforms to exchange information. It may be used for:

- **Synchronizing multi-party logistics value chain:**

  Blockchain technology can be used to align processes seamlessly from one point of the logistics value chain to another by eliminating the need for duplicity of documentation processes. This, in turn, would also reduce the risk of errors creeping into the system due to manual data entry at several points across the value chain. It would also act as a catalyst for achieving an integrated end-to-end logistics system. For instance, Belgium's Port of Antwerp has initiated the process of using the block chain technology to streamline its terminal's container operations. The aim is to pace up interactions between port customers, including carriers, terminals, freight forwarders, hauliers, drivers, shippers, among others, by cutting down on multiple interactions between these parties and also preventing data manipulation.

Cloud Computing

Cloud technology refers to the universal, and convenient access to a shared pool of networks, storage, servers and applications that can be accessed through the web. This technology can help the Indian logistics sector by:

Optimizing asset utilization

As logistics in the country aims towards becoming leaner, optimizing asset utilization is important to enhance operational efficiency. The Indian road transportation sector remains highly fragmented and often the vehicle fleet either lies idle or returns empty after transporting the freight. Cloud computing can help service providers use assets more efficiently by collaborating with each other to share fleets and networks. Sharing information on cloud-based platforms in real time can help service providers coordinate and collaborate for the pickup and delivery of freight. This will not only reduce the idle time of their fleet but also make the delivery ecosystem more efficient.

Enabling storage and easy access of data

With cloud technology that enables the easy storage of vast amounts of data without the need for physical servers or hard drives, logistics service providers can easily access information from anywhere. This will give flexibility to service providers to exercise control over critical processes that require round-the-clock monitoring from anywhere.

Big Data Analytics

Big data analytics, another element of the digital revolution, enables number crunching and 'sense-making' of complex data sets that are captured through 'smart' devices and stored across servers and networks. It can be employed by various logistics players for:

Driving future strategy

Analytics can be applied to the entire logistics value chain to identify improvement opportunities and achieve operational efficiencies in the country's logistics framework. For instance, GE's analytics platform or Cisco's Unified Computing System (UCS) Integrated Infrastructure for Big Data can be used to manage and implement complex statistical analysis, data mining, and retrieval processes for big data that help identify key insights and trends. This analysis can then be used to develop algorithms and estimate the remaining useful life of assets, identify areas of operational inefficiencies, eliminate redundant costs and drive future strategy.

An expanding digital consumer base coupled with inadequate and ill-planned infrastructure facilities has left India trapped between growing demand for logistics services on the one end and a fragmented logistics services market on the other. Already some experiments are being made for adopting digital technologies in the country. But given the potential for significantly higher value to be created for the Indian economy, the sector cannot benefit much until a concentrated and collaborative effort is made by each stakeholder, including infrastructure providers, terminal operators, logistics service providers and technology companies.

Strategy to Implementation

In order to make the Indian logistics sector globally competitive an all-encompassing solution is needed instead of a piecemeal approach. To achieve this, the state can put in place a comprehensive national logistics policy for a larger and holistic improvement in the sector. An integrated logistics policy has recently been announced, with a focus mainly on development of integrated transport infrastructure. A national logistics policy must go well beyond. The national policy must incorporate key drivers for the sector namely integrated logistics, information technology, infrastructure, regulation, human resources and skill development and equally important the entire stakeholder community. The policy, among others things, should focus on:

a) Creating a vision for the logistics sector in the long term.
b) Formulating action steps for achieving this vision.
c) Creating a conducive environment for the growth of the logistics sector and should identify programs to address all aspects. A number of countries have developed similar blueprints and the policy makers can learn from the experiences of such countries.

Namaste DHL

As India is experiencing the rapid growth in the economy and is also 2nd most populous country in the world, expecting a growth rate of approx. 7.3% this year. **DHL Express** saw this economic growth and planning to introduce its Street Scooter concept along with that the launch of electric van which will be used for delivery of parcels and letters.

According to Ken Lee, CEO, Asia Pacific, DHL Express Asia, spoke to Business Line on the company's plans. He said, from the growth perspective, they see India as one of the countries with biggest growth areas. DHL is also having keen interest in pushing India towards Digitisation. The more-developed economies are more transparent, and are slightly more efficient. For developing economies like India, which are at the start of the digitisation phase, there will be a learning curve. But, eventually India will be playing like other

developed countries as well. DHL has also announced plans for India and will work with BlueDart service. The logistics sector has lately seen a huge inflow of capital owing to the recent implementation of the Goods and Service Tax(GST), massive investment in the online retail industry and infrastructural development, all of which promise great growth potential.

DHL e commerce has previously made many investments in the India through its BlueDart Express subsidiary and is now looking to expand its presence in the delivery based sector.DHL has committed to invest INR 1673 Cr over the next 3-4 years in order to expand their logistics business.

Conclusion

As we know that so many good things are happening in India in terms of development. We are 2nd most favourable outsourcing destination. According to the World Bank survey, who considered around 150 countries to measure Supply chain and Logistics performances, Ranked India 35th. By observing the results of the survey, it was found that India is spending its 13% of GDP in Logistics as global average is only 9-11%, which means we are spending 4% more comparatively, which is nothing but a **COST** needs to be avoided.

Supply chain and Logistics management are the areas in which logistics service providers (LSPs), by virtue of their expertise, are able to offer the most added value to transactions in the freight trade. Freight forwarders, as "logistics service providers," play an important role in supply chain management, as an increasing number of firms outsource their logistics function. These 3PL providers are now becoming more involved in the design, management, and control of firm's supply chains.

Logistics has played a crucial role in the growth of online retail in India. Not only has it allowed retailers to reach even the remotest corners, but has also given the ecommerce players the liberty to draw strategies like instant deliveries. Although leading players have now started with their in-house delivery services, a major chunk of online retailers are still dependent on logistic players like BlueDart, Delhivery, etc. to reach their customers. With a lot of initiatives and investments being taken to facilitate peer to peer delivery and services, the local logistics player will surely give company like DHL, a run for their money.

Bibliography

Books:

- Peter Meindl, Supply Chain Management: Strategy, Planning and Operation. 6/e, Pearson.
- F. Robert Jacobs, Retail Management:Operations and Supply Chain Management, 14/e, McGraw Hill Education.

Other References:

1. https://www.imd.org/research-knowledge/articles/the-india-supply-chain-revolution/
2. https://www.thehindubusinessline.com/economy/logistics/new-technology-revolutionising-supply-chain-management/article24531593.ece
3. http://www.businessworld.in/article/A-Revolution-In-Supply-Chains/03-01-2018-136308/
4. https://inc42.com/buzz/dhl-bluedart-logistics/
5. http://www.delivered.dhl.com/en/articles/2018/06/india-ramps-up.html

Assessing the Role of Marketing Mix in International Shipping Services: 8 Ps in Ethiopian Context

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Abstract

The concept of the marketing mix has attracted attention from both academics and managers and has been widely used in the marketing discipline. Traditionally, marketing mix for 'product' (4Ps) has been widely accepted in literature and practice. This paper presents the tools of the marketing mix of shipping companies (service) active in merchant shipping along with focus on the basic fundamentals of service marketing. It argues that the marketing strategies are the means by which a company achieves its marketing objectives and are related to the tools of the marketing mix. Further, it also brings the trends set up the strategies adopted by the leading shipping companies of the world in order to confirm that the companies understand the importance of marketing and apply improved marketing strategies. Some of the data, which were gathered in an empirical research (by Evi Plomaritou, Institute of Chartered Ship Broker's-Greek Branch) carried out for the top 10 tanker shipping companies and for the top 10 liner operators of container ships used in this paper to exemplify the strategies related to the tools of the shipping marketing mix. The article concludes that the shipping company must organize its resources in such a manner as to be able to apply improved strategies of effective marketing in order to achieve a long-lasting and more effective commercial operation of its vessels.

Introduction

Shipping is a service industry that by general acknowledgement provides the lifeline of international trade. Suffice it to say that, due to the morphology of our planet, 95% of international trade takes place by sea. Technological developments in ship design and construction, and the ensuing economies of scale of larger ships, have also promoted trade particularly that of developing nations- by making economical the transportation of goods over long distances. This has expanded markets for raw materials and final products and has facilitated the industrialization of many countries around the world.

Shipping is a complex industry and the conditions, which govern its operations in one sector, do not necessarily apply to another; it might even, for some purposes, be better regarded as a group of related industries. Its main assets, the ships themselves, vary widely in size and type; they provide a whole range of services for a variety of goods, over shorter or longer distances. Although one can usefully isolate sectors of the industry providing particular types of service, there is usually some interchange at the margin which cannot be ignored. In practice, the core of marketing is considered to be the marketing mix. For service Industries, like shipping, it was observed that traditional marketing mix was inadequate because of three main reasons. The first reason was that the original marketing mix was developed for manufacturing industries, which implies that the services offered by service companies ought to be changed to a product like manner so that the existing marketing tools can be applied. This was practically difficult.

The second need was that marketing practitioners in the service sector found that the marketing mix does

not address their needs. They observed that service has certain basic characteristics (as discussed below) which, in turn have marketing implications. The third reason was that since services are basically different in comparison to physical products, the marketing models and concepts have therefore, to be developed in direction of this service sector. The above three reasons suggested a revised framework for service marketing mix with dimensions of each of the mix elements to be redefined. The marketing mix has extended beyond the 4Ps for marketing of services. These additional Ps are added to meet the marketing challenges posed by the characteristics of services.

A brief discussion of service characteristics and their marketing implications followed by the tools of marketing mix in shipping services are given below.

Service Characteristics

- INTANGIBILITY
- INSEPARATIBILITY
- PERISHABILITY
- HETEROGENITY

Intangibility means that unlike goods, services can't be seen, touched and felt, tasted or smelled or even heard before they are purchased. Inseparatibility suggests that services are produced, distributed, and goods consumed simultaneously. In the case of manufactured goods, production takes place in the production unit, thereafter the goods are kept in inventory and transported to the distribution outlet from where the consumers pick up for consumption. Heterogeneity means that services delivered generally vary in quality, time consumed in delivery, and the extent of service provided. Since people deliver most services they are variable. Perishability means that services can't be stored. For example, in shipping in Liner services, unoccupied slots remain unsold, whereas in the case of manufactured goods, unsold items can be put into inventory and can be sold the next day. Marketers have to find ways to 'tangibilise' the 'intangible' to increase the productivity of providers who are inseparable from the product, to standardize the quality in the face of variability; and to influence demand movements and supply capacities in the face of service perishability.

Service Characteristics and Marketing Implications

Marketers have to find ways to develop appropriate strategies to deal with the challenges posed by the service characteristics. Some of these challenges are as follows:

a) To 'tangiblize' the intangible.

b) To increase the productivity of providers who are inseparable from the product.

c) To standardize the quality in the face of variability.

d) To influence the demand movements and supply capacities better in the face of service perishability.

For example, in hotel Marketing, services are tangiblized by the building architecture, it's location and aesthetics. Further many hotels run a number of branches world over to increase their customer base. Highly trained / ethnic chefs are employed to serve the best quality of meals. Special packages are announced to restore the demand during off season. Any service process is a combination of both complexity and divergence. Services such as hotel, with low complexity and high divergence are known as customized services. However, shipping services are much more complex as there are multiple players with each one to fulfill their own set of objectives. It doesn't have its own demand but it derives the demand from the goods traffic, comprising of exports and imports, in the world trade. Such services with high complexity and low divergence are known as standardized services.

The Tools of Shipping Marketing Mix (8 Ps)

Marketing strategies are the means by which a company achieves marketing objectives and is related to the tools of marketing mix. Marketing mix is the sum of marketing tools.

Shipping marketing mix used by the enterprise in order to achieve it's objectives in the target - market. The tools of marketing mix for a shipping enterprise which is activated in tramp or liner shipping market

are: the Product (Tramp or Liner Service), the Price (Freight or Hire), the Process(Negotiation's Procedure & Execution of the Charter), the People (Office Personnel & Ship's Crew), the Place (Ports and geographical Area of Ship's Employment), the Promotion (advertising programs), and the Physical Evidence (Ship's characteristics and sea worthiness of the vessel). Additionally a new tool of the shipping marketing mix is the"Paperless Trade" and constitutes the eighth tool of the Shipping marketing mix.

1. Product (Tramp or Liner Service)

Shipping services are organized according to the nature and trading requirements of goods traffic in international trade. World trade can be divided into two broad categories, namely bulk and break-bulk and general cargoes. Bulk cargoes whether dry or liquid, by and large, belong to the category of primary commodities or raw materials, for example, ores, fertilizers, food grains, crude oils, petroleum, edible oils, etc. and move as ship loads. The break-bulk or general cargoes are the manufactured or semi-manufactured, processed goods and materials and move invariably in different types of packing, for example, cases, bales, drums, rolls, bags etc. The shipping services catering to the requirement of bulk commodities movement in world trade is known as 'tramp shipping' or 'chartering', while the shipping services required for the movement of break-bulk or general cargoes is known as liner 'shipping'. Fixed itinerary, regular service, & obligation to accept cargo from all & to sail, filled or not, on date fixed by a published schedule distinguish liner shipping from tramp shipping.

2. The Price (Freight or Hire)

Price Strategy: In the shipping industry, there are two main pricing regimes: the tramp market and the liner market. According to Stopford (1997), liner shipping provides transport for small quantities of cargo for many customers and is essentially a retail shipping business. The liner company is a common carrier accepting cargo from any customer at prices set out in the rate book. The published rate book sets the framework for pricing, which involves differing degrees of discrimination by commodity and owner. That is not suggesting that the business is not competitive. On the contrary, it has spent most of its 125 year history in deep competition. In contrast, bulk shipping is a wholesale operation (Stopford, 1997). It sells its services in large quantities, by contract to a much smaller number of industrial customers at individually negotiated prices. Ship owners and charterers negotiate to establish a freight rate, which reflects the balance of ships and cargoes available in the market. If there are too many ships, the freight rate is low; while if there are too few ships, it will be high. In both cases, the pricing system is central to the supply of transport. In the short run, supply responds to prices as ships change their operation speed and move to and from lay-up, while liner operators adjust their services. In the longer term, freight rates contribute to the investment decisions, which result in the scrapping and ordering of ships. Liner shipping and conference system have largely developed hand in glove with each other. A conference is an association of two or more liner shipping companies operating in a well defined trade, playing a fixed route or routes within certain geographical limits, who agree to abide by its regulations to the mutual benefits of shippers and themselves and to quote the same rates and other agreed conditions. The main purpose of the conference is to eliminate price competition (but not service competition between member lines, which is achieved by maintaining a common tariff and rules for the application of the same. However conferences are believed to be monopolistic in nature relating to fixation of freight rates, provision of services etc. In USA, the government has established Federal Maritime Commission to protect the interest of exporters and importers against the monopolistic practices of the shipping conferences. A few months ago, the Trans-Atlantic Conference Agreement held its final meeting and the outcome was that Far Eastern Freight Conference will close in October on the eve

of the Brussels deadline. Thus, more than 130 years after the Calcutta Steam Traffic Conference (the world's oldest shipping conference subsequently renamed India/Pakistan/Bangladesh/Ceylon Conference, IPBC) was set up by the ship-owners in an effort to achieve stability in freight rates on the London-Calcutta trade route, then the world's most prosperous trade route, these price-fixing associations are about to disappear, at least in Europe. The abolition of the conference system thus is to enhance economic efficiency. The expected outcome is an environment where shipping services and freight rates will be negotiated by the buyer and the seller and will not be settled unilaterally among competitors. That is precisely the way the free market operates and to argue for special case exemptions ultimately smacks of special pleading or an oligopolistic move inevitably working against consumer interest. However, the question that remains to answer is what will be a possible abolition of price fixing authority mean to the industry? In the Post Conference Era, without price fixing authority, any information about market going rate levels on given trades has to be taken from public sources and market intelligence. Further, no special rights for the industry also mean no special obligations for the industry players. There will be absolute freedom to set rates at levels and at conditions negotiated with the customers. Additionally, there will be no obligation to maintain a tariff (unless required by national / regional regulators such as FMC) and no need to respect any notice periods for increases of freight rates (other than perhaps "usual business practices"). In short it will be a challenging new environment which also has its opportunities.

