

Significance of Digital Technology for Logistics

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Abstract—Start-ups the world over are slowly and steadily changing the way the industry works. By identifying a problem and addressing it through their products and services, they are making a name and gaining an audience for themselves. Start-ups are also not afraid to take a few unconventional routes and take some bold decisions that others would term risky, and this is helping them gain an edge. The logistics industry too is seeing its fair share of start-ups emerge. They are leveraging technology to solve a problem and are orchestrating innovation in the truck industry to fast gain a market share. From trying new concepts such as truck platooning to solving base-line problems such as allowing shippers to make freight shipping bookings online, they are doing it all and with flair.

Keywords—*Management Strategies, Entrepreneurship, Management information systems, Information management.*

I. INTRODUCTION

Even though the industry is courting the idea of driverless trucks and self-driving vehicles, the current scenario needs a change. The fact of the matter is that as of now freight booking in India and its delivery is done with the premise that the driver shall be at the wheel of the truck. However, gruesome work hours and changing regulations is adding to the shortage of truck drivers. Through the help of digitization, logistics start-ups are relying on technology and smartphone apps that are allowing them to monitor their workforce.

From mandating the number of working hours to the routes that the driver drives on, everything is pre-planned with technology. Also, a driver is tracked with the help of a GPS system and needs to clock-in the hours they are in movement. This way, when they've completed their quota, the driver is changed and another pilot is brought in. Drivers are getting to lead a better life as they are appointed on delivery routes closer to their homes. This is allowing companies to benefit from an increase in productivity and is leading them to close deliveries faster, as the driver is not worn out.

This is a conceptual article to highlight potential scope of emerging technologies in a given industry whereby efficiency and effectiveness of growth is expected out of recommended process and management adaptations [1,2,3].

II. BACKGROUND LITERATURE

Trucks and other commercial rigs depend on uptime to determine their shelf lives. Uptime here means the number of hours the vehicle is in motion. Start-ups are increasing the life of their trucks by allowing them to transport cargo when they are filled to optimum capacity. This is being done with the help of technology. Many start-ups are allowing shippers to make online freight bookings in India and share the vehicle. This service is being offered at competitive prices, where the shipper pays for the weight of their cargo rather than an entire vehicle. Also, start-ups are using technology to determine and predict the shelf life of tires and changing and/or rotating them for optimum use and minimizing the downtime of vehicles, which is further adding to their profitability [3, 4, 5, 6].

Coordinating progress to achieve perfection: Truck platooning allows vehicles to be driven in close formation and helps save fuel and reduce drag through coordinated speeding and braking by communicating electronically. This model is based on a low level of automation, and many start-ups in the logistics sector are in the process of developing it. Kevin Haugh, Chief Strategy And Product Officer, Omnitracs advocated truck platooning in a Reuters report by saying, "We think there is real near-term potential. Unlike some of the other automated technologies that get a lot of attention, this has got real legs." Start-ups are using technology to drive innovation throughout the logistics industry and offering their services at a significantly competitive price, making shippers not just happy, but also satisfied [3, 5, 8, 9, 12].

The fierce competition among manufacturers is urging them to discover innovative ways of designing, managing, and enhancing industrial systems. To stay ahead of the curve, it is imperative for manufacturers to adopt modern technologies and continually develop and deploy improved manufacturing systems [3, 4, 7, 10, 11, 13]. Logistics Management is an important part of manufacturing as it helps the manufacturer to connect to various parties and ensure faster delivery, thereby increasing their credibility in the market. Furthermore, effective logistics management reduces the cost of goods sold and increase the profits. But, sometimes, an ineffective logistic management system can even bring the production to a halt.

Reduction in total cost: The manufacturers employ a hefty amount of capital in operations and logistics. If the logistics are managed effectively, there can be a significant reduction in the total cost. By saving on costs in logistics, manufacturers can invest in other modern technologies that will improve the efficiency of their manufacturing units. By deploying an advanced logistics management system, manufacturers can achieve sustainable business efficiencies across departments. An effective logistics management system ensures optimum utilisation of distribution costs.

Improve efficiency: It is important to have a smooth manufacturing process in order to have efficiency in the unit. If manufacturers want to prioritise efficiency, then having the logistics management system is vital. From inventory management, transportation, to warehousing, everything needs to be under control in order to make the manufacturing processes effective. Through technological advancements, manufacturers can now manage logistics without any hassle. Also, by partnering with third-party logistics organisations manufacturers will witness an improvement in their logistics planning and execution.

