

Fleet assessment for truck upgrades



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Abstract

This assignment has been compiled with information regarding a fleet assessment. The deadline date has been set for this assignment and it must be submitted on or before the 22nd of October 2018.

Due to the rules and regulations, and the introduction of euro standards by the government in relation to emissions, older vehicles are getting more difficult to be used in road haulage. So therefore, the majority of haulage companies in this country need to look at assessing their fleet and put a replacement cycle in place.

The information throughout this document looks at a fleet of trucks that needs to be upgraded. There is a comparison of two manufacturers which needed to be completed as to identify which one would be best suited for a replacement cycle.

Introduction

As a fourth year student studying Transport Management at Cork Institute of Technology, a compulsory module titled “ Fleet Operations” must be completed. Part of this module is to produce an assignment which was requested by my lecturer Efce van Heerden.

The aim of this assignment is to identify a company that has a fleet of eighty to a hundred trucks, research the vehicles and put a replacement cycle in place for to upgrade the fleet. The company that has been chosen for to complete this assignment is Topaz.

There were many resources that were available for use such as the library and the IT laboratory and other IT rooms around the institute. The IT laboratory and rooms were extremely useful as they could be used at any time, and they were open from early morning to late at night.

This assignment has been produced using liable information supplied by online sources. The structure that has been chosen is believed to resemble logic as each of the terms of reference flow into each other without the reader getting lost or frustrated throughout the report.

Objective

The objective of this assignment is to assess and upgrade a fleet of trucks.

For the ability to achieve this action, the following terms of reference will be looked at accordingly;

- Overview of what a formal fleet operation policy and procedure entail.
- Overview of relevant manufacturers, including specifications & aftersales.
- Fleet requirements & mix.
- Environmental considerations & safety.
- Fleet maintenance options & considerations.
- Fleet operations documentation & legal requirements.

Methodology

The main sources for retrieving information for this assignment is going to be the use of the internet and books from the library.

Overview of what a formal fleet operation policy & procedure entail

Brief insight to Topaz

Topaz is a fuel retail chain in Ireland, owned by a Canadian group. Topaz previously traded under the Shell and Statoil brands until they were replaced by the Topaz brand in 2008 throughout Ireland. Topaz are the leading distributors of fuel, both petrol and diesel, along with lubricants such as engine oil and transmission fluids. There are 420 Topaz fuelling stations across the country, with a current fleet of 95 trucks providing deliveries to each of these service stations. At the majority of Topaz stations, a deli or a food forecourt can be found for to satisfy hungry motorists.

Fleet operation policy

When it comes to fleet management, there are many things that must be taken into consideration. Fleet management entails of the operating efficiency of aspect of the fleet, reducing the costs and risks, and minimising the environmental impact. In relation to a fleet policy, there are a number of key areas to be considered such as the type of vehicles, duration of replacement cycles, funding for the fleet, and most of all, the type of policy that is put in place.

A fleet policy should identify the types of vehicles that are going to be in operation and the duration that they are going to be used for before replacing each vehicle in the fleet. In a fleet policy, it should also be

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determined what type of work is going to be carried out- such as bulk haulage, dangerous goods, container haulage, etc.

The design of a fleet policy is to facilitate and encourage accountability, record usage and associated costs, and operate as a management tool. A basic fleet policy should include information concerning the following;

- An introduction about the fleet.
- What the purpose of the fleet is going to be.
- Objectives for the fleet.
- Planning and approval of a budget process.
- Types of vehicles required.
- Vehicle ordering process.
- Management schedule of vehicles.
- Maintenance scheduling for the vehicles.
- Vehicle replacement cycle.
- Guidelines for the drivers.
- Vehicle insurance information. (Dawson, 2017)

Fleet operation procedure

Once the fleet operation policy has been established and put in place, it is then time to follow through with a procedure. There are many things that must be identified throughout the procedure process and they are as follows;

- Identify the needs.
- Insurance.
- Management of vehicles.
- Vehicle maintenance.