3. **The Process (Negotiation's Procedure & Execution of the Charter)**

Process Strategy, such as improvement strategies of negotiation procedures as well as strategies of voyage execution with speed and safety. The chartering industry is very demanding. It is difficult to think of any other industry in which contracts are negotiated within a few days, if not hours. Under the pressure of difficult negotiations conducted with speed, often by telephone or e-mails, mistakes and errors can have disastrous consequences. In this demanding and competitive environment, care must be taken to present a professional image, negotiations must be conducted in a serious and business like way and charter parties' clause must complement the contracting parties. When the guidelines of negotiations are ignored, the parties may well become liable for substantial claims. On the other hand, the strategies of voyage execution concern the reliability of the voyage. The reliability includes the frequency of sailings, directness of sailings, scheduling flexibility, on-time pick up & delivery of the cargo, fast execution of the voyage, reduction of turn-around time to minimum, appropriate cargo handling procedures during the loading and discharging operations and safe transport of goods. Cosco won the "Sailing Schedule Reliability Reward on Australia - East Asia Trade" for applying improved process strategies.

4. **The People (Office Personnel & Ship's Crew)**

People Strategy Stands for programs of continues Crew Training. According to this strategy, a company's personnel and crew participate in training programs in order to be aware of the new developments of the international shipping industry (such as developments of a charter's legal framework, developments of the shipbuilding industry, developments of a ship's sale and purchase market, etc.). The Global shipping industry is facing a huge crisis of seafarer's. According to the study by the Baltic and international Maritime Council (BIMCO) and the International Shipping Federation (ISF), the current moderate officer shortage will become severe unless maritime training is increased and measures are taken to address wastage rates. By 2020, the shortage of marine officers is likely to nearly treble to 27,000. On the other hand, the number of ratings will rise to 167,000 in 10 year's time from the current figure of 135,000 according to global study.

This puts a huge impetus on the industry and pressure will only mount. In the short term the task of 'filling the gap' can be resolved by appealing to retired mariners to return to sea, to personnel from related industries, to serving and former member of the armed forces, or defense related industries facing a transition to civilian employment who have transferable skills. In the long term the industry has to undertake serious measures, paying special attention to training of personnel. When it comes to comparing different types of education, training on board a real vessel (OJT) has it's disadvantages namely high costs, while theoretical courses do not provide the ability to demonstrate watch keeping capabilities in reality (for example standard and emergency operations). At the same time, marine simulation systems provide real time operation training, extensive environmental effects, and generate various system faults ensuring team procedural training using visuals for greater realism. Simulation based training advantage are self evident. However there are some obstacles. Government and shipping companies are not always willing to invest in the expansion of training. There is no clear guidance from regulators; moreover the lack of suitable qualified instructors is critical. These difficulties have to be overcome if the industry wants to avoid serious crises. Considering the estimated surplus of ratings, simulator training gains new meaning. It allows a rating to gain necessary competence, underpinning knowledge and skills to qualify as an officer in a relatively short period of time. Simulator driven computer based training and assessment enables training to be delivered even at sea. Overall to boost the number of qualified sailors, it is vital to set up comprehensive education, training, examination and certification system. A.P.Moller - Maersk Group maintains a simulation center for the training of its personnel and crew.

5. Place (Trading Limits / Ports)

In case of a time charter engagement, the charterers wish to employ vessels without trading and geographical limits. Instead of that policy, the time charter party usually specifies that the vessel must be used only within a certain geographical area and that the charterers have the privilege of breaching the trading limits by paying an extra insurance premium. Where a charter party states that the loss of time, due to breach of warranty limits, is caused by the charterer, this provision does not only mean the time lost on passage due to average (e.g. damage), but also the time wasted by the ship owner while the damage is being repaired. Place strategy includes the policy of operating vessels without trading and geographical limits, such as the operation of well-built and maintained tankers, which can be used in the environmentally strict areas of the West Coast of America. Frontline possesses a large and modern fleet of tankers, which can meet the strict legislation of the extremely environmentally regions and can be employed in any sea, without trading and geographical restrictions. A port is an interface between sea transport and inland transport and as such is considered to be important sub-systems within the total transport system. As a nodal point for exchange of import and export cargoes, the port always plays a key role in physical supply and physical distribution management. While the principle function of port is to provide entry and exit for cargoes (and passengers to some extent), other auxiliary but important activities at the ports include custom inspection, warehousing, preparation of cargo shipment etc. As such the ports play a significant role in a country's economic development and prosperity by providing the necessary infrastructure for handling goods traffic and in the fulfillment of her people's aspirations towards economic progress and prosperity. The efficiency of ports not only helps in increasing the efficiency of the overall transport system of a country, but also reduces the cost of transporting goods from one point to another.

6. Promotion (Advertising Programs)

Promotion Strategy, such as advertising programs, policies for maintaining good relations with charterers, etc. The purpose of advertising is to

get a message across to the charterer. Advertising operates at three levels - informs, persuades and reinforces. Advertising to inform normally relates to the promotion of new transportation services offered by new vessels of the company. There is also the public relations side of advertising, which includes media relations and exhibitions. The shipping companies use advertising as a basic competition tool. The companies, which provide high quality transport services, have a motive to reveal this quality through advertisements. Hanjin Shipping has developed various advertising programs that include a web page on the Internet, brochures, advertisements in the shipping press and participation at maritime exhibitions.

7. Physical Evidence (Ship's characterstics and seaworthiness of the vessel)

Physical Evidence Strategy such as strategies of the improvement of a vessel's performance and efficiency. Physical evidence strategies are the strategies of a company's compliance to the international regulations concerning vessels' design and operation, strategies of proper maintenance of fleet, strategies of continuous crew training, etc. The ship owner is obliged to provide a ship built, equipped, supplied and manned in such a manner as to carry safely the cargo to its destination and to overcome the ordinary perils of the sea. A study conducted on the world's largest tanker shipping companies showed that they have a very clear picture of their client's requirements. All companies classify the charter's requirements in the same manner with the one charterers rank their needs. The tanker companies believe that the selection criteria from a charterer is the provision of safe carriage of goods by sea and the compliance of company with international safety standards, regarding the construction, operation and management of ship. The freight, though it is taken seriously into consideration by the charters, doesn't constitute the decisive factor for selecting a ship owner. The largest tanker companies in the world have perceived that the decisions of the charters are oriented towards safety and not towards freight. Teekay Shipping has created a marine management system, called the "Marine Operations Management System", which imparts the philosophy of safety management to the entire organization. The system includes efficiency indicators for constant monitoring and improvement of all the enterprise's operations. In 2003, Teekay obtained the "Certificate of Environment Management International Standards - ISO 14001".

8. Paperless Trade (EDI)

Paperless Trade Strategy such as the implementation of the EDI system. EDI is defined as the computer to computer transfer using a predefined standard to structure the data related to the transaction. In such case transaction means carrying out functions like consignments instructions, payment of customs duty, processing of duty draw back applications, DEPB applications etc. The need for such electronic link between various agencies involved in logistics operations was felt world wide, because of increasing number of transactions. United Nations Trade Data Elementary Directory (UNTDED) contains the "data elements" which are assembled into 'segments', which are further grouped into a message using 'syntax rules'. These rules are devised by the United Nations for computerization of trade for Electronic Data interchange for Administration, Commerce and Transport (EDIFACT). EDI can be best described as an inter- organizational computer to computer exchange of business documentation in a standard machine process able format. EDI takes place through proprietary, value added networks (VANS). Many shipping companies, particularly in the liner shipping market, have realized that the investment in information technology and electronic commerce should be seen not simply as a corporate overhead to be absorbed as part of the cost of doing business, but as a competitive weapon in its own right. This requires managers to view information technology not as a part of the infrastructure

servicing the rest of the organization to be left to computer specialists, but as a strategic resource. A clear paperless trade strategy is needed to allow the firm to recognize the relevance of the information to gaining the stated marketing objectives. The information should be stored in the database on a need-to-know basis rather than a nice-to-know basis. At the same time, it should be recognized that the data must be constantly updated if they are to be of use. Evergreen applies a technologically advanced EDI System between the company and the shippers. The system provides fast and valid information, while time and effort are saved. The company won the "E-Commerce Excellence Award 2004".

CONCLUSIONS & RECOMMENDATIONS

For service Industries, like shipping, it was observed that traditional marketing mix was inadequate because of three main reasons. The first reason was that the original marketing mix was developed for manufacturing industries, which implies that the services offered by service companies ought to be changed to a product like manner so that the existing marketing tools can be applied. This was practically difficult. The second need was that marketing practitioners in the service sector found that the marketing mix does not address their needs. They observed that service has certain basic characteristics which in turn have marketing implications. The third reason was that since services are basically different in comparison to physical products, the marketing models and concepts have therefore, to be developed in direction of this service sector. The above three reasons suggested a revised framework for service marketing mix with dimensions of each of the mix elements to be redefined. The marketing strategies are the means by which the company achieves its marketing objectives and are related to the tools of the marketing mix. The tools of the marketing mix for a shipping enterprise which is activated in the tramp or liner shipping market are: Product (Tramp or Liner Service), Price (Freight or Hire), Process (Negotiation Procedure & Execution of the Charter), People (Office Personnel & Ship's Crew), Place (Ports & Geographical Area of Ship's Employment), Promotion (Advertising Programs), and Physical Evidence (Ship's Characteristics & Seaworthiness of the Vessel). Additionally, a new tool of the shipping marketing mix is "Paperless Trade" and constitutes the eighth tool of the shipping marketing mix. In order to respond fully to the demands of the competitive shipping market, it is necessary that shipping companies use modern electronic communication means by which time, cost and effort are saved and quality improvement of services is achieved. The correct drawing up of a shipping enterprise's strategy is achieved through the company's planned rational actions. The action plans must be applied correctly so that the proper transport service is provided to the appropriate charterer, at the right time and port with the appropriate vessel and at freight levels that satisfy not only the shipping company but also its client (charterer/shipper). Marketing is the provision of the appropriate maritime transport services, from the right people (personnel of shipping enterprise and crew of a company's vessels), to the appropriate clients (charterers or shippers), at the right place and moment of time, and at the appropriate freight levels, with the suitable promotion.

References

1. Adolf Adrion, CEO, Hapag-Lyod Container Line -Latest Trends in container Shipping, 2005
2. H.E. Haralambides, Center for Maritime Economics & Logistics (MEL), Pricing strategies.
3. M. C. Harbola, IIFT, Liner services.
4. Peter Kieran, President , CPCS Transcom, World trends in shipping and port reform.
5. PLOMARITOU E. (2006), Marketing of Shipping Companies.
6. Rajeev Aserkar. (2004) Logistics in International Business.
7. Ravi Shankar. (2006) Service Marketing, the Indian Perspective.
8. Tanker Operator Magazine 11-12-2007.
9. Unctad Maritime Review, 2007.

Improving Supply Chain Transparency using Blockchain: Enablers and Challenges

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Abstract

Bitcoin was the first system to utilise blockchain technology at a large scale. With the growing popularity of Bitcoin, blockchain systems have found a new audience within the business environment. The unique decentralized ledger technology that allows creation of verifiable transactions has extraordinary applications within business. In this paper the authors have attempted to identify the core benefits of using blockchain technology to improve supply chain management. The authors have also briefly described the technological underpinnings of the blockchain system. With industry 4.0 transformation in its preliminaries stage, a discussion on how blockchain systems can benefit SCM is important. The authors also have identified the enablers and challenges of blockchain implementation. Like any other information system blockchain implementation is not just infrastructure changes but also requires organisational wide changes to reap the benefits of the new system. The inherent technological issues are preventing many organisations from adopting blockchain systems at a large scale.

Introduction

The Global Supply Chain Forum (GSCF) defines supply chain management as "the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders" (Lambert & Cooper, 2000). In their work Lambert & Cooper (2000) were able to identify a framework to list out the issues that are faced in supply chain management. Chief among which was the issue of business process links. This business process links have a significant impact on the performance of the supply chain. To achieve a truly integrated supply chain, commitment from all the members is essential. Additionally the creation of such an integrated supply chain often puts the buying organisation at the risk of being captive to its supply chain partners since there is an overwhelming reliance on the partners (Keah Choon, 2002). The sheer complexity of managing business partners through the entire supply chain is compounded by the fact that there is often limited willingness to create an integrated supply chain process(Lambert & Enz, 2017).

The contemporary literature identifies various methods to implement and sustain an integrated supply chain. There is consensus that supply chain integration requires both managerial and technical components(Gunasekaran, Subramanian, & Rahman, 2017; Lambert, Cooper, & Pagh, 2000; Turkulainen, Roh, Whipple, & Swink, 2017). To create an integrated supply chain the buying organisation has to invite its business partners into their organisation. This goes beyond just sharing information about the products and requirements thereby including them into their business activities. This integration does come with the challenge since there is no reciprocity from the business partners. The business partners are provided extensive information about the inner workings of the buying organisation while they can choose to remain firewalled. This is a unique problem since the objectives of both parties may not be always in line with each other.

There is also an issue of transparency which needs to be addressed. The question of "how much can I actually trust the information coming from my supply chain partner?" is a difficult question for any organisation to answer. One of the solutions to such a conundrum is the use of modern technology such as blockchain. Many organisations are now looking at blockchain to ensure the validity of the information shared across organisations. Recently Walmart had implemented blockchain in collaboration with IBM to track the movement of produce from Chinese farms to shelves(Jing, 2017).

In this article the authors have tried to discuss the impact of blockchain technology on supply chain management. In the first section the paper,blockchain is described and its impact on supply chain processes of modern digital supply chain is discussed in the second section. The paper concludes with a discussion on the enablers and challenges of a blockchain implementation.

