

SERVIVE LOGISTICS

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Using case studies critically evaluate the application of asset tracking technologies

Abstract

This report evaluates the use of telematics to improve visibility of assets to improve the efficiency, safety, and security while assets are in transit. This report uses three case studies the first is within a cold storage companies traceability and monitoring of environmental conditions of perishable products in the cold supply chain evaluating the methods used to achieve their high-quality standards. The second case study is to evaluate the methods used in the last leg delivery service. The third case study is to evaluate the mitigation of the visibility of reusable containers within a manufacturing company to minimise costs and to maintain the flow of production.

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1.0 Introduction

The goal of this report is to evaluate the methods used for asset visibility using case studies from secondary sources. This report will evaluate the use of telematics for asset visibility and find three case studies based on track and traceability of goods and material handling equipment in supply chains.

2.0 Telematics

According to (Craig & Holbrook 2010) vehicle telematics used for fleet management has the capability of creating driver behaviour visibility to analyse the data for risky driving behaviour patterns for the operations manager to decide if the driver is safe to be driving or not, and to access if further training is required. The utilisation of telematics changes how the driver behaves when driving resulting in a 20% to 30% reduction in claims made due to the “halo effect” this effect is said to be the awareness of the monitoring device installed

causing the driver to change their behaviour in a positive way mitigating the frequencies of accidents. The 20% reduction in accidents is correlated to GPS monitoring, and the 30% reduction in accidents is correlated to engine data monitoring. A 10% fuel cost reduction is said to be made by reducing the time vehicles are idle. According to (Craig & Holbrook 2010) Telematics can assist in mitigating the prevention of fraudulent activities, and telematics can help with recovery of assets after they have been missing or stolen using GPS or GIS. The utilisation of telematics can prove if a vehicle was, or was not at the scene of an accident.

3.0 Case study 1

According to (Tsang et al. 2017) in a case study utilised for their article, is a cold storage logistics organisation called AOC Limited, that is a part of the Chevalier Cold Storage and Logistics limited group. They use an 18-floor building with the capacity of 28,000 metric tons split into five sectioned areas, international fine wine section, bonded section, temperature-controlled area, freezer area, and chilled area. The temperature ranges from -16°C to -20°C to reach frozen meat, and seafood etc standards in their freezers, with temperatures ranging from 1°C to 4°C in their chillers to preserve stored fruit and vegetables, and dairy products. The temperature is kept between 18°C to 22°C in the bonded and temperature-controlled areas, furthermore the fine wine area is regulated to 16°C with a humidity level of less than 75%. The organisation has an ISO 9001:2008 accreditation for their cold chain service due to the growth in demand. The service they provide is highly regulated and standardise to achieve the best possible quality of service for their customers.

AOC Limited uses fuzzy logic (FL) artificial technology (AI) to examine the temperature, or humidity levels, however temperature, and humidity information is not a fixed value due to fluctuations requiring the AI to fuzzify the information to enable the system to make decisions such as temperature control and electricity consumption and used throughout the logistics industry for supplier selection, and supplier performance. The information is loaded into the case-based reasoning (CBR) AI to emulate a logical thinking human to solve problems by a saved database of past problems to use when similar problems occur in the future, for it to then select the most appropriate solution for the problem in hand. CBR is used in the logistics industry for quality assurance and buying and selling negotiations. The information is collected and saved onto a cloud-based platform for remote access to assess whether the cargo's quality has been compromised during its movements through the cold supply chain to meet customer's expectations and help gain optimum efficiency (Tsang et al. 2017).

According to (Tsang et al. 2017) the customers of AOC Limited require a report of the conditions their products have been exposed to during storage and transportation. The problem facing the company is providing real time information of the conditions of the cargo due to the data loggers using the information when the service ends. Real time alerts however can be sent via the use of automatic data collection and storage technology namely TI Simple Link TM Sensor Tags storing onto a database in the JSON format, is for collecting nine different data types as follows:

- Three-axis gyroscope data
- Ambient temperature data

- Object temperature data
- Altitude data
- Three axis magnetic measurement data
- Light levels data
- Air pressure data
- Three axis acceleration data
- Humidity data

The cargo environmental conditions are under constant monitoring by the sensor, and AI technology, and in the event of the required limits being breached the system will sound an alert in real time to management to take mitigation, or contingency action. The system can reduce costs and most importantly can mitigate quality efficiency during storage and transport processes.

3.1 Case study 2

According to (Hopkins & McCarthy 2016) in their article from a qualitative study on changing trends within urban freight delivery in Aotearoa New Zealand. The managers and drivers of urban freight companies was asked questions regarding their everyday experiences of the delivery of goods. This report is focusing on the visibility in transit sections of their article.

In the article by (Hopkins & McCarthy 2016) a branch manager was asked what the significance that tracking technologies and information and communication technologies (ICT) has on their business. Paul the branch manager from Wellington replied saying their customers are faster than them at tracking their items at times, and the tracking service is loved by their customers saying its important due to the delivery service being intangible in nature, and the visibility of their performance is clear to their customers “warts and all”.

