

The use of technology in the supply chain

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The use of technology in the supply chain

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Introduction

This essay will look at the use of technology in the supply chain management to achieve higher performance, and understand the combination between people, processes and technology in order to maintain a competitive advantage in the supplying chain industry. In addition, how the use of technology system provides visibility in the supplying chain end-to-end system and create an effective relationship between products and service. The essay will evaluate the innovation of barcode and RFID technology to improve track and control products in supplying chain process. It will briefly look at the Internet of Things (IOT) and how it became possible over the years for logistic companies to automatically identify and control their products. It will discuss the importance of monitor process in the supply chain, why it is important to have a security strategy in the supply chain, and consider four pillars of resilience, and how this process help mitigate issues in the supply chain. Also, it will look the importance of tracking freight, and integration of Electronic Data Interchange (EDI) that facilitate the management of information, and evaluate the use of management platforms such as Truckcom, with the combination of Mobile Device Management (MDM) to increase velocity, reduce cost, improve effective in tracking, prove of deliver, transport management, and vehicle checks, to create a flexible and agile supply chain (Ayers, 2009).

Technologies and the Internet of Thing (IOT)

Between the year 1999 and 2000, a dramatic change has taken place between industry and technology. The idea of embedded sensors which gather information in physical objects dated back as early the 1980s. Nevertheless, that idea is used hugely today, in a worldwide scale. The Internet of Thing (IOT) (Ashton, 2018) is connecting a diversity of physical objects via the Internet around the world that enable data to be collected and shared (SAP, 2018). These

became possible over the years as the price of the Internet became more affordable and with the development of wireless systems, the use of technology made supplying chain more economic with the introduction of Unique Identifier (UID) i⁶ i⁷ numeric or alphanumeric that make it possible to address, accessed and interacted with the products (Rouse, 2018) in supply chains which varies from driverless truck, or sensors in airplanes, to collecting information which will make operations more efficient and robust.

Automatic identification technologies

The Universal Product Code or “BAR CODE” enables the scanner to identify products by reading the Code with a scanned device. In 1973, the development of barcoding made operations faster in larger supermarkets because of the dynamic of that new technology; logically removing the time wasted in when operators had to type the code manually in order process a sale. Which also eliminates the possibility of human error. It is well known that all products consumed in the marketplace originated in the supply chain, the use of the barcode facilitate the tracking product, from manufacture stage, storage and delivery (Slack, et al., 2007).

The disadvantages of barcodes are that:

- only store small amount of data can be stored
- only the product class can be identified
- the bar code is a visual communication technology it needs to be visible to enable the scanner to read
- items can only be scanned one at the time
- any fault in the label unable the identified of the item electronic,
- contact is needed to identify the products

- the database needs to manage, and data storage is required (McCathie, 2004).

Radio Frequency identification

RFID enables objects to be tagged, which is possible with a small memory chip. This chip can be read-and-write using radio frequencies, therefore, RFID can be the tag attached to almost any physical item; to provide information and specifications. RFID is efficient at tracking because the information contained can be updated or changed, which is impossible with barcode technology. The tags can be embedded to prevent damage and can be read at a distance. In the technology age, RFID became a necessity to track assets, and in many ways, this included people and animals (Rushton & Croucher, 2017).

Strategic security measures

The supply chain structure has become vulnerable over the years; one of the factors is the outsourcing to third-world countries. Supply chains are formed with partnerships all over the world, therefore, the risk in breakdown increases: such as political changes, epidemics and breakouts, weather. Destruction in one sector can create economic catastrophe in the chain (Rushton & Croucher, 2017). The four pillars of supplying chains developed to mitigate uncertainty, and increase resilience:

1. Visibility: Information is vital. It is one of the key performance factors in any organization is the ability to monitor and track, increase the speed to react quickly and absorb side effects.
2. Flexibility: The facility to utilize alternatives assets of the supply chain in order to minimize or avoid disruption – for example the ability to re-route materials to fulfil in expected demand, alternative modes of transport.