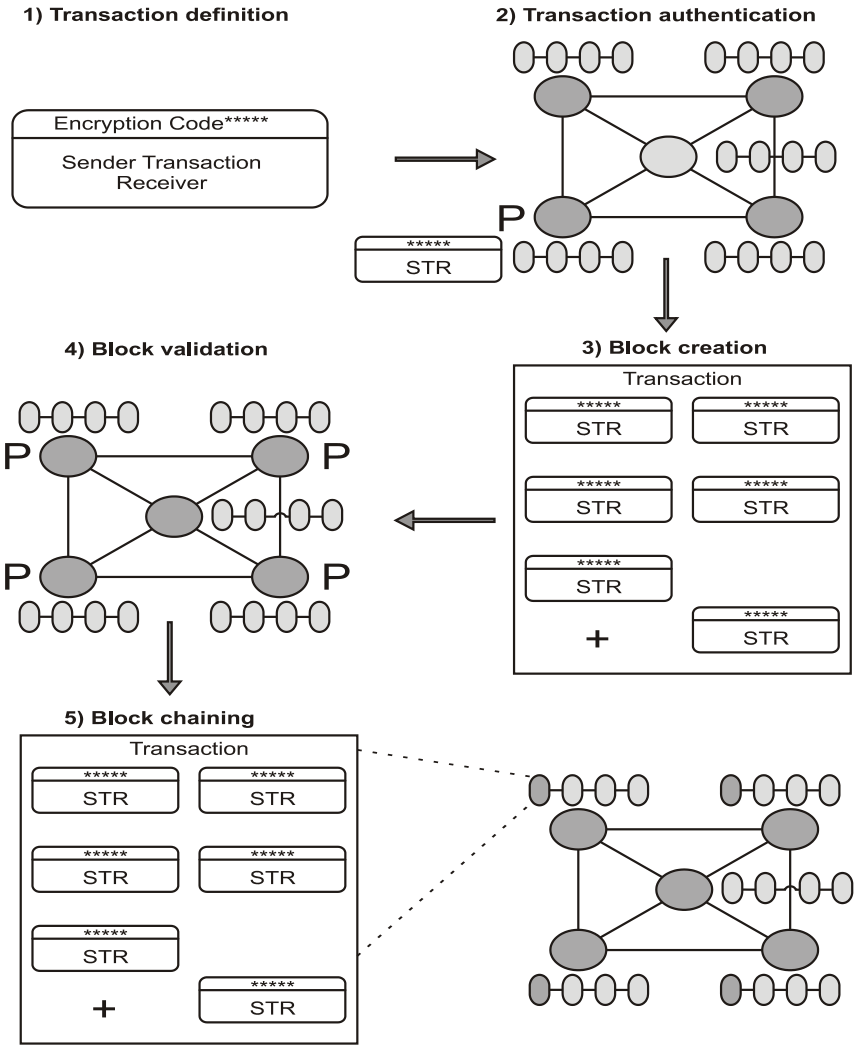
Blockchain Technology

The last two decades of technological innovations in the arena of peer-to-peer (P2P) networks and cryptography has led to the development of the blockchain. The fundamental technological principle of blockchain is the distributed, encrypted database, which cannot be reversed and is incorruptible. The following four technological concepts form the underpinnings of Blockchain technology;Decentralized Databases,Blockchain, Proof of Work/Stake and Smart Contracts(Morabito, 2017). Bitcoin was the first system to utilise the blockchain data structure and has become the blueprint for future blockchain implementations.

The starting point of the blockchain is the concept of Distributed Ledger Technology in which each participant of the P2P network has access to a shared ledger. This provides a secure environment to perform transactions without relying on a third party service provider (Ølnes, Ubacht, & Janssen, 2017). Every transaction performed in the network uses public key cryptography and digital signatures to validate the transaction.

The process of validation of the transaction is based on decentralized consensus. Instead of the traditional centralised consensus which was built on database rules; authority and trust of ensuring validity of recording transaction is moved to the decentralized network. Each node in the network is enabled to record transactions continuously and sequentially in a public "block" creating a unique "chain". Each successive block contains the unique fingerprint of the previous code in an encrypted format (hash). This combination of cryptography and blockchain system removes the need for a centralised intermediary for authentication of transactions(Mougayar, 2016).

In order to ensure the validity of information being created by the nodes, blockchain can use the network security protocol called "proof of work". This protocol essentially prevents attackers from creating transactions which are not authenticated. This protocol uses computational power from all the nodes to solve a complex mathematical function which forms the prerequisite for the proof of work scheme. Proof of stake scheme serves as an alternative to proof of work scheme which revolves around the entities that holds stake within the network. In certain conditions a hybrid of both the schemes can also be used to authenticate the transaction(Morabito, 2017). The generalised overview of the blockchain transaction is depicted below.



Adapted from : Morabito, V. (2017). Business Innovation Through Blockchain. Cham: Springer International Publishing.

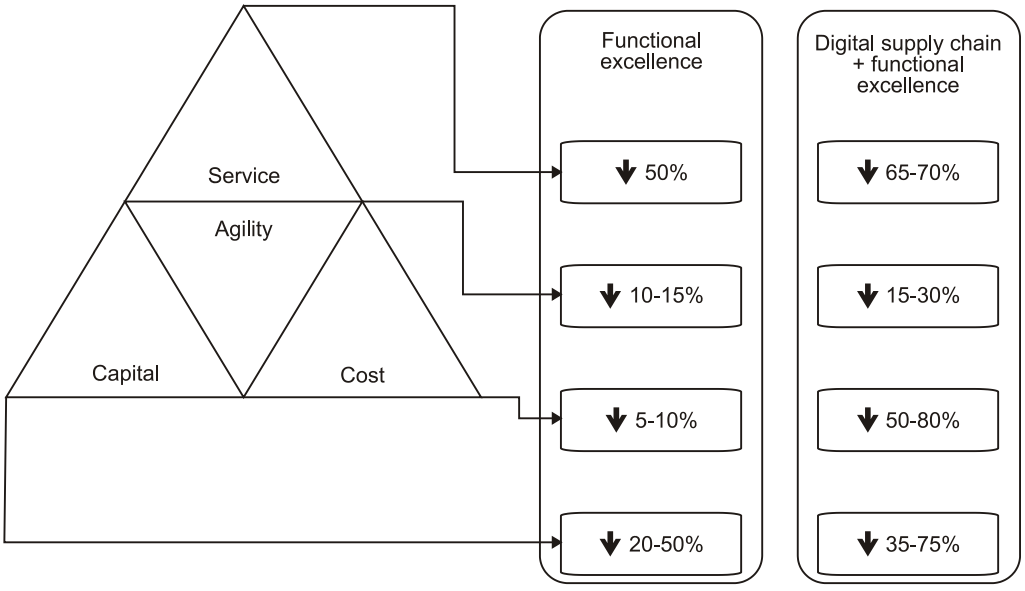
This decentralized ledger technology has already found use in smart contracts. Smart contract has been defined in the work of (Ølnes et al.(2017) as a "mechanism involving digital assets of two or more parties where some or all parties put the assets in and assets are automatically redistributed among those parties according to a formula based on certain data that is not known at the time of the contract is initiated". Use of blockchain in smart contracts enables the correct execution of the contracts when the pre-conditions are validated by all parties in the network.

The use of blockchain systems has also fundamental economic benefits as well. With no centralised intermediary involved there is no cost of verification. For example, every time there is a transfer of funds using banks, both the involved banks take a service charge which is considerably minuscule. However with blockchain this cost of verification (service charge) will be zero. Blockchain can also be considered as a general purpose technology i.e. it can be used to create a platforms without a powerful intermediary wherein the privacy risk and censorship risk is drastically reduced thereby reducing the cost of networking (Catalini & Gans, 2016; Chen, 2018).

Contemporary literature is littered with examples of how blockchain systems can be used to create a digital platform where authenticated transactions and records could be created(Lemieux, 2016). Sullivan & Burger (2017)detailed the efforts of the Estonian government to create a blockchain based e- residency program. In the Indian context, the Government of Andhra Pradesh has launched an ambitious scheme to use blockchain technology to manage land records and streamlining vehicle registrations(Haridas, 2018). The works of Guo & Liang (2016) and Petersen & Jansson (2017)have detailed the impact of blockchain technology on financial services industry beyond cryptocurrencies. Basden & Cottrell (2017)also talk about how blockchain could modernize the utilities grid to create a new era of decentralized power. Whereas Sun, Yan, & Zhang (2016) have identified the benefits of using blockchain based sharing services that can benefit smart cities.In all the above examples the traditional centralised intermediary based authentication is replaced with blockchain. In all cases the authors have identified that the ability to create transaction which are authenticated increases the transparency of the transaction and the underlying service as well.

Supply chain 4.0

Introduction of cyber-physical system in production and operations environment with the aim of interconnecting human beings and machines in a globally accessible network is referred to as industry 4. 0. The technologies involved in industry 4. 0 include Advanced Robotics, Artificial Intelligence, Hi-Tech Sensors, Cloud Computing, Internet of Things (IoT), Data Capture and Analytics, digital fabrication, mobile devices, Software As A Service and blockchain(Tjahjono, Esplugues, Ares, & Pelaez, 2017). Supply chain 4. 0 is the application of the above mentioned technologies in supply chain management to improve performance and customer satisfaction (Alicke, Rachor, & Seyfert, 2016). Supply chain 4. 0 creates a disruption in the traditional supply chain environment which requires organisations to radically rethink and redesign their supply chain. Alicke et al. (2016) and Tjahjono et al. (2017)also identified the potential cost reduction in various domains of supply chain. The summary of the same is presented below.



Adapted from Alicke, K., Rachor, J., &Seyfert, A. (2016). Supply Chain 4.0 - the next-generation digital supply chain. McKinsey & Company, (June).

The supply chain 4. 0 benefits have been achieved on the traditional data infrastructure for business intelligence. The traditional infrastructure relies on centralised data repositories which connects all the partners of the supply chain. However centralised system could be easily manipulated by any of the business partners rendering the data untrustworthy. With the use of blockchain in supply chain management an organisation can create decentralized platform for recording transactions that cannot be manipulated. The transparency that the blockchain system provides will enable organisations to improve the supply chain itself.

The following three studies are of particular interest for this article. The first study done by Bocek, Rodrigues, Strasser, & Stiller (2017) explains the use of blockchain system in Pharma supply chain. In their work, the authors were able to present the case of a start-up that uses IoT sensor devices to leverage blockchain technology to bring about the benefits of fraud detection and identity management. The second study conducted by Tian (2016)details the utilisation and development of RFID based blockchain system to build agri-food supply chain traceability. A similar conceptual study conducted by Tieman & Darun (2017)detailing how blockchain system could be used to modernize the halal supply chain.All three studies look into the different parts of the supply chain's transparency issue. The benefits of blockchain technology are not limited to transparency alone but also include durability, immutability and process integrity(Abeyratne & Monfared, 2016). For example, use of blockchain makes it much more difficult for illicit or counterfeit products to enter an otherwise legitimate supply chain(Apte & Petrovsky, 2016; Lu & Xu, 2017).Having a transparent supply chain enables an organisation to plan better. In a typical supply chain, multiple parties are involved and this generates extensive amounts of documentation. Small error in the paper documents may result in delays or hold up of payments. Using blockchain eliminates this chance of error thereby reducing the extra price of verification which is required for paper based documents. Blockchain based systems can also reduce the procure-to-pay gaps with the use of smart contracts. This validated data storage provides organisations to create better data analysis platforms which can reduce the inventory cost by better forecasting(Ernst and Young, 2017; IBM Insitute for Business Value, 2016).

Enablers and challenges

To understand the enablers for blockchain implementation within a supply chain we can consider the work of Wang, Chen, & Xu (2016) where the authors attempt to map blockchain implementation with the capability maturity model. Wang, Chen, & Xu (2016) identified four categories and their corresponding maturity levels.This model can be used to understand the enablers within the blockchain implementation. The first of the categories is network; with the blockchain, organisations will have to transform their existing centralised networks to enable peer to peer communication. Second category is the information systems wherein the authors have identified both technical and managerial parameters. The chief among the technical parameters is the requirement of upgrading the infrastructure which includes the computer systems, interfaces and storage. There is also requirement that blockchain system should not be standalone which requires extensive integration across the legacy systems. Third category deals with the computing methodologies. With blockchain, generating standards that are acceptable across companies is a challenge (Alicke, Davies, Leopoldseder, & Niemeyer, 2017). The computational complexity involved in managing a complex blockchain is not just limited to the volume and the speed it extends to ensuring data accuracy as well. Fourth category is the security and privacy category. Using a public blockchain would render confidential information at risk of exposure. The complexity of securing all the nodes in the network is also extensive.

To add to the work previously done byWang, Chen, & Xu (2016), we can also add the fifth category of skills. With the complete redesign of the supply chain environment the employees within all the participating organisations have to develop new skills to leverage the benefits blockchain. Better cross functional communication and leadership skills would strengthen

the collaboration between the relevant parties and prepare the organisation for the digital transformation which is required.

While considering blockchain for adoption it's important for an organisation to understand what is the problem that they are trying to solve. Digital transformation of the entire supply chain involves both high complexity as well as high novelty whereas single use systems require far less effort from the organisations (Iansiti, Lakhani, & Mohamed, 2017).Hence to have a successful implementation of blockchain systems, organisations need to have maturity in all categories described above along with a clear business rationale for the implementation.

One of the critical challenges involved in the implementation of blockchain systems is the cost. As discussed before blockchain systems require complete overhauling of the IT infrastructure which is expensive (Alicke et al., 2017). The second challenge is with the technology itself; the network based validation reduces the throughput of blockchain transactions as well as latency. With the current setup of blockchain achieving the performance parameters of centrally controlled systems is extremely difficult (Mendling et al., 2018). The regulatory uncertainty is definitely a challenge within the Indian context as Indian government has recently decided not to recognise cryptocurrencies which is based on blockchain. The fact that blockchain implementation involves multiple business partners is a barrier to the implementation of the project. Combined with the lack of acceptance within the industry driven primary by the uncertainty of benefits makes the implementation project extremely challenging (Kersten, Blecker, Ringle, Hackius, & Petersen, 2017). Even with these challenges the benefit of creating a transparent supply chain is pushing major players in the market to adopt blockchain as a viable alternative to traditional information systems.

References

1. Abeyratne, S. A., & Monfared, R. P. (2016). Blockchain ready manufacturing supply chain using distributed ledger. International Journal of Research in Engineering, 05(09), 1-10.
2. Alicke, K., Davies, A., Leopoldseder, M., & Niemeyer, A. (2017). Blockchain technology for supply chains - A must or a maybe? McKinsey & Company Operations Extranet, 1-10.
3. Alicke, K., Rachor, J., & Seyfert, A. (2016). Supply Chain 4.0 - the next-generation digital supply chain. McKinsey & Company, (June).
4. Apte, S., & Petrovsky, N. (2016). Will blockchain technology revolutionize excipient supply chain management? Journal of Excipients and Food Chemicals, 7(3), 76-78.
5. Basden, J., & Cottrell, M. (2017). How utilities are using blockchain to modernize the grid. Energy Journal, 3, 7-9.
6. Bocek, T., Rodrigues, B. B., Strasser, T., & Stiller, B. (2017). Blockchains everywhere - A use-case of blockchains in the pharma supply-chain. In IFIP/IEEE International Symposium on Integrated Network and Service Management (pp. 772-777).
7. Catalini, C., & Gans, J. S. (2016). Some Simple Economics of the Blockchain. National Bureau of Economic Research.
8. Chen, Y. (2018). Blockchain tokens and the potential democratization of entrepreneurship and innovation. Business Horizons, 61(4), 567-575.
9. Ernst and Young. (2017). How blockchain is revolutionizing supply chain management.
10. Gunasekaran, A., Subramanian, N., & Rahman, S. (2017). Improving supply chain performance through management capabilities. Production Planning & Control, 28(6-8), 473-477.
11. Guo, Y., & Liang, C. (2016). Blockchain application and outlook in the banking industry. Financial Innovation, 2(1), 24.
12. Haridas, S. (2018, March). This Indian City Is Embracing BlockChain Technology -- Here's Why. Forbes.
13. Iansiti, M., Lakhani, K. R., & Mohamed, H. (2017). The truth about blockchain. Harvard Business Review, 95(1), 118-127.