- Health and safety.
- Drivers. (White, 2015)

Identify the needs

Identification of a fleet is dependent on the size, area and type of operations that are going to be carried out. Small vehicles may be better suited for urban areas and short journeys whereas larger vehicles would be better suited to long distances. (White, 2015)

Insurance

It is a legal requirement to have insurance on vehicles. The minimum insurance policy that can be obtained is third party insurance. (White, 2015)

Management of vehicles

Vehicle management is important in road transport companies as they need to get the most from their vehicles. Managing vehicles provides better utilisation of vehicles and the time spent idling or waiting around can be reduced significantly. (White, 2015)

Vehicle maintenance

It is crucial to keep vehicles maintained. Vehicles that are regularly maintained usually give their optimum performance and downtime can be reduced with less breakdowns. Maintenance also provides safety to the drivers and other road users. (White, 2015)

Health & Safety

With regard to health and safety, both the employer and employee play a huge role in this. It is the employers' responsibility to have health and safety measures in place but it is the employees' responsibility to ensure their own health and safety also. (White, 2015)

Drivers

It is important to have drivers trained to a high standard, as it will be benefit to them and to the company. Driver training can reduce the operating costs of a company and helps to provide safety for themselves and other road users. In addition, driver training has the ability to reduce maintenance costs and intervals. (White, 2015)

Overview of relevant manufacturers, including specifications & aftersales

Topaz's fleet consists of a variety of trucks from different manufacturers. The majority of trucks are articulated which are manufactured by DAF and Volvo but there is a small number of Scania trucks also. This section is going to look at the specifications and efficiencies of these trucks, and identify which truck is most suitable to the fleet for the replacement cycle.

DAF

Daf has been voted truck of the year for 2018 by road transport journalists who come from 23 European countries. With a new design and latest technology features, CF and XF DAF trucks offer an increased transmission and fuel efficiency with an overall weight reduction. DAF CF and XF models

have been designed for to produce maximum reliability, maximise efficiency and increase driver comfort to suit every application. (DAF, 2018)

Leading fuel economy

With the new and improved DAF trucks, they provide higher torque at reduced revs with optimised drivelines that include a higher efficiency in the rear axles, improved technology performance and an improved design of the aerodynamics. With these improvements, they result in an increased fuel efficiency for long distance journeys of up to 7%. For to achieve this increase in efficiency, it is mainly due to the following components;

- PACCAR MX-11 and MX-13 engine innovations.
- Automatic gearbox from TraXon.
- Rear axles with faster ratios which produce higher efficiencies.
- Improvements to the aerodynamic design.
- Upgraded software features. (DAF, 2018)

Increased payload

For the ability to have an increased payload, engine and chassis redesigns contribute to weight savings as well as an emission after treatment system that reduces weight by up to 50 kilograms. Also, depending on the configuration of axles, the weight of the vehicle can be reduced by up to 100 kilograms. With this weight reduction implemented, it allows bigger payloads to be carried and this a significant factor when every kilogram counts. (DAF, 2018)

Reduced downtime

DAF trucks are renowned for their reliability. With the new improvements to the electronic structure of the trucks, reliability has been increased even further. A reduction in the amount of wiring and the number of connections, this results in simplified wiring and increased reliability. Another method of reducing downtime is the increased distance between service intervals. The new DAFs can now be driven for a distance of 200, 000 kilometres before having a service carried out. As an overall result of this, the availability of vehicles in a fleet is maximised and the operating costs are reduced which would be a major benefit to Topaz. (DAF, 2018)

Telematics system

DAF have their own telematics system fitted to their trucks. “ DAF Connect” fleet management system provides real time information in regard to the efficiency of the vehicles and their drivers behaviour. This system also provides information about the vehicles location, fuel consumption, mileage driven and idling time. With this information being available, fleet management have the ability to improve utilisation of their fleet, which in turn reduces operating costs and maximises profitability per kilometre. (DAF, 2018)

DAF Aftersales Services

DAF offer a wide range of aftersales services and customer service, which have the potential to constantly reduce operating costs. DAF offer telematics systems, multi support packages and financing options that provide a whole life ownership scheme. (DAF, 2018)

Volvo

Volvo have created an unmatched customer service within their network. Every truck that Volvo produce, has been designed to reduce costs and increase productivity of a company. At Topaz, productivity is a significant factor as a fuel supplier. Currently in the Topaz fleet, there are 37 Volvo FM trucks but these are going to be replaced by DAF FX trucks as they are a far more superior vehicle in regard to comfort and efficiency.