3. Collaboration: The relationship between partner collaboration; to reduce the impact created by in expected events, a plan design that incorporates customer demand in supplying chain capacity.

4. Control: Imports procedures in place to fulfil policies, so that the activities can be monitored effectively, and appropriate corrective action is taken when necessary. For example, a specific time to receive deliveries in a warehouse will reduce the destruction of the downtime of manual handling equipment (Healy, 2018).

Freight tracking

Shipments are tracked and traced at an early stage of the journey to identify the location and consignment. By scanning the cargo, the tracking system can update in real-time information, which can be used to update clients of the transit state of the goods, so clients can satisfy themselves with the progress. The tracking number can provide information worldwide via the Internet, with the use of a tracking platform, in which distribution centers, port, airport, or delivery truck, can plan to handle the goods, storage or redistributed and make available to the point of consumption. The process of tracking cargo only becomes effective as the level of communication and sharing of information between the forwarder and clients (Rushton & Croucher, 2017).

Why Monitor

Monitoring and control in an area can identify guidelines of cost efficiencies and performance. It helps business' reflect and evaluate if set targets and objectives are met. Logistics and distribution systems aim is to have a linked associated with both parties of the supply chain to achieve currents and future business objectives, (doing the right thing) and (doing the thing right) (Mckinnon, et al., 2012). Monitoring will support the operations by providing feedback

information so that management can process and replant operations, that will help focus on real outputs for the business, operation performance can be evaluated, to determine if are satisfactorily, and a potential for improvement can be identified, and a plan for better use of resources can be implemented (Rushton & Croucher, 2017, p. 703).

Mobile Device Management and Truckcom

The integration of Electronic Data Interchange (EDI) facilitates the management of information and operations function, assets in the supply chain.

Truckcom is one of the many platforms available in the market for logistic operators, with the integration system real time information can be obtained. The Truckcom platform can be installed in mobile phone devices to provide the following options, Tracking, Transport Management, Electronic Prove of Deliver (E-POD), Vehicle Checks (Truckcom, 2018).

The platform allows the vehicle to be tracked, by identifying the vehicle location. The platform has a warning system that can alert fleet managers if vehicles are diverted from the original route, running late from a job to the other, stuck in traffic or in sites. This permits the operation managers to evaluate where time and money is wasted. Truckcom has a real time traffic up to date that enable drivers to divert traffics and avoid connections.

The system facilitates drivers and managers to obey the legal requirements by keeping a close look at their driving activities, the system will warnings drivers in manage after the vehicle is being driven for 4 hours 30 minutes, therefore, adviser drivers to take a break that lasting 45 minutes to comply tachograph rules of driving hours (Driver and Vehicle Standards Agency, 2016).

The transport manager has the option to add or remove jobs to any given vehicle in the fleet, this creates a competitive advantage; managers can choose to focus

in more lucrative operations, or priorities more important partners, in response of exchange of events. The system providing drivers with real time information, for example, if a new collection order enters the system managers can allocate the job to the nearest by vehicle.

The Electronic Proof of Delivery (E-PDO) reduce administration cost by sharing data immediately. The proof of delivery can be signed by the customer using the touch screen in the device which can be sent via email or text to both the customer and the supplier. The system updates in real time and removes the paper work process that creates delays, thereby, reducing errors in information input in warehouses management system, prevents disputes, reduce the organization carbon footprints (Ghani, 2018).

Case studies Goldstar Transport

Goldstar Transport was formed in 1998, and now has an annual turnover in excess of £90 million. The company regularly handles over 700 container movements per day for a varied customer base. In 2005, the company reviewed its fleet management software requirements.

"We decided that we should invest in a new fleet management system, to take advantage of the technology that was out there" says Derek Cawston, Director at Goldstar's Woolpit headquarters. "The system we had at the time was inadequate and antiquated". After investigating a number of other systems, Goldstar settled on Truckcom as the best solution for their business. "Truckcom was the best fit for us – it did so much more than the other systems" says Derek.