14. IBM Insitute for Business Value. (2016). Trust in trade- Toward stronger supply chains.
15. Jing, M. (2017, November 6). Here's a peek at Walmart's game-changing plan to trace food from China's farms to store shelves. South China Morning Post.
16. Keah Choon, T. (2002). Supply chain management: Practices, concerns, and performance issues. Journal of Supply Chain Management, 38(February), 42-53.
17. Kersten, W., Blecker, T., Ringle, C. M., Hackius, N., & Petersen, M. (2017). Blockchain in Logistics and Supply Chain: Trick or Treat? Digitalization in Supply Chain Management and Logistics, 9783745043(Proceedings of the Hamburg International Conference of Logistics (HICL)), 18. http://doi.org/10.15480/882.1444
18. Lambert, D. M., & Cooper, M. (2000). Issues in Supply Chain Management. Industrial Marketing Management, 29(1), 65-83.
19. Lambert, D. M., Cooper, M. C., & Pagh, J. D. (2000). Supply Chain Management: Implementation Issues and Research Opportunities. The International Journal of Logistics Management, 9(2), 1-20.
20. Lambert, D. M., & Enz, M. G. (2017). Issues in Supply Chain Management: Progress and potential. Industrial Marketing Management, 62, 1-16.
21. Lemieux, V. L. (2016). Trusting records: is Blockchain technology the answer? Records Management Journal, 26(2), 110-139.
22. Lu, Q., & Xu, X. (2017). Adaptable Blockchain-Based Systems: A Case Study for Product Traceability. IEEE Software, 34(6), 21-27.
23. Mendling, J., Weber, I., Van Der Aalst, W., Brocke, J. V, Cabanillas, C., Daniel, F., … Zhu, L. (2018). Blockchains for business process management - Challenges and opportunities. ACM Transactions on Management Information Systems, 9(1), 1-16.
24. Morabito, V. (2017). Business Innovation Through Blockchain. Cham: Springer International Publishing.
25. Mougayar, W. (2016). The Business Blockchain: Promise, Practice, and Application of the Next Internet Technology. Hoboken, New Jersey: John Wiley & Sons, Inc.
26. Ølnes, S., Ubacht, J., & Janssen, M. (2017). Blockchain in government: Benefits and implications of distributed ledger technology for information sharing. Government Information Quarterly, 34(3), 355-364.
27. Petersen, O., & Jansson, F. (2017). Blockchain Technology in Supply Chain Traceability Systems: Developing a Framework for Evaluating the Applicability. Lund University.
28. Sullivan, C., & Burger, E. (2017). E-residency and blockchain. Computer Law and Security Review, 33(4), 470-481.
29. Sun, J., Yan, J., & Zhang, K. Z. K. (2016). Blockchain-based sharing services: What blockchain technology can contribute to smart cities. Financial Innovation, 2(1), 26.
30. Tian, F. (2016). An Agri-food Supply Chain Traceability System for China Based on RFID & Blockchain Technology. In 13th International Conference on Service Systems and Service Management (pp. 1-6).
31. Tieman, M., & Darun, M. R. (2017). Leveraging Blockchain Technology for Halal Supply Chains. Islam and Civilisational Renewal, 8(4), 547-550.
32. Tjahjono, B., Esplugues, C., Ares, E., & Pelaez, G. (2017). What does Industry 4.0 mean to Supply Chain? Procedia Manufacturing, 13, 1175-1182.
33. Turkulainen, V., Roh, J., Whipple, J. M., & Swink, M. (2017). Managing Internal Supply Chain Integration: Integration Mechanisms and Requirements. Journal of Business Logistics, 38(4), 290-309.
34. Wang, H., Chen, K., & Xu, D. (2016). A maturity model for blockchain adoption. Financial Innovation, 2(1), 12.

Bottle Neck Elimination In Production Management

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Abstract

In the world of competitive business, cost minimization and efficient management of manufacturing unit is a very big task. Identifying and removing the bottleneck is critical to a business. It is an ongoing process which needs to be carried throughout the year in order to utilize resources of production and maximize profit of the firm.

Bottlenecks are obstacles, which reduce the entire capacity of the system. Bottlenecks are always present in the system in different forms like constraints of management, people, material, equipment, process, policy, environment etc. Its forms can be different according to the type of business but the methods to identify can be same.

A congestion, encountered in any system from computer networks to a factory assembly line, is described with the term "bottleneck". In a system that is subject to a bottleneck, there is always a process, task, machine, etc. acting as the limiting factor for a greater throughput, thus determining the capacity of the entire system. Knowing about the bottleneck allows increasing the flow through improvement of a single process without having to intervene the whole system. In other words, the amendments made on any point other than the bottleneck, will not contribute to the output (Goldratt and Cox's 1984).

Introduction

Production lines involve various parameters such as processing times and setup times, which render keeping the balance of the line a serious challenge. As suggested by Van Delft et al., (2008) solution of such problems by means of mathematical modelling and similar deterministic methods in polynomial time is not possible due to their complexity and stochastic nature instead heuristic and approximate methods can be used for this type of problems. Goldratt and Cox's (1992), Theory of Constraints (TOC) is one of the heuristic methods which can be easily implemented to a simulation environment. Therefore, the problem, main theme of which is based on the elimination of the bottlenecks, is solved using TOC by means of a simulation based heuristic method. TOC has been used in various topics such as health care, finance, production, operations management, and quality management (Mabin and Balderstone (2003); Orouji (2016).

Bottleneck elimination process has three main steps which should be investigated thoroughly. These are material, machine and man (workforce) (Üstün 2005). Bottleneck detection and elimination methods have been studied since the industrial revolution, since detection of a bottleneck in a production system is a complex task. In the literature, there have been numerous studies about current bottleneck detection methods which can be divided into two categories as analytical and simulation-based (Li et al., 2007).

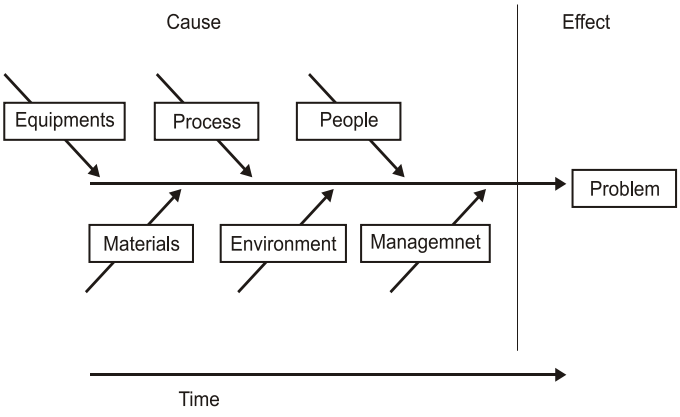
Approaches to find Bottleneck

Bottleneck is the main reason for slowdown of the production in a manufacturing unit. It has to be identified, analyzed and needs to be resolved on the basis of facts. Once the bottleneck is identified correctly and efficiently; It helps to reduce production cost increasing overall efficiency of the system. There can be long term or short term constraints in the system.

Bottleneck can be identified in a process/system by following the simple approach as follows:

1. **Fishbone diagram**

   "Fishbone diagram is a tool that provides a systematic and graphic way of identifying possible causes for a problem, using categories to focus and structure the thinking, in order to work toward determining root causes. Also known as the Ishikawa diagram (After Dr. Kaoru Ishikawa, the Japanese quality control statistician credited with investing it) and cause effect diagram" John Kamauf, (2010). According to this approach there should be a cause to see the effect. Under this approach, different data related to the problem are collected. These data are analyzed precisely in order to find the root cause for that particular problem (Peter D.Mauch, 2010).



Fishbone diagram (Peter D. Mauch,2012)

2. **Theory of Constraints**

   In a production or service system all processes are related with its predecessor and successor if available. Each process has a limited production capacity within its constraints. In almost all cases there is only one process that limits or restricts the performance of entire system Theory of constraints is based on the premise that the rate of goal achievement by a goal oriented system is limited by at least one constraint and adopts the common idiom as "a chain is no stronger than its weakest link". That is to say systems or part of systems are vulnerable because the weakest element or part can always damage or break them or at least adversely affect the output. In other words if there was no obstacle that prevents a system from achieving higher throughput, its throughput would be infinite which is not possible in a real-life system. Overall throughput can be increased only by increasing the flow through the constraint (Goldratt and Cox 1984).

Assuming the goal of a system has been articulated and its measurements defined, the logical thinking is based on a continuous improvement cycle with five steps (Goldratt and Cox 1992).

1. Identify the bottleneck,
2. Decide how to exploit the bottleneck,
3. Subordinate everything else in the system to the previous step,
4. Elevate the bottleneck, and.
5. Evaluate if the bottleneck has been broken, and return to the beginning.

Types of Bottleneck in Manufacturing

There can be many different types of bottleneck in manufacturing industry as for example labor, time, material or machine etc. In general, different forms of bottleneck can be described as below:

People constraints

People are one of the most important factors of the production and difficult to manage in an effective way. In any manufacturing unit there are different people working together with different experience, background and educational qualification. Each people have their own way of motive towards work. So in an manufacturing unit different constraints of bottleneck can be due to union problem, illness, unexpected vacancy, hiring and training problems etc.

Material constraints

Production capacity is highly affected by the poor management of inventory, inadequate forecast, inefficient supplier, poor production planning,

inadequate finance, changing product mix etc. one or all of these factors may cause improper flow of materials resulting reduction in overall production capacity and increasing lead time.

Equipment constraints

Equipment for manufacturing should meet the current demand. The machines and equipment should be flexible to expand in order to meet future demand, but sometimes due to inappropriate planning, break down of machine, unavailability of spare parts, improper maintenance, low level of infrastructure machines and equipments becomes a constraint of manufacturing.

Process constraints

Process constraints in manufacturing unit can be due to quality problems, insufficient resources, poor plant layout and inflexible process (not able to change according to time and market demand). The constraints can occur anywhere in the process, supply chain, customer, supplier etc. Hence any kinds of problems affecting entire output of the system is known as process constraints.

Management constraints

Efficient management means better performance resulting in higher output and profit. Overall management of a manufacturing unit should comply with aim and objective of the company. Sometimes the management is not be able to meet the needs of the system and becomes a constraint causing different problems like demotivation of employee, ineffective flow of material and information etc.

Policy constraints

Policy of a manufacturing unit should meet the goal of company, it should be clearly defined what actions are to be taken at what conditions. Generally (not always) the management is not able to define all the issue in specific way, this may leads to a constraint in manufacturing. It is the most common form of constraint.

Environmental constraints

Operating environment of any business includes competitors activities, rules and regulations formulated by government, labour law, union law, customer demands & expectation, economical situation, technological improvement, development in infrastructure etc. At the same time the firm should bear the social responsibilities. All these factors affecting the activities of business are called environmental constraints.

Strategies to increase capacity at the Bottleneck

Here are some ways to increase capacity at the bottleneck:

- **Add resources at the bottleneck operation.**

  The number of resources can be increased by performing the operation without adding head count if an employee can be assigned from another operation to help perform the bottleneck operation during unutilized time.

- **Always have a part for the bottleneck to process.**

  Be sure to monitor the WIP in front of the bottleneck and that it always has a part to process. This involves managing the resources feeding the bottleneck to ensure that nothing is slowing them down, such as equipment failures. If scheduling overtime, make sure that the bottleneck has enough parts to process during the overtime period.

- **Assure that the bottleneck works only on quality parts.**

  Don't waste the bottleneck's time on bad parts. If quality checks are required in the process, place them before the bottleneck operation. This increases the thru put of the process.

- **Examine production schedule.**

  If a process is used to make several different products that use varying amounts of the bottleneck's time, then an analysis of the production schedule can create a product mix that minimizes overall demand on the bottleneck.

- **Increase the time the operation is working.**

  Keeps the bottleneck resource working. Always have someone assigned to the operation, including

during scheduled breaks and lunch periods, and use overtime if necessary. Though doing so won't technically reduce the cycle time, it will allow the bottleneck to produce when other operations are idle. The more time the bottleneck works, the more parts the system produces.

- **Minimize downtime.**

  Avoid scheduled and unscheduled downtime. If the bottleneck equipment suffers a breakdown during scheduled operations, dispatch repair personnel immediately to get the bottleneck up and running. This may involve keeping replacement parts on hand and performing preventive maintenance on equipment. In addition, changeover times can be reduced from one product to the next, because this time takes away from actual production time.

- **Perform process improvement on the bottleneck resource.**

  A good place to start is to document everything the resource does. Then eliminate all non-value-added activities and look for ways to reduce the time it takes to do value-added activities by getting rid of all the waste in the operation. This results in a shorter cycle time. Process improvement is almost always focused on eliminating waste.

- **Reassign some of the bottleneck's work.**

  If possible, break the operation down into smaller activities and reassign some to other resources. Doing so results in a shorter cycle time and increased capacity.

References

1. Goldratt EM, Cox J. The goal: excellence in manufacturing. Great Barrington: North River Press; 1984.
2. Goldratt EM, Cox J. The goal: a process of ongoing improvement. Great Barrington: North River Press; 1992.
3. Li L, Chang Q, Ni J, Xiao G, Biller S (2007) Bottleneck detection of manufacturing systems using data driven method. In: IEEE international symposium on assembly and manufacturing (ISAM'07). IEEE, Ann Arbor, p 76-81.
4. Mabin VJ, Balderstone SJ. The performance of the theory of constraints methodology: analysis and discussion of successful TOC applications. Int J Oper Prod Management 2003;23(6):568-595. doi: 10.1108/01443570310476636.
5. Manager's guide to Operations Management, John Kamauff, 2010, published by McGrawHill.
6. Orouji M. Theory of constraints: a state-of-art review. Accounting. 2016;2(1):45-52. doi: 10.5267/j.ac.2015.12.004.
7. Quality management theory and application, Peter D. Mauch, 2010 published by CRC press.
8. Üstün S (2005) Analysis by simulation of bottleneck problems in a job shop production system. MSc Thesis, Institute of Science, Karadeniz Technical University, Trabzon
9. Van Delft C, Dallery Y, Youssef KH, et al (2008) Priority allocation decisions in large scale MTO/MTS-multi-product manufacturing systems: technical report.

A Study on Supply Chain in Food Industry

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Abstract

India has a huge opportunity to become a leading global food supplier if only it has the right marketing strategies and also agile, adaptive and efficient supply chain. The food supply chain is complex with perishable goods and numerous small stakeholders. In India, the infrastructure connecting these partners is very weak. Each stake holder: farmers, wholesalers, food manufacturers, retailers all work in silos. Also, demand forecasting is totally absent and the farmers try to push what they produce into the market. Supply chain Management is very crucial factor in food industry; this study proposes to understand food supply chain management system and analyzes the bottlenecks of Supply Chain Management in Food industry. It also makes an attempt to Study the SCM models for food industry.

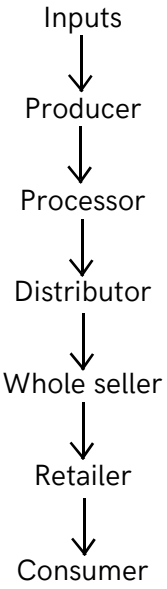
Introduction

Effective supply chain management is essential for the food industry because of the fact that the food gets spoiled. The business should take care that the right products reaches the right customer at the right price and at the right time in right condition and this can be done by managing the supply chain effectively. This improves the customer satisfaction.