Performance of the Volvo FH

With two transmissions combined into one, there is no delay with the delivery of power or torque when it is required while having a low fuel consumption. This dual transmission system makes gear changing seamless and provides a continuous flow of power all while enhancing the performance of the truck. The crawler gears in this transmission are designed for heavy transport and with the new improved axle ratio, it allows for the ability to maintain a cruising speed at minimum revs reducing the fuel consumption and the operating cost. (Volvo, 2018)

With the latest technology fitted to the FH models, it makes them very efficient and provides a lot more safety but above all, there is one significant factor and that is the driver. If the driver is not trained to a high standard, it will be impossible to get the best from the vehicle so it is important to have a policy in place to ensure drivers are trained to the highest standard possible. Volvo provide courses to improve driver behaviour to make them safer and more efficient. (Volvo, 2018)

Dynafleet is a telematics system used by Volvo. This system has other technologies integrated into it such as I-Cruise(Intelligent Cruise Control) and I-See. The I-See technology has the ability to record inclines and declines that would on any given route which may be driven. This data is stored in a database and the information is available to any truck with this type of system fitted. Integrated with I-Cruise, this will adjust the speed and revs of the truck to keep fuel consumption to a minimum. Combining driver training with the Dynafleet telematics system, this is a definite way to have a more efficient fleet. (Volvo, 2018)

Volvo Aftersales Services

The aftersales team at Volvo have great interest in keeping the vehicles operating. They offer services to assist the driver, the fleet manager, and the transport manager to ensure they achieve the best out of the vehicles. Some of the services that are on offer include fleet management, driver development, and financing options. (Volvo, 2018)

Fleet Requirements & Mix

Topaz have 420 service stations across the country. 320 of these service stations require an artic load of fuel every three days as they are located in busy areas, 55 of these require an artic load of fuel every four days and 45 service stations require a delivery of fuel once a week. For to fulfil these requirements, Topaz require 90 tractor units to meet the delivery demands of these service stations.

These 90 trucks are going to be dissipated into each province in the country, having more trucks in the busier areas to meet the requirements. So therefore, the vehicles are going to be dissipated in the following areas;

Leinster- 30 vehicles

Munster- 25 vehicles

Connacht- 20 vehicles

Ulster- 15 vehicles

The reason for the trucks being separated into each province is that there are more service stations located in Leinster, which require fuel more frequently, followed by Munster, Connacht and Ulster.

Environmental Considerations & Safety

Topaz take environmental issues very seriously and comply with the law and regulations at all times while doing their best to prevent any harm to the environment. When it comes to the environment, there are many elements to be considered such as the law, emergency action plan and safety measures concerning the consignor, the driver and the consignee. The European standards for trucks must also be taken into consideration.

The Law

The legislation regarding the carriage of dangerous goods in Ireland and Europe is in place in 46 countries and is governed by the ADR agreement. The ADR agreement is the European Agreement Concerning the International Carriage of Dangerous Goods by Road and was put into action more than 50

years ago with it being amended every two years to ensure it is always up to date with the latest edition of ADR. The ADR provides details about the design and construction of tankers that are used to carry dangerous goods and it provides information about appropriate training needs. (Authority, 2012)

Emergency Action

Emergency action is very much dependent on the type of incident that has occurred. The most important part of any emergency procedure is the training that has been provided to drivers and employees, whether it be a spill during a loading or unloading operation or in the event of the vehicle overturning on a roadway. Drivers who have completed the ADR driver training are provided with additional training to give them a better indication of their role and responsibilities.