Truckcom is now an integral part of the way Goldstar operates, with all office users at the company's six operating bases around the country and the entire company and dedicated subcontractor fleet relying on the system. "We have

far better communication with our drivers through the Truckcom mobile system, and we use Truckcom's automatic job input system as much as we can to receive jobs from a large number of our customers" says Derek. "All in all it has saved us a lot of effort".

Now the system is well established, it has definite business development benefits too: "When we show prospective customers how they can view their jobs, proof of delivery, and vehicle positions online, it really helps to set us apart from other operators who can't offer anything like that level of service and visibility". "Looking at how we operate now, the key thing is that everyone has good information from Truckcom, easily to hand" says Derek.

Also, the drivers are full of praise for the system. Gary Withers, who drives for Goldstar in the midlands, says "it's the best thing I've ever had. I'd recommend this to anybody".

Derek sums up the effect of Truckcom: "We've made significant savings and it makes the job easier"

Case Study 1: (Truckcom, 2018)

Vehicle checks

The use of technology to perform vehicles daily checks, reduce the risk of accidents by identified any defects in vehicles before the start of the journey, and reduce operating costs by prevent fines imposed by the Vehicle and Operator Services Agency (VOSA) to vehicles that are not roadworthiness. The App on the Smart Phone or Tablet will force drivers to complete daily checks before the start of the work day as this system allows managers to have instant information of vehicles roadworthiness. Managers can their plan for vehicle maintenance, thus reducing downtime from broken vehicles, and reducing operational costs (RAC, 2017). These platforms allow managers to upload legal paperwork, and share it with drivers for immediate access when requested by

the Driver and Vehicle Standards Agency (DVSA) for compliance (Descartes, 2018).

Conclusion

Due to the introduction of The Internet of Thing a dramatic change has taken place in the logistics industry. Over years, as the price of the Internet became more affordable, and with the development of wireless systems the use of technology made supplying chain more economic. The collection of information from around the world enables data to be collected and shared by managers, employees, clients and when appropriate customers.

There are many types of technology available such as: Automatic Identification technologies, Radio Frequency Identifiers, Freight Tacking and, Mobile Device Management. All these technologies rely on the sharing of data via the Internet of Things, and are available on various platforms. The use of logistic platforms an help business', for example, monitor, check maintenance, facilitate a diverse operation so they can react faster, make the logistic process more visible to managers, track driving hours, keep all users in the logistic chain informed, reduce costs and save money – therefore, increasing a business' bottom line.

It is very important for logistics managers to be up to date with technology available will give a business competitive advantage over its competitors

However, it must be acknowledged, when using Internet based platforms, that a system is only as good as your Internet connection and its users.

If you can connect you can control, if you cannot connect you cannot control, therefore, you can now manage.

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GRADEMARK REPORT

FINAL GRADE

61 / 100

GENERAL COMMENTS

Instructor

Using case studies critically evaluate the application of asset tracking technologies in the movement of goods and people.

Your submission should be in the form of a report with a target word count of 2,750 words (+/- 10%).

Assessment Criteria:

Critically evaluate the extent to which the logistics industry have adopted joined up information technology solutions with regard to the movement of goods and material

Word Count: 2256 [just below the absolute minimum of 2275 taking into account -10%]

This was a good assignment it ticked all the visibility in transit boxes.

It failed however to deliver the critical evaluation aspects of the assignment, which if you had undertaken the critical evaluation would have increased your mark significantly. You had carried out good research and demonstrated a good level of knowledge and understanding of RF technology and in simple terms how it works and the advantages it brings, but if you analysed your research and looked at it from a different perspective you could have presented the critical evaluation that was required. Never the less, really good effort. Well Done.

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PAGE 3



Comment 1

Supply



Comment 2

Good start



Comment 3

Which was what?



Comment 4

Says who?



Comment 5

Evidence

PAGE 4



Comment 6

the supply chain??



Comment 7

the identifier can either be.....

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