The supply chain process involves the two way flow of goods or services and the information between the manufacturers and the customers. Lot of companies in the food industry Nestle, Unilever, Magnolia etc., is getting the feedback from the customers and they utilize the suggestions given by the customers in the development of the products. Globalization has its impact on the supply and demand in the food industry; globalization of the supply chain means transporting food across the world to be processed and back again to the country of origin to be sold can make environmental and commercial sense. Ineffective and incompetent supply chain management can lead to the bankruptcy of the business. The technological change in the supply chain management improves the communication, and brings the significant changes in the relationship between the partners in the supply chain, enhances the productivity and the profits of the businesses in the food industry.

A food supply chain is a network of food-related business enterprises through which food Products move from production through consumption, including pre-production and post-consumption activities.

Typical links in the supply chain are:



For example, a food supply chain featuring pork products might include feed suppliers or veterinarians, a cooperative of farmer producers, meat packing and fabrication plants, food distributors/marketers, supermarkets and consumers. Preproduction activities might include university-based research and development, and post-consumption activities could include waste disposal and recycling, while government regulations would likely be engaged throughout the chain.

India has a huge opportunity to become a leading global food supplier if only it has the right marketing strategies and also agile, adaptive and efficient supply chain. India has diversity in terms of its population with several religious groups with different food habits and culture. This diversity should be used to advantage to become the "Halal FoodHub", the "Organic food hub", the "Vegetarian food hub" the "Sea food hub" among others.

The food supply chain is complex with perishable goods and numerous small stakeholders. In India, the infrastructure connecting these partners is very weak. Each stakeholder: farmers, wholesalers, food manufacturers, retailers all work in silos. Also,demand forecasting is totally absent and the farmers try to push what they produce in to the market. Data integration, financial flow management, supply-demand matching, Collaborative forecasting, information sharing, goods movement synchronization through the efficient transport scheduling, are very well practiced in high technology industries with immense benefits. These best practices should find their way in to the food supply chains.Cold chain logistics supply chains should take advantage of technology improvements in data capture and processing, product tracking and tracing, synchronized freight transport transit times for time compression along the supply chain and supply - demand matching. Also, the supply chain needs to be designed and built as a whole in an integrated manner with the processes of new product development; procurement and order to delivery processes well designed and well supported using IT tools and software.The food supply chain can be subdivided into a number of sectors, agriculture,horticulture, fisheries and aquaculture are the primary producers, the manufacturers who process the food for ready to eat or cook format together with the packaging companies are in the intermediate stage, and the retailers, wholesalers and caterers are in the last stage of the supply chain. At each stage value is added by the new ownership such as processors, distributors, packers, etc. and the cost and profits are part of the business. The food items can go to the final consumer from any of the three stages: from farmers in the form of fresh produce, to the caterers directly from the manufacturer, and finally from the retailer (small or big) to the consumer.

The movement of goods from one stake holder to another is facilitated by the in house or third party logistics service provider. The information management is done by the all stake holders and their information systems are all interconnected seamlessly. What we described above is the state of food chain in the advanced countries. In India and other developing countries, the state of food chain is more fragmented and primitive.

Food Supply Chain

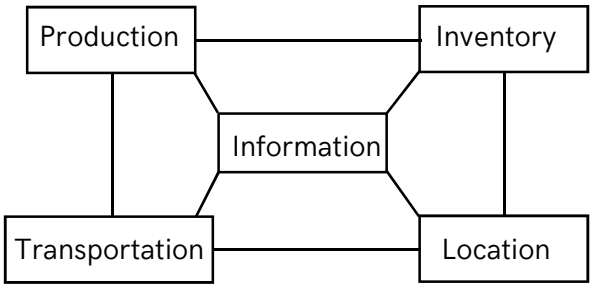
High energy prices, poor harvests, rising demands for growing populations, use of biofuels and export bans have pushed up prices. The food supply chains aiming at maximizing the 'value creation' are heavily reliant on imports and a multi-tiered supply chains. Chain starts with a farmer using farm supplies like machinery, seeds, fertilisers, pesticides etc. The farmers then use logistics providers to transport the food either directly to the food processor or indirectly through storage and marketing via a cooperative group or consolidator. The involvement of the farmer is often limited up to the processor and does not extend down to the customer or even the distributor. This limits the traceability and transparency of a typical supply chain. The major forces affecting the traceability are identified by Roth et al (2008) as globalization, consolidation and commoditization. Globalization refers to the movement of the food supply chain model from regional, as witnessed few decades ago, to global

in terms of both importing raw materials to reduce cost as well as exports of final products to increase revenue at all levels of the supply chain. Consolidation refers to the growing trend amongst entities within the food chain to combine as many food categories as well as levels of the supply chain in pursuit of higher margins. This has led to the dominance of huge enterprises at each level. For example within retail Tesco consists of 3278 stores worldwide and employs 440,000 people, Cargill has diversified segments of farm supplies, marketer, storage and processing. It is currently the largest privately owned company in the US. It operates out of 67 countries worldwide and employs over 160000 people. Lastly commoditization refers to the distinction between food products as either value added or commodities. Value added goods are those where the specific nature of the food is of central importance to customers for e.g. vegetables, certain meats etc. On the other hand commodity foods are undifferentiated goods for e.g. grain. These compete mostly on price and are aggregated from multiple global sources and standardized.

Supply Chain Management Risks

1. Internal to the firm:
   i) Process
   ii) Control
2. External to the firm but internal to the Supply network:
   i) Demand
   ii) Supply
3. External to the network:
   i) Environmental

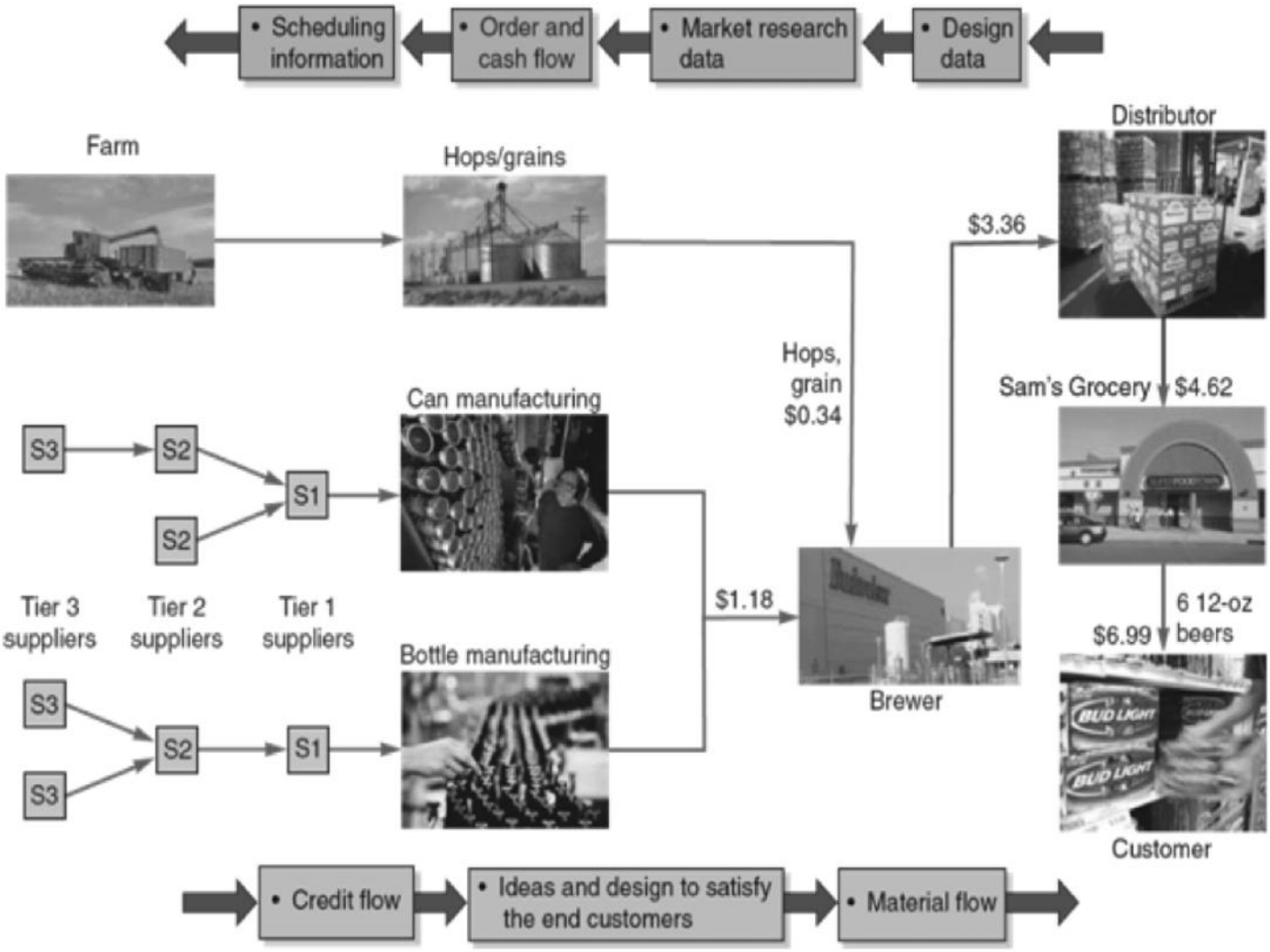
Major Supply Chain Drivers



- **Production**
- **Information**
- **Inventory**
- **Transportation**
- **Location**

In today's business environment, an efficient and effective supply chain is a necessity for staying competitive in the market. Nevertheless, supply chain management in India is still in its early stages of deployment. Managing supply chain is a complex job as it includes and affects the entire business activities of an organization and its business partners. Understanding the dynamics and complexity of the supply chain is quite challenging and a prerequisite for any supply chain endeavor.

Typical Supply Chain of Food industry



Source: **Pearson Education, Inc. publishing as Prentice Hall**

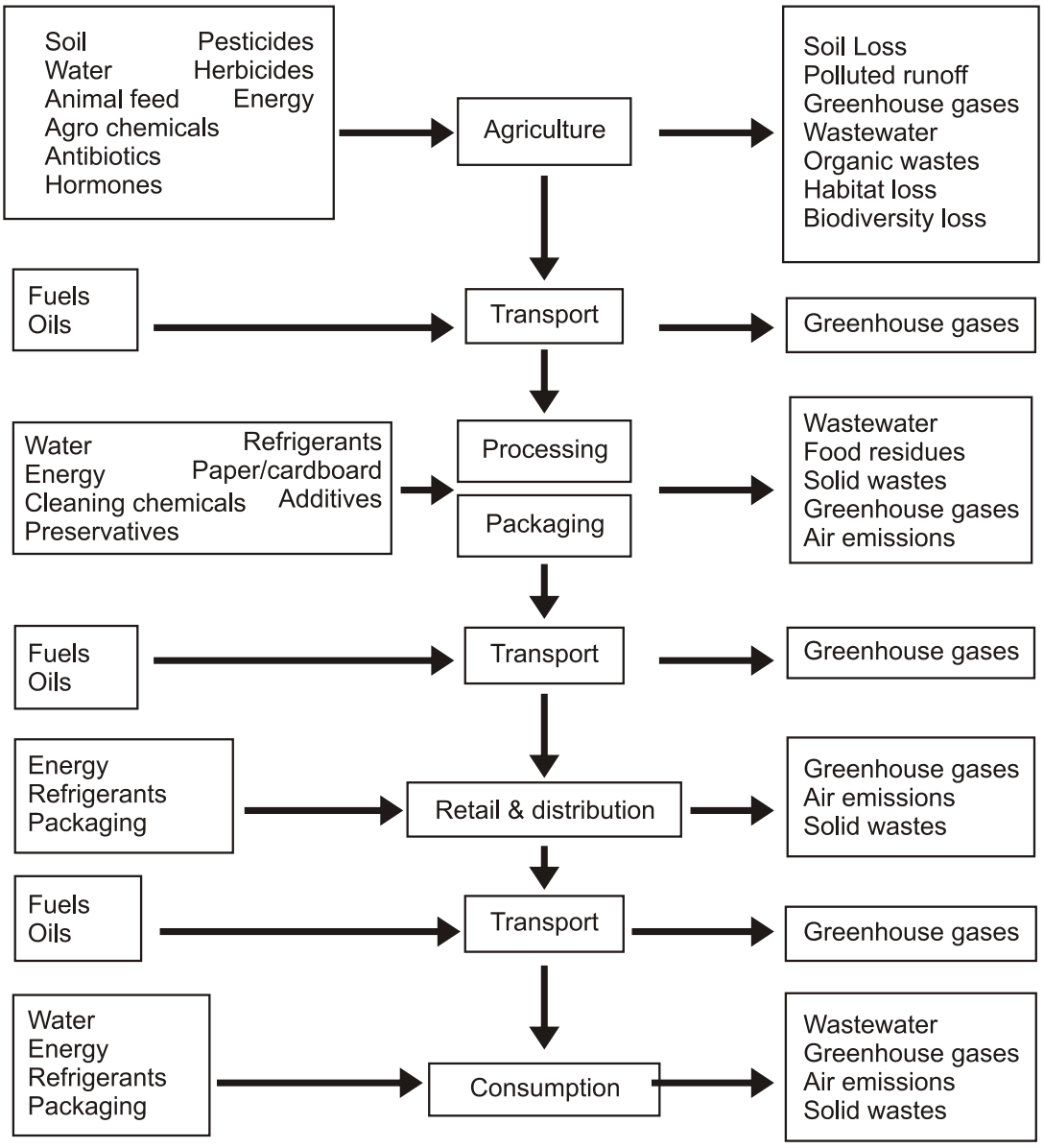
Supply Chain Economics

Supply Chain Costs as a Percent of Sales

Industry	% Purchased
All industry	52
Automobile	67
Food	60
Lumber	61
Paper	55
Petroleum	79
Transportation	62

Source: Pearson Education, Inc. publishing as Prentice Hall

Supply Chain Management Flowchart



Source: (AGRIPRODUCTS EXPORTS Marketing, SCM & Quality Management ppt by Amira Group)

With regards to Food Products, the logistics activities are carried out by different operators such as manufacturers, distributors, service suppliers, consumers, and could be grouped in 7 categories-

- Order Management (Order receipt, elaboration, transmission, implementation and invoicing)
- Management & Stock Control (Definition of supply timing and quantity, inventory upload and download, products and packaging codification)
- Warehousing (Conservation of goods, qualitative and quantitative controls before shipment)
- Shipment (Activities related to product movement and shipment receipt)
- Packaging (Pallets)
- Delivery (Products delivery from the starting point, to the destination)
- Sales Returns Management and Waste Disposal

Conclusion

In today's business environment, an efficient and effective supply chain is a necessity for staying competitive in the market. Nevertheless, supply chain management in India is still in its early stages of deployment. Managing supply chain is a complex job as it includes and affects the entire business activities of an organization and its business partners. Understanding the dynamics and complexity of the supply chain is quite challenging and a prerequisite for any supply chain endeavor.

References

1. http://catalogimages.wiley.com/images/db/pdf/R0471235172.01.pdf retrievedon 25.12.2012
2. Supply chain Management Slides by Jeff HeylPearson Education, Inc. publishing as Prentice Hall.
3. http://www.hrmars.com/admin/pics/733.pdf retrieved on 23.12.2012.
4. Human Resource and skill requirement in the food processing industry (2022) by National Skill Development Corporation.
5. Ministry of Food Processing Guidelines Report.
6. IMaCS Analysis of MOFPI.
7. Workplace Organization and Human Resource Practices: The Retail Food Industry, Aver Ben-Nerd, Fan-in Kong, and Stacie Bossley, Working Paper 00-01, The Retail Food Industry Center ,University of Minnesota.
8. A Study on Turnover Intention in Fast Food Industry: Employees' Fit to the Organizational Culture and the Important of their Commitment(2012)Ramesh Kumar, Charles Ramadan,Peter Jacob, International Journal of Academic Research in Business and Social Sciences Vol. 2, No. 5.