Flexibility in operations: Logistics management streamlines logistics processes and by leveraging technology in logistics management, it has become easier for the manufacturers to track their fleets. An effective logistics management system leads to flexibility in operations. It has become easier than ever to book a truck online through third party logistics and truck booking partners. The logistics management systems are therefore flexible and cost-effective. At the click of a button, you can book a truck for your manufactured unit and owing to the vehicle tracking facility you can be rest assured that your shipment will reach your customers safely and in time.

Improves customer experience: Over the past few years, e-commerce is gaining a lot of importance and the customer expectations are growing leaps and bounds. In order to win customer's loyalty and maintain credibility in the market, it is essential for manufacturers to deliver quality products promptly. Every 3 in 5 Americans (59%) try a new brand or company for an enhanced service experience, reveals a survey. Therefore, if manufacturers want to retain their customers, they need to ensure they're providing compelling services, well in time.

Automation of processes: Using automated tools for logistics management, the manufacturer can focus on their core business functions and leave their logistics worries to the third-party logistics partners. The third party logistics enterprises are well-equipped and experienced to handle big freight shipments. By leveraging technology in logistics management, manufacturers can gain a competitive edge in the market.

III. VALUE PROPOSITION

The Digital Transformation Journey has taken organisations across industries by storm. And, the logistics industry is no alien to this growing phenomenon. The future of the Transport and Logistics (T&L) Industry looks bright with an increasing number of organisations realising the immense potential that web, mobile, cloud, analytics and IoT offer towards their business growth. However, the technological adoption has not been as much as it should be for the industry to achieve exponential growth. Yet the pace is fast catching up in the logistics industry [12, 13, 14, 15, 16].

According to a PwC survey, industry experts report that the enthusiasm in the T&L industry regarding the adoption of new digital technology surpasses that of any other industry – 90% in the T&L industry as opposed to 83% in other industries. But the survey also opines that the lack of digital culture is by far the biggest hurdle that the industry faces, as evident from the illustration below. Transportation infrastructure and streamlined business processes are key factors that determine the growth of the L&T industry. Digital technology is a boost to the infrastructure of industries, and logistics industry is no different. Improved infrastructure, in turn, positively contributes to flexible and scalable business processes [3, 4, 7, 14, 16].

Let's discuss the smart technology solutions that are driving the Digital Transformation Journey in the L&T industry today:

Automation: Automation has been the root cause for the acceleration and disruption in the L&T industry. It helps in tracking and monitoring of freight while they are on transport. This enables effective workforce management and operational cost efficiencies. Big Data Analytics has emerged as the game-changer in the industry as it offers valuable insights with enhanced accuracy, which aids in crucial business decision-making.

Tracking shipments: Digital technology has brought about transformation in the freight booking industry as well. Digitalised barcode equipments equip these companies in tracking and monitoring – the location of freight, the trucks they have been allotted for delivery, the routes that the trucks will take and keep clients updated regarding the time their freight is expected to reach the destination.

Mobile Applications: Mobile applications empower logistics companies to be at the top of the game with end-to-end tracking of the freight of their clients. All that the organisations that need freight transportation solutions need to do is to opt for truck booking. Apps reflect the addresses of the pick-up location and destination, enabling a streamlined method for freight transportation. Further, they also enable clients to track the route being taken by trucks, show estimated time of freight delivery and offer online payment. This ensures that companies which provide truck booking

services can enjoy complete transparency in process management and achieve better outcomes. Accountability to clients and improved operational efficiencies also become achievable with mobile apps. Moreover, they do away with the hassled and time-consuming manual processes that were followed before the advancements in digital technology came into being. Further, there are also car-pooling apps that offer real-time tracking of freight.

Digitalised toll plazas: Toll plazas now leverage the power of technology to Radio-frequency Identification (RFID), number plate detection. Trucks would not have to wait at toll gates on state and national highways, saving valuable time and doing away with the concept of heavy traffic. In fact it is interesting to explore the efficiencies introduced in long distance logistics industry by digitizing the toll collection process whereby on a per vehicular toll collection process, the business process reengineering introduces a minimal of 42% savings in time, as per a study conducted by McKinsey in 2014.

IV. CONCLUSION

The digitization of products and processes have significant impact on the outcome of any industry in terms of massive improvements of expectations from all stakeholders. We feel that the conceptual model of academic research would benefit the practice if utilized significantly. It is imperative for future research to address these concerns of current limitations of business models by the digitization of both products and processes.

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