Topaz is obliged to carry out risk assessments under the health and safety legislation and put a procedure in place to assist in preventing and controlling hazards. As Topaz stores dangerous goods, they are also obliged to have procedures in place to deal with the following;

- Spillage of fuel.
- Fires and flammable liquids.
- Personal contamination.
- Environmental contamination.
- Road incidents involving the transportation of dangerous goods.
- The loss of dangerous goods. (Authority, 2012)

Safety measures

In the ADR agreement, it states that “ The participants in the carriage of dangerous goods shall take appropriate measures according to the nature and the extent of foreseeable dangers, so as to avoid damage or injury and, if necessary, to minimise their effects. They shall, in all events, comply with the requirements of ADR in their respective fields. When there is an immediate risk that public safety may be jeopardised, the participants shall immediately notify the emergency services and shall make available to them the information they require to take action.” (Authority, General safety measures, 2012). This statement basically means that all parties involved with the transportation of dangerous goods must ensure that all possible actions are taken to minimise the risk of an accident occurring. It is the responsibility of Topaz to ensure that all employees do the following;

- Comply with the legislation.
- Receive the required training.
- Keep records of any training that was completed.
- Take necessary actions to evade injury and death.
- Inform emergency services if there is a risk of public safety.

(Authority, 2012)

Consignor Safety Duties

A consignor is the person or company that is handing goods over to a carrier for the transportation of them and the name of the consignor must be stated on the documentation. Before handing goods over to a carrier, the consignor must first;

- Ensure the goods are classified and authorised for transportation.
- Inform the carrier about the nature of the goods.
- Supply the carrier with all necessary documentation.
- Only use approved and certified tankers for the transportation of fuel.
- Be compliant with all legislation with regard to dispatching and forwarding.
- Ensure that the vehicles are labelled accordingly.
- Ensure the driver is appropriately trained.
- Ensure that emergency plans are in place in the case of an accident.

(Authority, 2012)

Driver Safety Duties

The driver has full control of the vehicle carrying dangerous goods so it is of huge importance that they have received the appropriate training required to carry out their role. The following is a list of safety measures that a driver must adhere to when carrying dangerous goods;

- Ensure they carry all training and licencing documentation with them.
- Ensure they understand the documentation they have been provided with from the consignor.
- Have emergency plans and procedures available in the cab in the case of an incident.
- Ensure the vehicle is fully equipped with safety equipment and all necessary PPE.
- Ensure the vehicle is properly plated and marked.
- Do not operate the vehicle if it is not compliant with any regulations.

- Ensure there is nothing in the vehicle that would be liable to cause a naked flame.
- Ensure the vehicle is switched off during loading and unloading.
- Ensure the parking brake is applied when the vehicle is stationary.

(Authority, 2012)

Emissions

Road haulage transportation produces approximately a quarter of the total greenhouse gases emitted per annum. The road transport sector produces up to 18% of the total emissions that come from vehicle usage. Truck manufacturers are continuously developing technologies to reduce the output of harmful emissions to the environment. (Commission, 2018)

As Ireland is part of the European union, the Irish government must enforce legislation regarding emission standards, commonly known as “ euro standards” in the truck industry. Currently in Ireland and throughout Europe, euro six standards are in force. This does not mean that the older trucks can not be used, but it will be more expensive for them to be used in the haulage industry.

The best possible way that Topaz or any other company can protect the environment from emissions is to continuously upgrade the fleet of vehicles. By doing this, the fleet of vehicles will be fitted with the most recent and the latest technologies that there are to reduce the production of emissions.