E-Resources

9. http://iitkgp.ac.in/downloads/mdp_scm.pdf retrieved on 25.12.2012.
10. http://www.tpa-global.com/PDF/Slides/SupplyChain/100927_TPA_SalesPack-%20Food.pdf
11. www.infodev.org/en/Document.923.pdf
12. memberfiles.freewebs.com/.../supply%20chain%20in%20fast%20foo.
13. download.microsoft.com/download/.../MPI_Report_Food-Bev.pdf
14. www.iasms.in/pdf/nationalseminar.pdf
15. www.qub.ac.uk/research-centres/.../Filetoupload,170541,en.pdf
16. www.iiml.ac.in/events/C15_05_Nawab_Ali.pdf
17. AGRIPRODUCTS EXPORTS Marketing, SCM & Quality Management ppt by Amira Group.

A Paper On Blockchain Technology in Supply Chain Management

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Introduction

At the outset, it is essential to comprehend the de facto explication of Supply Chain Management. In a capsule version, it can be elucidated as all the manoeuvres and individuals entailed in fulfilling a customer's requisitions. The activities assuredly include procurement of raw materials, storage, work in process inventory, movement of finished goods, distribution, marketing and finally customer service. It is significantly vital to note that supply chain activities are not restricted to the aforementioned ones. It might also encompass other operations. For instance, let's say a customer visits a retail store to purchase a soap. The supply chain initiates when need is appeared in the customer. Consequently, he visits the retail outlet. This is the next step. Now the products in outlet might have been arranged through inventory which might have been supplied by distributor. Apparently, distributor might have been merchandised by the manufacturer. Manufacturers might have procured the raw materials from suppliers and who in turn might have procured by low tier suppliers. This is how supply chain operates. Customer is the most intrinsic part in this set-up.

Speaking on the part of block chain technology, it is the decentralised ledger which helps in distribution of digital information and avoids the possibility of it being copied. It was invented in the year 2008 to expedite the Bitcoin transactions. Over a period of time its applications in other areas have been realized and are being implemented. Blockchain technology diminishes human errors and frauds and it intensifies transferability, security and accountability by creating an eco-system between the parties involved. The rudimentary idea being, every transaction must be updated to the people involved.

Incorporating Block Chain Technology in Supply Chain Management

Supply chain is indisputably something which is very much tangled and clumsy in nature. Although companies have made enormous investments in digital framework, the discernment and visibility is still penurious. Analog gaps are the ones to be blamed here which exists within and across the enterprise. For instance, let's say a person has 500 litres milk and it has to be sent to processing in next step. But the other person is saying that he has already received the milk and processing has been started. Now, it is impossible for an inventory to exist same time at two places. In order to avoid such issues and frauds Blockchain technology has to be incorporated in supply chain management. Blockchain technology is going to metamorphose Supply chain management completely. The fundamental idea behind applying Blockchain technology in supply chain is, "No inventory can exist in two place at a same time."

Blockchain in supply chain finds it's applications in:

1. Procurement
2. Data and analytics
3. To avoid frauds

Speaking of procurement, Blockchain helps in documentation of assets while transferring. It also

helps in tracking the orders, returns, delivery and shipment details. It also increases transparency. These days we have very limited knowledge about how a product has been processed. Many food products claim to be organic. Blockchain assists in understanding whether the claimed thing is true or not. It increases security as well. Transparency and high end security are the two main forte of Blockchain. It also aids in linking the goods which are physical in nature with bar codes.

Uncertainties are almost inevitable in supply chain. Companies always maintain inventory to compensate uncertainties. A huge amount of money has to be invested in this. With Blockchain technology these uncertainties can be vanquished. The accuracy level is greater and forecasting is also better.

When it comes to payments, it takes ages between manufacturer and supplier. Third party has to be involved which adds up to addition cost and it is also time consuming. Analog gap is created. Blockchain aids in evading this issue by creating an eco-system amongst the parties involved. Blockchain homogenises logistic partners, banks, deliveries and payments.

As Blockchain is a decentralised ledger, no one can mishmash with the transactions. If any company tends to do so, it will be messing with its own ledger. The instant it doesn't sync with other ledgers, it will be automatically thrown out from the eco system.

Conclusion

As mentioned before, Supply chain happens to be an intrinsic part of every company. Much heed is paid to it in order to elude certain issues which weighs a lot on companies financially. Yet the metamorphosis can't happen overnight. Compulsively, many companies are experimenting with Blockchain lately. They also claim it to be beneficial. Executed accurately, it is not even that difficult to incorporate Blockchain in Supply chain. It just appendages the current Enterprise Resource Planning software. As digitalisation and globalisation are gaining momentum lately, it is indeed beneficial to give it a whirl.

Bibiliography

1. https://www.provenance.org/whitepaper
2. https://www2.deloitte.com/us/en/pages/operations/articles/blockchain-supply-chain-innovation.html
3. https://www.ey.com/Publication/vwLUAssets/ey-blockchain-and-the-supply-chain-three/$FILE/ey-blockchain-and-the-supply-chain-three.pdf
4. https://www.forbes.com/sites/bernardmarr/2018/03/23/how-blockchain-will-transform-the-supply-chain-and-logistics-industry/#224137075fec
5. https://www.logisticsbureau.com/how-blockchain-can-transform-the-supply-chain/
6. http://www.supplychain247.com/article/why_blockchain_is_a_game_changer_for_the_supply_chains

Impact of Digital Marketing on Truck Transportation Industry in India

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Abstract

In the present scenario of Information technology, it has nationally as well as globally turned over the entire working atmosphere. Electronic commerce paved a new way into the common man's life on the way how products and services are brought and sold in entire world market.Digital revolution has been changing the entire world style fundamentally. Our "Next big thing" would be changes that digitization brings to various segments of companies, governments, businesses, and the end user.Internet marketing or digital marketing refers to advertising, marketing and selling via the Web and email and other digital marketing mode to drive selling the product or service via electronic commerce to the outside world, in addition to the leads that arises out from Web sites or emails. Internet way of marketing and advertising are typically used as a conjunction for the earlier and traditional types of advertising that was common like radio, television, newspapers and magazines. The study spreads out in having a clear cut picture on the important platform of Digital market and also outline the modern way of marketing tactics used in the truck transportation industry in Coimbatore Dist, Tamil Nadu, with its benefits and finally render a suggestion to make the new entrepreneurs to get into the marketing field without burning their hands in the competitive business environment.

Introduction

Digital marketing is an emerging mode of the new face of marketing that has been widely used to push the products and services that is evolving to reach consumers using various types of digital marketing channels. It even further stretches out its arms where an internet is not even prominently required to advertise or market that includes mobile phones (both SMS and MMS), social media marketing, display advertising, search engine marketing and many other forms of digital media.

With the presence of digital media, consumers now need not simply just rely on company says about their brand but also is able to comprehend what the media, friends, associations, peers, etc., have to say regarding service or product at just a click on their mouse anytime and anywhere for a better and effective results. In other words, Digital marketing embodies a wide range of marketing tactics which is used by Internet as major uplifting medium in the progress of digital marketing in addition to mobile and traditional TV, newspaper and radio way of communicating the market to the common.

For instance, Canon iMage assist in sharing the consumers images to the society via their digital photos online. L'Oréal's brand Lancôme uses email newsletters to keep in touch with customers finally attaining customer (Merisavo et al., 2004).

As the present digitized world is booming and reaching to every corner of any lives 3 forces are powerfully reinforcing one another.

- Consumer Pull: The natural expectation of the consumer is to stay connected with the digital world and share data, referrals etc.
- Technology Push: Today's digital world is trying to push digital technology by bringing affordable

broadband to billions at lowest cost and the modern machinery it required is developing quickly in a steady progress

- Economic Benefits: The new digital technology has poured in infinite number of capital and the public market reward move with unprecedented valuations

Digital market: most effecting marketing strategy

Digital marketing paves a new path to choose the segment and serve them effectively. Marketing effort is not wasted by projecting the brand outside the segment. Here in e-marketing, it is wiser and easier to choose the customers and market it to them.

Digital marketing also focuses on getting the feedback and reviews from the target segments and helps to improvise the product or service. It can even make use of focus groups, survey groups for standardized testing. According to Chaffey (2011), social media marketing involves "encouraging customer communications on company's own website or through its social presence".

Social media marketing is one important technique in digital marketing as companies can use social media form to distribute their messages to their target audience without paying for the publishers or distributor that is characteristic for traditional marketing.

It is also possible to find out the categories of customers interested in the brand by assessing the click rate from a website.

Importance of Small business to the Indian economy

The Micro, Small and Medium Enterprises (MSMEs) play a pivotal role in the economic and social development of India. The MSME sector contributes in the manufacturing output, employment and exports. It plays a key role in the development of the economy with their effective, efficient, flexible and innovative entrepreneurial spirit. MSME sector has emerged as a dynamic and vibrant sector of the economy. It is expected that Indian economy will grow by over 8% per annum until 2020. The major advantage of this sector is its generating employment at low cost. The MSME sector is highly heterogeneous. There are different size of the enterprises, variety of products and services and level of technology. It helps in the industrialization of rural and backward areas. It reduces regional imbalances. It provides equitable distribution of national income and wealth.

Some highlights of the MSME Sector:

a) MSMEs contribute about 40% of India's total exports.
b) MSMEs contribute about 45% of India's manufacturing output.
c) This sector has given employment to 73 million people.
d) MSMEs manufacture more than 6,000 products.
e) MSMEs are the backbone of the GDP in India. Their contribution to GDP is 8%.

Indian Transportation Sector

The transportation industry is enormous, encompassing everything from municipal bus, subway, and commuter-train systems that get folks to and from work and school to the container ships that transport goods from port to port all around the globe; from the rail and trucking networks that move those containers across states, countries, and continents to the airliners we use to fly to destinations near and far for work and pleasure, to the express shipping companies "for when it absolutely, positively has to be there overnight."

The industry encompasses all those businesses that move people or goods, by land, sea, or air, from one point to another. This is a big industry, employing millions: In addition to the package deliverer, truck driver, and airline attendant-the ambassadors of the industry-there's a beehive of behind-the-scenes workers bustling to load containers, fuel airplanes, coordinate the logistics of thousands of railroad cars, and chart the best routes for truck drivers to take across America.

Virtually everything that surrounds us-including our clothes-comes from somewhere else. Your computer's components, manufactured in multiple countries, all

had to be transported to the computer manufacturer, assembled, and then transported to a store or perhaps your front door.

The newspaper you read this morning could not have been produced (think of the trucks delivering logs to the paper mill; think of the paper and ink being delivered to the printing press) or delivered without the transportation industry. And then there's passenger travel-the airlines, trains, boats, and buses that people use every day to get from place to place. Transportation may not be fancy, but it pervades nearly every area of our lives. Without the transportation industry, economies, global and domestic, would disintegrate.

Objectives of the Study

- To review the current status exists of Digital Marketing in Coimbatore Dist.
- To identify and Analyze the Digital Marketing Channel usage for the business success in Truck Transportation Industry.
- To determine the risks in Digital Marketing from view of companies in Indian context.

Review of Literature

Thach. L 2009: A number of new opportunities arise after the arrival of Internet technology, such as Online marketing which uses various mechanisms for advertising like blogs, podcasts and social media for lending a hand out to the customer

Ms.SisiraNeti (ET.AL) 2011: Social Media, today, is among the 'best opportunities available' to a brand for connecting with prospective consumers. Social media is the medium to socialize. Marketers are taking note of many different social media opportunities and beginning to implement new social initiatives at a higher rate than ever before the growth and benefits, role and relevance of social media in marketing, social mediamarketing strategies. It also presents an overview on social media marketing in India.

Charity Pradiptrani - 2011: In the study, it was able to give a better insight on the influencing power and its effectiveness by online marketing as well as Social Media marketing. This study suggested that there should be a very much better strategies to accurately measure invested returns.

RushadYazdaniford, M. MelisraCenpin& Wan Fadzilah Wan Yusuf - 2011: This article lead to the introduction of new approach of interest marketing via various electronic sources. The companies needed to have easy and fast access to internet to advertise through the internet from company side and should bring in a better security for confidentiality, Authenticity and Integrity.

Siricharoen - 2012: Small business (i.e) 1 in every 5 has been adopting online as well as social media mode of marketing. The study als revealed the fact that key success mantra needed is a fully involved in business and strategies and automation in a day - to - day basis to be in pitch

Barbie Clarke (et.al) 2012: This article was tested in as the students usage in digital devices in a global level. The study concluded by saying that how marketing and advertising messages being absorbed and understood.

VivekBajpai, Sanjay Pudey& Mrs. Shweta Shriwas - 2012: Creating basic platform is easy,getting your community to actually do something is difficult. By listing the site in the local directory helps the customer's to find you easily when they need you. By giving exclusive coupon to your social community, you are rewarding and reminding them that you are not only a brand to engage with but also to buy from.

D.K Gangeshwar, 2013: This paper deals with conceptual knowledge of search engine marketing or e commerce. Paper discussed about top motivator factors online. The top motivational factors are cash back guarantee, cash on delivery, and access to branded products, substantial discounts as compared to retail and fast delivery.

AnupamaNerukar - 2014: This study reviews the present stats of online trading in India. It identifies some of the problems faced by companies and the customers in Online Trading. The study also gives suggestions to popularize online trading in India.

Various Channels of digital marketing

There are various elements by which digital marketing is formed. All forms operate through electronic devices. The most important elements of digital marketing are given below:

- Online Marketing
- E-Mail Marketing
- Social Media Marketing
- Adwords
- Text Messaging
- Affiliate Marketing
- Pay - Per - Click Marketing
- Search Engine Optimisation

Advantages digital marketing brings to customers

With rapid technological developments, digital marketing has changed customers buying behavior. It has brought various advantages to the consumers as given below by Paul, 1996; Rosen and Howard, 2000; Rozgus, 2000; Elfrink et al., 1997:

- Updated with product and services
- Wider Engagement
- Comparison made more easy
- 24 x 7 shopping
- Apparent Pricing Enables Instant purchase or sale
- Precise & Accurate information of services

Constraints in Digital Marketing Adoption

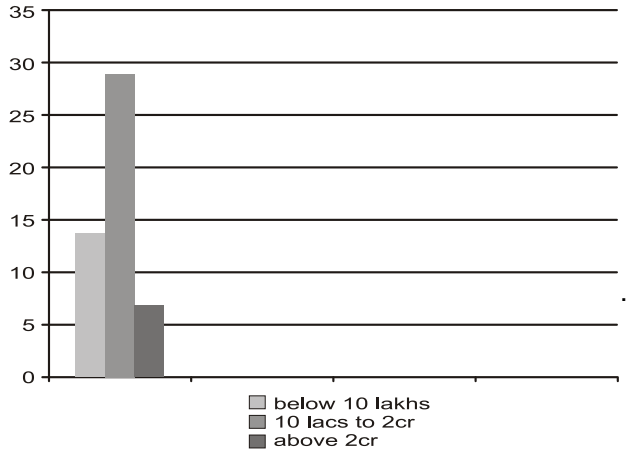
Following are the problems faced by companies adopting online trading in retailing.