The article continues to state that it seems to be important to distinguishing differences in services from one company to another through transparency in the delivery process. The visibility of the movement of freight has the advantage of protecting the company and their drivers from blame if freight gets lost or damaged, by keeping track of the freight at each stage of the process. A branch manager from Tauranga named John said they scan up to 4 times in a day to ensure they always have optimum visibility of freight, and the ability to locate at any stage of the operation. The article explains the value added is through the service to the customer, enhancing their experience and gaining greater customer satisfaction, however the speed the freight moves through each stage remains unchanged, furthermore the cost of the technology is absorbed by the courier due to the customer being made exempt of these charges to make the additional service essentially free in a bid to stay ahead of the competition. A regional manager named Kathryn from Wellington, and A branch manager at Tauranga named James said the future of the delivery process would need to have tracking and transparency from beginning to end of the service, including information such as:

- When the item is scanned by the final leg driver
- The name of the driver

- Loading of the item(s) into the delivery vehicle
- Within a ten-minute window of when the freight will be delivered
- Where the item(s) were delivered
- Proof of delivery

The demand from the customers to need to be able to see their order from point A to Point Z is putting pressure on the delivery process. Kathryn added that the demand for total visibility from end to end with the use of information technology is a trend that is going to increase with time.

3.2 Case study 3

According to (Maleki & Reimche 2011) in a case study they did, focusing on a manufacturing company called MAAN, making to order a wide selection of components, assembly, and the painting of finished products. The company uses returnable containers for their components, or finished goods and the containers are specially designed to hold and protect the intended products. The returnable containers are an asset owned by MAAN and are sent to their warehouse until the container is empty triggering the system to ship the container back to the manufacturing plant until a new order for that particular part is placed, starting the process to start over again. This is how it should work, however containers from other companies that supply MAAN get mixed up with theirs and vice-versa, causing the company to lose containers in the process and a need to continually make new containers to replace lost or damaged ones. The problem comes when a call for production is made but a lack of the appropriate containers, or miss-managing the flow of containers through the system could slow-down or stop production.

According to (Maleki & Reimche 2011) MAAN currently stores their containers outside the plant or at a third party logistics providers facility. They ship the containers to their suppliers when required or when there is enough of them to make a full load, and the suppliers tend to have many empty containers belonging to MAAN at their sites. There is a bill of lading created to be signed to mark the changing of hands and legally by American law changing ownership from one party to the next.

The company tried to count all their containers throughout their supply chain, however the amounts they got back was different each time from different counts made by many people, resulting in the task being deemed impossible. A container tracking and identification system was considered as a possible solution to the problem. The cost of replacing a lost or damaged container is \$1000 plus additional costs are produced when less than full load shipments are required to replace missing containers due to the increased chances of damaging the containers and losing them as the load is disturbed at other drop offs and pick-ups (Maleki & Reimche 2011).

AutoID is a technological solution, an improvement in communication, and making the supplier liable for containers are the three recommended solutions for the problem. A much higher level of communication throughout the supply chain would help, Using a barcode method of autoID to track the containers as they move through the supply chain minimising lost containers and improving the flow of containers (Maleki & Reimche 2011).

4.0 Conclusion

The technology used can benefit the companies visibility of assets and increase efficiencies and reduce costs. The case studies in this report highlight the need for the methods used to

either meet customer expectations or to maintain a high standard of quality, or to track a companies assets through the supply chain to save costs and to minimise disruptions.

References:

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- Tsang, Y. P., Choy, K. L., Wu, C. H., Ho, G., Lam, H. Y. & Koo, P. S. 2017, 'An IoT-based cargo monitoring system for enhancing operational effectiveness under a cold chain environment', *International Journal of Engineering Business Management International Journal of Engineering Business Management*, vol. 9, p. 1847979017749063.

FINAL GRADE

27 /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 1876

Line spacing is 1.0 not 1.5 as required.

This assignment is capped. It was submitted on 27 Nov 18 @ 23:59 hrs some 6 days and 59 seconds late.

It is also 574 words short of the absolute minimum requirement after 10% allowance against 2750 original words count requirement.

This was a disappointing submission, little referencing in terms of bibliography, which demonstrates lack of research, little or none of your own knowledge and your own understanding. Demonstrated by none of your own contribution in terms of the critical evaluation the assignment was looking for.

Short on word count which could demonstrate that the assignment was rushed and therefore no thoroughly planned.

You cannot just rely on the case studies to which you used to provide the necessary evidence to meet the assignment requirements. It is clear that you seem to have missed the fact that the assignment called for a critical evaluation which you have not done.

Should have been better,.



Comment 1

What do you mean by risky driving?



Comment 2

How and who said.



Comment 3

claims of what



Comment 4

how and by what means



Comment 5

who said



Comment 6

Why engine data



Comment 7

said by whom



Comment 8

what type of activities



Comment 9

Why is ISO 9001:2008 linked to growth in demand. ISO 9001:2008 is an International Quality Management Standard.



Comment 10

standardised

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