Fleet Maintenance Options & Considerations

Maintenance has a significant input in the daily operation of a fleet of vehicles. Well maintained vehicles increase productivity and operating

efficiency of a fleet. Keeping vehicles maintained also provides safety for the drivers and other road users as any defects would be repaired in a very short period. When it comes to maintenance options, there are different maintenance schemes to be considered to identify which scheme suits best. These schemes are;

- In house maintenance; this is where a company carries out its own maintenance on vehicles providing it has the facilities and equipment to do so. By doing so, the company has better control of the costs of maintenance as they can decide on the parts that they want to replace. It also gives greater flexibility to maintaining vehicles as the maintenance can be carried out when the vehicles are finished working rather than taking them off the road for a day. (Logistics, 2018)
- Outsourced maintenance; if a company does not obtain the appropriate facilities and equipment to maintain their own vehicles, then the maintenance must be outsourced. By outsourcing maintenance, the operator is still responsible for the roadworthiness of the vehicles and for keeping maintenance records, the garage that carries out the maintenance is not responsible for this. (Logistics, 2018)
- Preventative on-going maintenance; this is the best way to keep vehicles in a roadworthy condition and to maximise the utilisation of vehicles. With drivers carrying out daily walk around safety checks and reporting back to the fleet manager, it gives them the opportunity to decide on the seriousness of any issues and decide on which vehicles require immediate maintenance. (Logistics, 2018)

Topaz outsource the maintenance of their fleet to DAF and Volvo garages. Each vehicle is serviced after driving 80, 000 kilometres and they are fully maintained with every second service. Issues that arise between service intervals are brought to the attention of the garage and will be booked into be repaired. The reason Topaz outsource their maintenance is that it is more cost effective than having their own garages where employees with the sufficient skills would be needed along with the appropriate facilities and equipment.

It has been decided that Topaz will operate a replacement cycle that is going to be intervened with the maintenance scheduling to replace the full fleet of vehicles at different intervals. The truck that has been chosen for the replacement cycle is the latest edition of the DAF XF. DAF has been chosen due to the fact that it was voted truck of the year 2018 with a leading fuel economy. DAF aftersales service is also highly reliable and much more customer focused which can not be said about Volvo aftersales.

In order for the replacement cycle to work, it is going to happen over a five year period, with eighteen trucks being upgraded each year. There will be nine trucks upgraded at the beginning of each year and another nine trucks will be upgraded in July of each year. The replacement cycle will commence in January 2020. The first eighteen trucks to be replaced will be a mixture between the oldest vehicles that are currently in the fleet, and the vehicles that have the highest mileage. The first nine vehicles to be replaced will be those that are the oldest, and the second nine vehicles will be those that have the highest mileage. When this replacement cycle is complete after five

years, another review of different trucks will be carried out for to get another replacement cycle under way.

Fleet Operations Documentation & Legal Requirements

With the transport of dangerous goods, documentation is an important element that must be handled with due care and attention. The required documentation for the carriage of dangerous goods consists of vital information about the goods being carried, the qualifications that the driver has achieved, roadworthiness documentation for the vehicle, and information regarding emergency plans must be in the vehicle during transport operations.

The documentation regarding the goods being carried should consist of;

- Clarification of what the substance being carried is.
- ADR certification.
- Roadworthiness certification for the vehicle.
- A consignment note.
- Classification of the type of substance.
- A UN number.

The qualifications of the driver should consist of;

- Drivers licence.
- Drivers digi-card.
- Certificate of Professional Competence.
- Hazchem training certification.
- ADR training certification.

Vehicle documentation;

- Insurance certification.
- Proof of ownership/Registration.
- Road worthiness certification (CVRT).
- Road Haulage Operators License.
- Emergency action plan must also be readily available to the driver in the vehicle.

Conclusion

From completing this assignment, a lot of knowledge has been gained in regards to what information a fleet policy and procedure should contain, which shall be of benefit to me in the coming future, hopefully as a transport manager.

This assignment has provided me with a good insight to the operations of a fleet and the elements to be considered when upgrading a fleet of vehicles. With regard to the carriage of dangerous goods in road transport, this assignment has given me a good indication of what documentation and training is involved.

For to complete this assignment, there was a significant amount of time put into researching all the information and producing this document.

This assignment will be of benefit to me as it deals with all the elements of upgrading a fleet of vehicles regarding road transport. In the case of future employment in the road haulage industry, the information and knowledge gained from completing this assignment would be an advantage compared to people who would not have completed such an assignment.

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