- Maximum reliability.
- Integrity
- Confidentiality
- Controls need to be enforced in e-commerce transactions.
- Legal issues in e-commerce
- Cut down of costs.
- Profitability depends on the scale of operations.

Analysis & Results

Figure No: 1

Capital Invested in Business

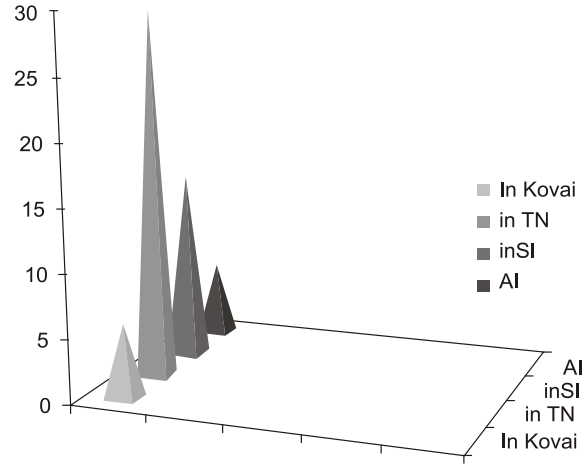


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents Companies invested <10lakhs - 14, between 10lakh to 2Cr - 29 and 7 company> 2Cr.

Figure No: 2

Business Coverage Area



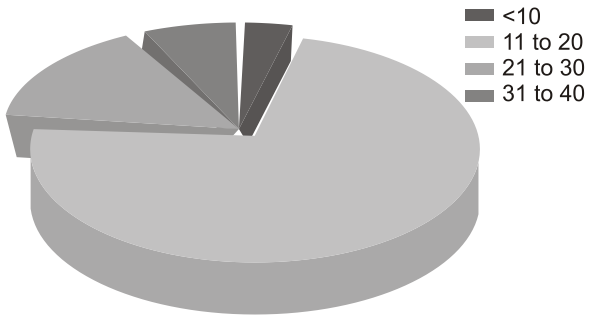
Source: Computed by Author

Inference: After the survey it was found that, among 50 respondents Companies are covering their area as

within Coimbatore Dist - 6 companies, within Tamil Nadu - 28with in South India - 12 and all over India coverage is 4 companies.

Figure No: 3

Number of Employees

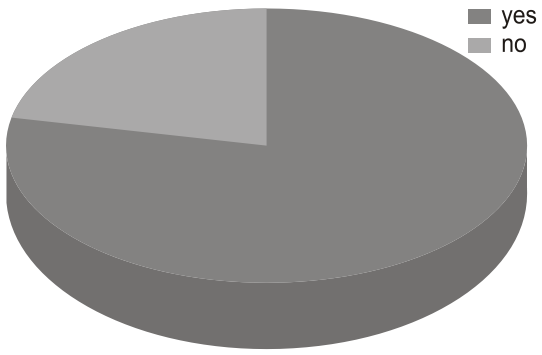


Source: Computed by Author

Inference: From the survey it was found that, among 50 respondents<10 employees - 2 companies (4%); 11 - 20 employees - 36 companies ; 21 - 30 employees - 8 companies (16%) ; 31 - 40 companies - 4 companies (8%).

Figure No: 4

Services via Intermediaries

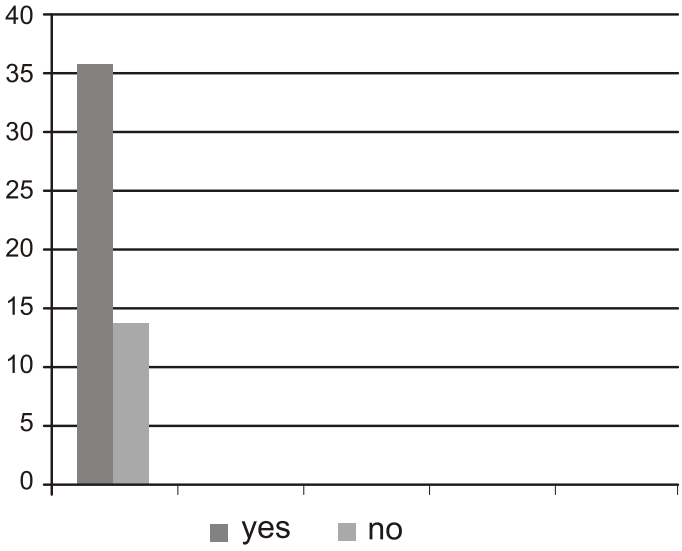


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents Companies said YES are of 38 (76%) and NO are of 12 (24%).

Figure No: 5

Separate Marketing Department

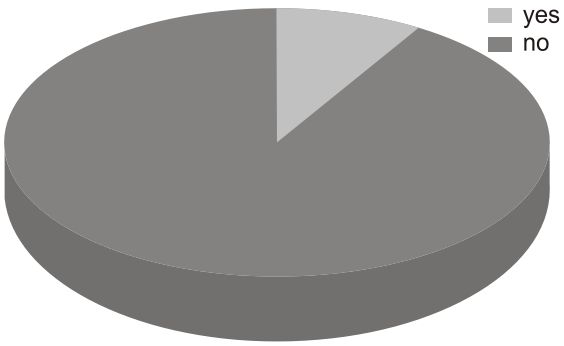


Source: Computed by Author

Inference: From the survey found that, among 50 respondents Companies said YES are of 36 and NO are of 14.

Figure No: 6

Website used companies

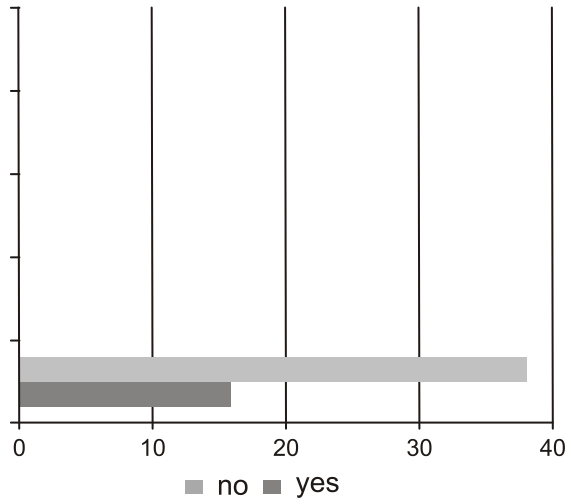


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 5 companies (10%); NO - 45 companies (90%).

Figure No: 7

Online Business Transaction

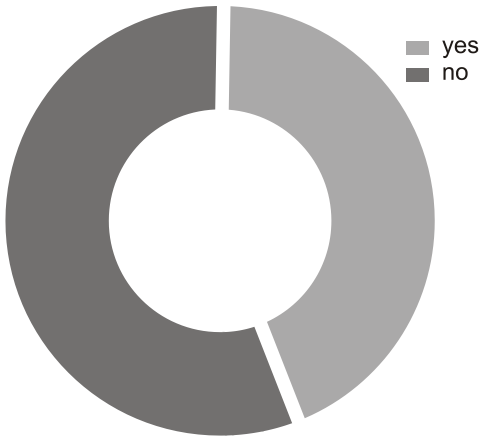


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 16 companies; NO - 34 companies.

Figure No: 8

Search Engine Optimization using companies.

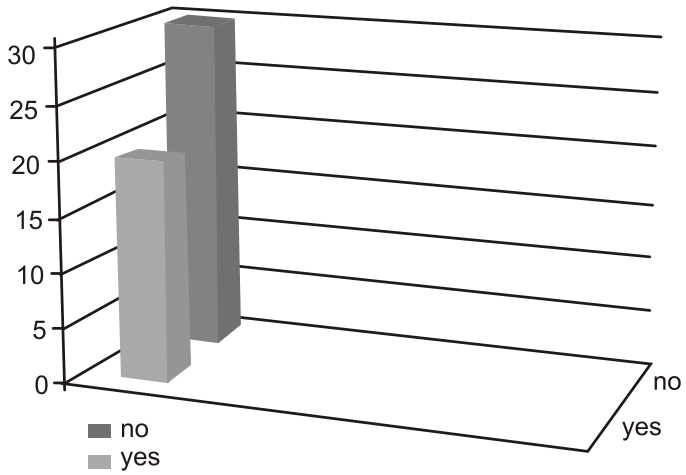


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 22 companies; NO - 28 companies.

Figure No: 9

E-mail marketing using companies

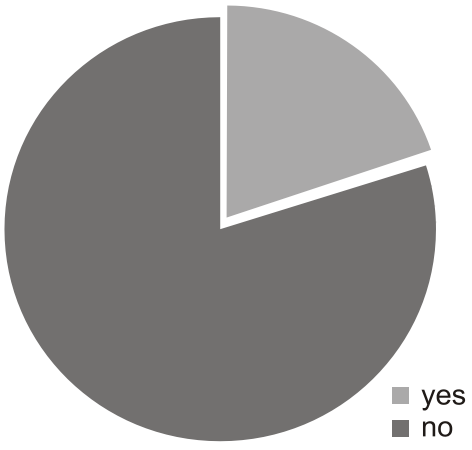


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 20 companies; NO - 30 companies.

Figure No: 10

Social Media using companies

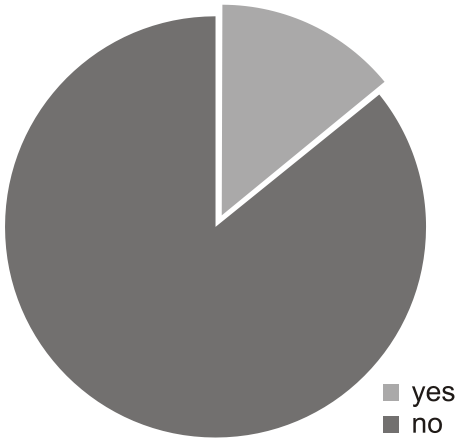


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 10 companies; NO - 40 companies.

Figure No: 11

Blogs using companies.

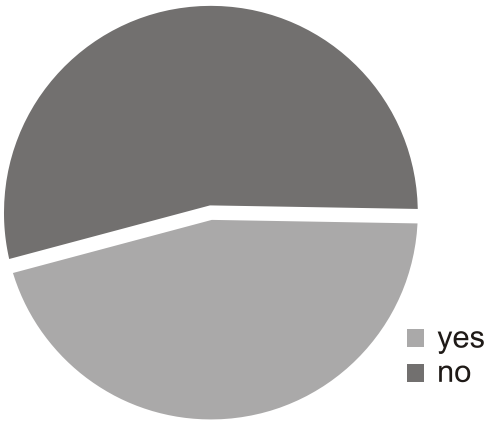


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondentsYES - 7 companies (14%); NO - 43 companies (86%).

Figure No: 12

Online marketing using companies.

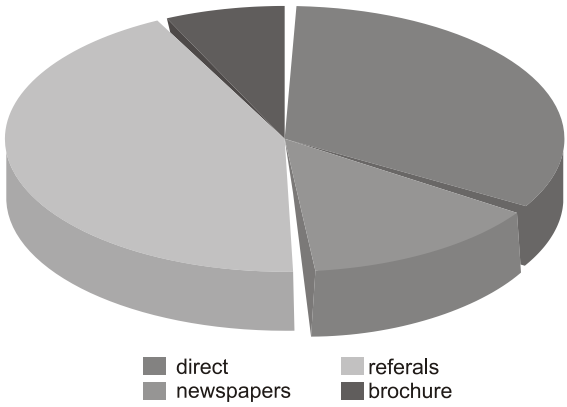


Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents YES - 9 companies (18%); NO - 41 companies (82%).

Figure No: 13

Modes of Advertising currently persist



Source: Computed by Author

Inference: It is infered from the survey that, among 50 respondents Direct - 18 Companies (35%) ; Newspaper - 7 companies (14%) ; Referrals - 22 companies (43%) ; Brochure - 4 companies (8%)

Suggestions

- Small truck transportation companies should look towards marketing activities in malls and initiatives on the digital media which can be done for prolonged duration and is more sustainable.
- Marketers in the Small truck transportation companies should be smart enough to draw a line between mapping and stalking a consumer forever.
- Opting for more cheaper and measurable digital channels instead of expensive traditional advertisements. Lower the price and increase the value.
- Small truck transportation companies should concentrate more on efficient services like perfect delivery patterns and convenient payment.

Conclusion

After a clear cut analysis on the impact of Digital marketing channel in marketing used in Truck Transportation sector it is able to identify that a constant steady growth is picking up the pace on becoming the essential part of strategy of many truck

companies. Nowadays, even for small business owner there is a very cheap and efficient way to market his/her services. Digital marketing may succeed more if it considers user needs as a top priority. Just like "Rome was not built in a day," so, digital marketing results won't also come without attempt, without trial (and error). The watchwords **"test, learn and evolve"** should be at the heart of all digital marketing initiatives. The future generation is looking forward for companies that create innovative customer experiences and specific strategies for media to identify the best path for driving up digital marketing performance.

Implications

The article clearly helps the new business entrepreneurs and existing ones to run the business more efficiently and effectively without losing the productivity and also reduce the cost, as Indian market is attracting the Global eye in the future of business. Also the Government and the Companies would be able to get more ideas out of it to improvise the economy. And adding to the list, for researchers and academicians another open door to the study of the Digital marketing in the Indian business environment.

Limitation of the Research

The entire article was dealt with the truck transportation sector in a geographical region and completely made by using method of Percentage Analysis and Graphs.

Further Research

As a modern way of setting the business and running the market is not fully been analysed in a quantitative methodology a further research on it would bring more precise and accurate ideas of business in the Indian business world to the outside world and also able to fully examine new ideal goals and objectives to gain and mingle it up to the Indian context.

References

1. AnupamaNerurkar, 2014, Online Marketing Challenges in the future, International Journal of research in Humanities, Arts & Literature 2 (4)
2. Andrew T. Stephen , 2015, The role of digital and social media marketing in consumer behavior,Current issues in Psychology special issue on consumer behaviour.
3. Barbie Clarke et. al., 2012 Digital marketing and advertising to children: a literature review, Advertising Education Forum research and publications.
4. Charity Pradiptrani, 2011, Social media marketing : Measuring its effectiveness and identifying the target markets, Journal of undergraduate research XIV
5. D.K Gangeshwar, 2013, E. Commerce or internet marketing: A business review from Indian context, Internation Journal of u- and e- service, science and technology 6 (6) PP 187-194
6. RushadYazdaniford, M. MelisraCenpin& Wan Fadzilah Wan Yusof-, 2011, Internet Marketing: The new era of innovation in E. Commerce, 2011 International conference on software and computer applications, Vol9
7. W. V. Siricharoen, 2012, Social media, how does it work for business, International journal of innovation management and technology 3 (4)
8. Ms.SisiraNeti (ET.AL) 2011 Social Media and its role in Marketing, Internationa journal of enterprise computing and Business systems 1 (2)
9. VivekBajpai, Sanjay Pudey, &Mrs Shweta Shriwas, July 2012, Social Media Marketing : Strategies and its impact, International Journal of Social Science and interdisciplinary research Volume 1 (7)
10. http://lexicon.ft.com/Term?term=digital-marketing
11. http://www.amsreview.org/amsrev/theory/giese00-01.html,
12. http://www.businessdictionary.com/definition/digital-marketing.html
13. http://www.entrepreneur.com/encyclopedia/affiliate-marketing
14. http://www.sas.com/en_us/insights/marketing/digital-marketing.html

Book Review

Mr. Vilas Nair, Assistant Professor, Symbiosis University of Applied sciences, Indore, M.P
Title of the Book: **E-Supply Chain Technologies and Management**
Author-Qingyu Zhang Arkansas State University, USA
Edition - First, ISBN 978-1-59904-257-2 (Pages -296)
Publisher- British Cataloguing in Publication Data

Introduction

Information and communication technologies (ICTs) radically facilitate the convergence of data,voice, and video; support real-time transactions and interactivity; and enhance access and connectivity. This book explore the concepts, modeling, technologies, IT infrastructures, and performance management of the e-supply chain and develop a broad understanding of issues pertaining to the use of emerging information technologies and their impacts on e-supply chain management. This book aims to highlight e-supply chain technologies and their effective management and guide efforts in transforming current business processes to adapt to the digital age. This book is designed to cover a broad range of topics in the field of e-supply chains in 14 chapters. It is primarily intended for professionals, researchers, and practitioners who want to explore/understand the concepts and principles of the e-supply chain and want to apply various e-supply chain models and systems to solve business problems.

Book is divided into three sections and fourteen chapters that explore the concepts, modeling, technologies, IT infrastructures, and performance management of the e-supply chain and develop a broad understanding of issues pertaining to the use of emerging information technologies and their impacts on e-supply chain management.

Section I:The Concepts and Modeling of E-Supply Chain

Chapters I:Procedure for Modeling and Improving E-SCM Processes by Patcharee Boonyathan and Latif Al-Hakim, develops a procedure referred to as eSCM-I to improve the supply chain business processes, taking into consideration the Internet and e-business communication technologies. Chapter II deal with the modeling of e-supply chain management. Dynamic Transshipment in the Digital Age by Shilei Yang, Bintong Chen, and Charles L. Munson, explores how to handle transshipment among distribution centers in a geographically dispersed network. technologies (ICTs), and e-business. Chapter III E-Com Supply Chain and SMEs by Ron Craig, takes the perspective of small and medium-sized enterprises (SMEs) in supply chains. It reviews the important role of SMEs in national and world economies. Chapters IV explains Building and Managing Modern E-Services by John Hamilton, addresses the development cycle of an e-services model. Services as a value creation process progress from supply and demand chains, to value chains, to service value chains, and finally to service value networks and Chapter V presents the concepts of e-services and service value network.Service Value Networks: Delivering Competitive E-Services by John Hamilton, addresses service value networks as a key pathway to establishing and likely retaining future strong competitive positioning within a service industry sector.

Section II:E-supply Chain Technologies and IT infrastructure such as radio frequency identification (RFID), security, collaboration tools, software agents, and EDI. Chapter VIAutomated Data Capture Technologies: RFID by VidyasagarPotdar, Chen Wu, and Elizabeth Chang, provides an introduction to RFID technology. A detailed classification and explanation

of these components is provided, followed by the benefits and applications that can be achieved by adopting this technology.Chapter VII discusses infrastructure security Information Security Risk in the E-Supply Chain by Wade H. Baker, Gregory E. Smith, and Kevin James Watson, identifies the sources of IT threats in the supply chain, categorizes those threats, and validates them through a survey of 188 companies representing a range of supply chain functions. Chapter VIIIThe Use of Collaboration Tools in Supply Chain: Implications and Challenges by OzlemBak, addresses supply chain integration by the use of collaboration tools, including inter- and intra-enterprise applications such as customer relationship management, supplier relationship management, e-business and employee-business integration, e-supply chain management, Web-enabled services, wireless applications etc.ChapterIX deals with Negotiation, Trust, and Experience Management in E-Supply Chains by Gavin Finnie and Zhaohao Sun, introduces the concept of experience management in multi-agent systems for supply chain management and develops a unified model for cooperation, negotiation, trust, and deception presents software agents in the supply chain. Chapter X explains the Trading E-Coalition Modeling for Supply Chain by Pierre F. Tiako, proposes an appropriate infrastructure for modeling and coordinating e-business processes using e-coalitions (i.e., support for collaborations with supply chain partners over the Internet). It discusses EDI systems and EDI over the Internet.

Section III :Best Practices and Performance Management of E-supply Chain

Chapter XIE-Supply Chain System at Valvex and Its Integration with ERP Systems by Raktim Pal, Indranil Bose, and Alex Ye, presents a case study on a leading Chinese manufacturer of industrial valves that successfully integrated the ERP systems from Entreplan and an SCM system from Excelvision. Chapter XII Coordination of a Supply Chain with Satisficing Objectives Using Contracts by Chunming (Victor) Shi and Bintong Chen, studies a decentralized supply chain consisting of a supplier and a retailer, both with the satisficing objective or performance targets.Chapter XIII Information Feedback Approach for Maintaining Service Quality in Supply Chain Management by R. Manjunath, considers a feedback mechanism that conveys the status of the supply chain, starting from the tail end with the pre-specified service quality as seen by the end user of the supply Chapter XIV Performance Management by Srikanth Srinivas, designs a performance management framework that helps firms choose, implement, and get significant benefits from e-supply chain technologies. The framework combines critical variables, balanced scorecard, and capability maturity.

The Author discusses a list of leading technologies related to -supply chain technologies for management and business applications with the implementations of case lets / case studies from business context. The Illustrated book comes with lot of diagrammatic representation and practical applications in the real world. This book is for professionals, researchers, and practitioners who want to explore/understand the concepts and principles of the e-supply chain and want to apply various e-supply chain models and systems to solve business problems. Each chapter is designed to be stand-alone, and thus readers can focus on their interested topics.

View points from a Practitioner

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Artificial Intelligence In Procurment:

Artificial intelligence is a new discipline. Its potential is wide ranging and still to be fully defined, but already we can see the dramatic impact it can have on data processing and procurement in supply chain.

Sourcing: Artificial intelligence, bears sourcing patterns, and behaviors, that will be able to connect with the best suppliers more quickly, and efficiently, it can reserve the skills, required, for the supplier selection, negotiation, and value assessment.

Before sourcing begins, the standard spend analysis report can now produce demand breakdown, common cost analysis, and supplier analysis. Armed with knowledge with about suppliers, current market conditions, procurement should then be able to run real time reports during any event such as to real down by product service carrier, cross supplier, comparison with variance and outward analysis, and ensure that the data driven strategy on the decision, that procurement is getting the absolute deal from the sourcing process in supply chain.

Savings: Negotiations can be over turned with automation technology, and be able to assess every order, invoicing thus bringing in saving in procurement, in supply chain.

Contracts and Supplier management: Artificial intelligence will let know the supplier without any difficulty, the number, and bring in good prospect in time consumption in locating potential contracts with supplier in procurement in supply chain management.

Order process: Artificial intelligence will guide and permit to order, process, requisition which later becomes a order, and fulfill the delivery on a single click, but in the most exceptional cases a preference and professional attention is needed.

Spend Analysis in procurement: Artificial intelligence will be able to assess and extract the real insights of spend data, as it actually learns, and self corrects to maintain continuous accuracy in spend analysis in procurement supply chain.

Risk management-Many procurement organization with more expanding analytics has the critical problems, of risk management in procurement process in supply chain, as artificial intelligence based analytics offers clean, and accurately classified data, with available to procurement organization without significant costs. Analytics with data can be added on the spend data to go beyond integrated market price.

Artificial intelligence in procurement is transforming industries, and the leap of change is fast tracking in supply chain. Artificial intelligence, in procurement can trade commodities, and even outperform team of experts in supply chain. The pace is becoming fast because artificial intelligence in procurement has a lead time of years to turn out to be in use as it turns competitive with challenges, but if it surpasses human expertise ability in every areas, its acceptance rate increases, and so does its capacity to absorb, as the data is taken in, it becomes necessary to absorb more data in procurement in supply chain. The gap between artificial intelligence, in procurement, and human expertise have grown tremendously, and even more significant level has been reached, with the first mover

lead to make sure firms reach their tipping level of achieving superior act with artificial intelligence procurement over human beings. Nevertheless there is a proactive rush ahead of the supply chain, as a business is trying to know before the arena in the field which artificial intelligence procurement solution will offer best value to procurement in supply chain. It is vital to separate the excitement from the reality, and understand how artificial intelligence technique of stream ling the procurement in supply chain.

Artificial intelligence in procurement has the sustainability, and in achieving higher results in supply chain, and the liability of benefitting in the early stages: Artificial intelligence can vastly improve procurement process, and the significant trend in technology presentation is the competition to create more sophistication in machine learning process. Machine learning is the capability of computers to self teach, and advance from the experience without having to be overtly (without any concealment of secrecy) to the programs. Being on human neural (a computer system modeled in the human and nervous system) learning these, the individual computers take the loads of examples, and apply layers to create on itself, and virtually interpret the solution without any human interference which can be helpful in procurement in supply chain.

With mobile centric and technologically motivated movement for artificial intelligence in procurement, we can compare how artificial intelligence can substantially improve the way procurement experts procure, pick orders, and handle products, and services. In practice artificial intelligence in procurement would be able to forecast, and comprehend procurement requirement even before the experts could think of a way: example A strategic decision tool, being a recommendation engine, that the right to buy, at the right price of a commodity, that is required, and recommend action based on the market conditions or factors, and with the help of external data will help procurement in supply chain. The recommendation should be based on the cost model concept.

Enhancing strategic procurement with artificial intelligence-Data analytic, current procurement procedure are creating more and more data, partly because they combine various systems, including contract management, electronic catalogue, e-procurement, Enterprise Resource Planning, Supplier Relationship Management. Many firms do not make use of data full in potential, while some do not make use of it at any times. Artificial intelligence procurement solution can aid: 1. Automate repetitive taste that occur. 2. Disclose concealed potential in procurement. 3. Gain smart insights to resolve several issues to support procurement in supply chain. 4. Submit recommendation in procurement in supply chain. Artificial intelligence in procurement also assists in preparing large amounts of data for intelligent analytics, and action using virtual assistant.

Conversational interface is a hybrid that interacts with user, combining chat, voice, or any other natural language, with user interface elements, like button, magic menu videos. Artificial intelligence can be used to listen to customers or suppliers queries, and respond appropriately, and live video calls, which will have unique auto learning, feature that will help improving answer accuracy, with the introduction of video call centers, catalogues. Conversational interface known as chat bots to incorporate both voice, and written dialogues, that can inhale chatting, with real human voice. As an alternative the clicking icons(images) and selecting syntax,(selecting data from data base) specific instructions in the communication part becomes hassle free, and straight forward with artificial intelligence procurement, and the inside of chat bots , can also accomplish difficult tasks, and take the verdicts freely in procurement in supply chain.

Supply chain analysts and specialists are now tooling into apply chat bots into supply chain management activities. Chat bots are just another blip (refers to the dots drawn on early warning radars based on plan position indicating display) on the large scope radar of artificial intelligence technology, chat box is a computer program, which conducts a conversation via auditory textual methods such as a program, and are

often designed to convincingly simulate, how human would behave as conversation partner. Chat bots can distribute that information faster than human beings, and chat bots could swiftly communicate internally facilitate messages set between customers for supplier queries being answered more efficiently in procurement in supply chain.

Artificial intelligence procurement are using chat bots to create the potential of turning voice assistant, technology into a simulated service functionality, that will entirely revolutionize the procurement experience.

Automation: Artificial intelligence is an adapt to automation, and even more complex, as more tasks are adhered into procurement in supply chain, and artificial intelligence will help to bring more purchasing under direct control, by facilitating the creation of requisition, from the data, that may be contained in e-mail, also data entered in requisition, entry speech recognition, is also poised to change the requisition , and approval process, also use of image recognition, technology, in which an option to send pictures, of an item which is ordered or re-ordered, thus simplifying the requisition process, and making spend analysis to actively manage. All technology can look for cost or price strategy discrepancies, unusual order, quantities, frequency of supplies, compare data to orders placed, and invoices, and will also be able to detect errors or discrepancy, and also predict purchase on non-performing procedures.

Benefits of artificial intelligence in procurement:
Data classification for procurement documents, invoices, orders, purchase orders, and master data of suppliers of materials, that will be spend on transparency, and with a valid baseline also with high level of automation, and this is in turn with good pricing, and spend mechanization.

Predict and Simulate: Artificial intelligence neural network can be used in planning and simulation to forecast spend volume or simulate the effects of fluctuating materials prices, or exchanges rates for planning and simulation in procurement in supply chain.

Consistency and Compliance: Analysis of different prices of materials, attribute in the documents which can be processed, ideally for the price in invoice, orders, procurement information records, and contracts negotiated in procurement in supply chain. The task here is to detect price variance, and therefore if any lost savings, and authorized additional payments are to be made in procurement in supply chain.

Process Mining: Analyzing of the actual procurement process, to detect weakness, and starting point's process, improvements and automation. Some of the process includes procurement to buy through channelizing, and are procured to stock items, and the objective is to monitor service level agreements, and calculate the process on reports and Key Performance Indicators.

CALL FOR PAPERS

The theme of the forthcoming issue is "Micro, Small and Medium Enterprises".

Micro, Small and Medium Enterprises (MSMEs) are the pillars of any economy and are increasingly recognized as prime vehicles for economic development, particularly for the developing nations.

Indian Micro, Small and Medium Enterprise (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries, but also help in industrialization of rural areas. MSMEs are complementary to large industries as ancillary units and also contribute enormously to the socio-economic development of the country.

The Sector consisting of 36 million units, accounts for more than 80% of the total number of industrial enterprises, provides employment to nearly 106 million across the country. The Sector through more than 8,000 products contributes about 8% to GDP besides 45% to the manufacturing out put and 40% to the exports from the country. The MSME sector has the potential to spread industrial growth across the country and be a major partner in the process of inclusive growth.

Guidelines for Publication:

1. The research paper, case study and book review shall be original using specialized concepts, Research Methodology highlighting key insights and managerial implications.
2. Manuscripts would be checked for plagiarism.
3. The last date for submission of the manuscripts would be 28th February, 2019.
4. Intimation of Acceptance/Rejection would be done by 25th March, 2019.
5. No publication fees would be charged.
6. Manuscripts need to be mailed to editoramber@acharyabbs.ac.in
7. The submission must be done in Microsoft Word only.
8. The name of the author, designation, affiliation, mail id and mobile number should be provided in the first page.
9. The second page must contain the abstract and key words. The abstract should be between 150 - 250 words.
10. The third page must contain the title followed by the body of the manuscript.
11. Manuscripts are reviewed through 2 stage blind review system by experts in the subject area. To ensure anonymity, the author's name and other details should only appear on the first page and should not be repeated anywhere else.
12. The body of the letter must be justified with a font size of 12 using Times New Roman font. The titles must be boldfaced.
13. The spacing between the lines must be 1.5. There must be no tab for the first sentence of every paragraph.
14. Annexure must be numbered and must follow immediately after the body of the manuscript.
15. The body of the text must contain references as shown in the bracket (Kumar, 2014),

    i.e., last name/surname of the author and the year of publication.
16. All references have to be arranged in alphabetic order and must be numbered.
17. The internet sources must be placed after other references and must be numbered separately.
18. The reference must be present in APA Format.

Quick Note :

Soft copy of the paper must be e-mailed to editoramber@acharyabbs.ac.in

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Last Date of Submission of Full Paper:
28th February, 2019.

Date of Notification of Acceptance:
25th March, 2019.

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Volume 10 Issue 1 Oct 2018 - Mar 2019: Micro, Small and Medium Enterprises [Forthcoming Issue]