

Improving the Logistics Industry Through Reducing Driver Shortages, Staff Retention and Decarbonisation

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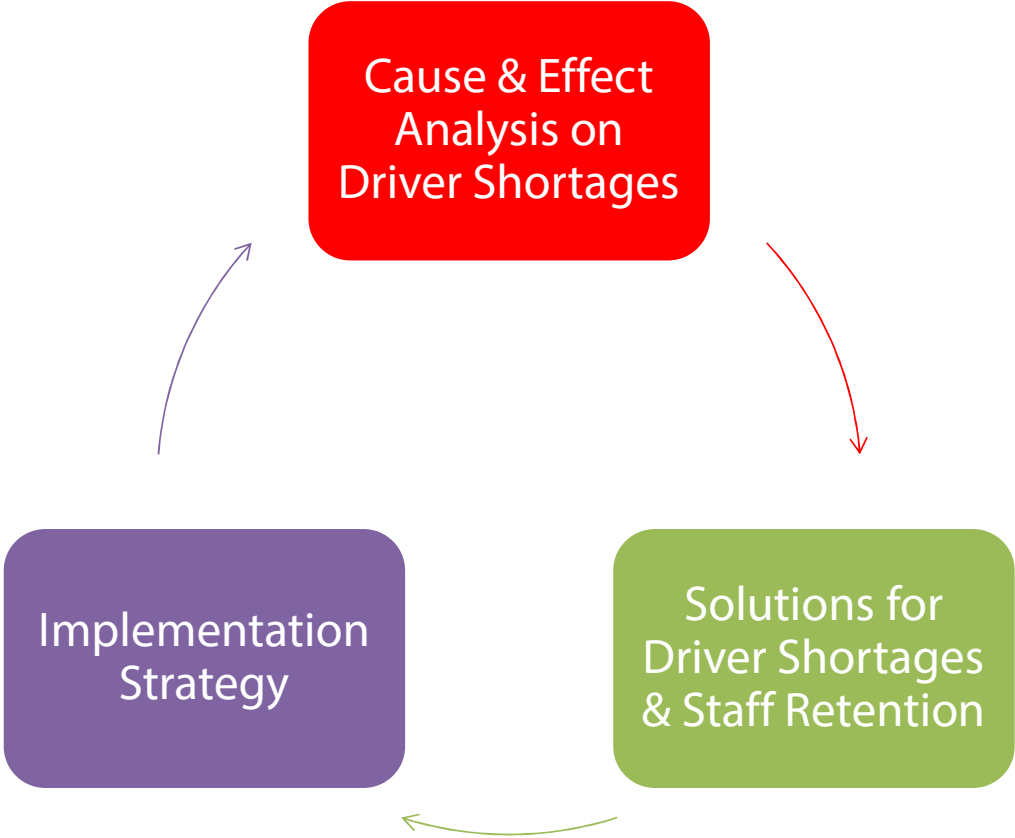
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Introduction

- This large logistic company using predominately HGVs is constantly trying to improve its bottom line.
- The company operates route across the United Kingdom.
- The Coronavirus pandemic in 2019 resulted in the company furloughing 50% of its staff, with some opting to leave the company.
- The company faces several challenges including driver shortages and how to decarbonise its fleet.
- Multiple measures have been implemented but met with resistance.
- A plan will be composed to deal with driver shortages and improve staff retention.
 - Including how to improve the working culture and implement competitive pay and benefits
- Critically evaluating what measures can be implemented now and in the future to decarbonise its fleet.
 - Investigating alternative fuels, optimisation of artificial intelligence (AI) and the challenges the company are likely to face.

Addressing Driver Shortages and Improving Staff Retention

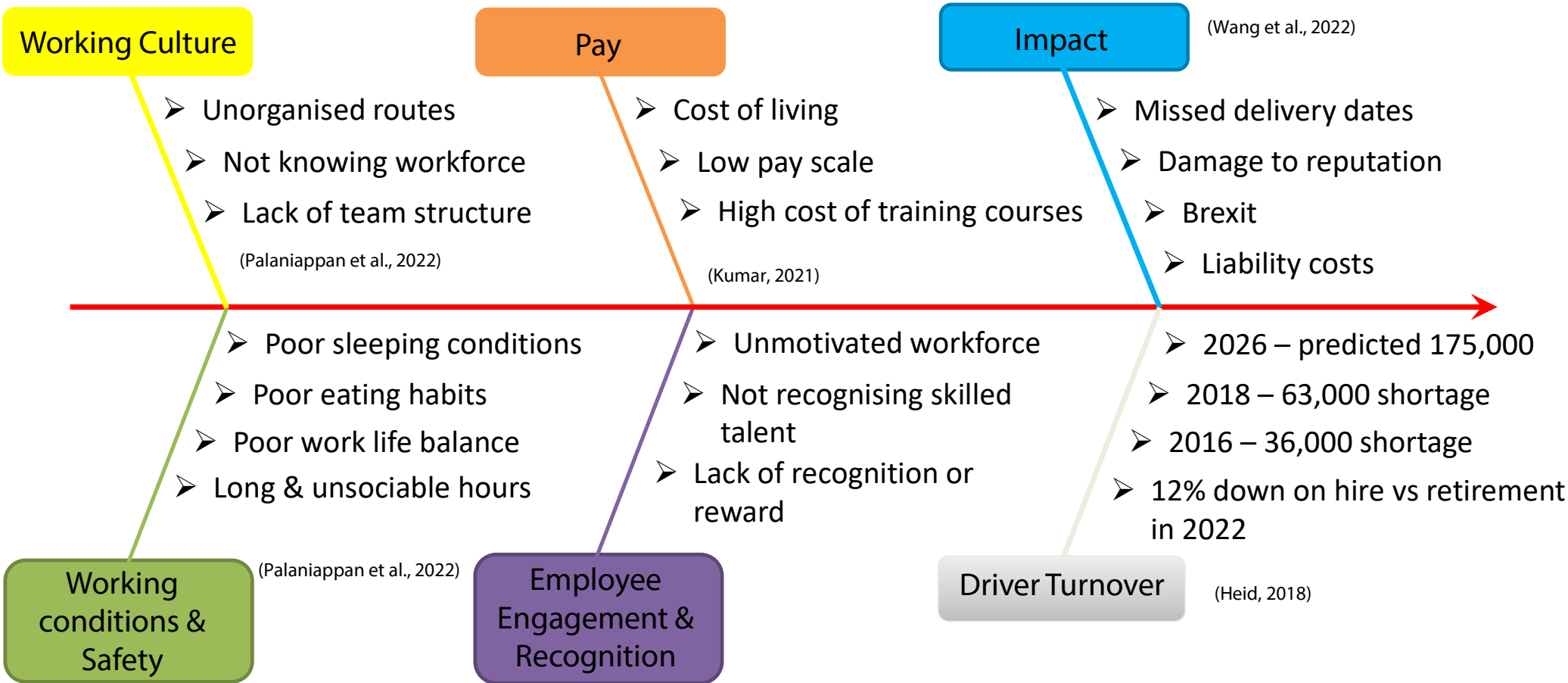
A Systematic Plan to Address Driver Shortages and Improve Staff Retention



Inspiration by (Belando-Montoro et al., 2022)

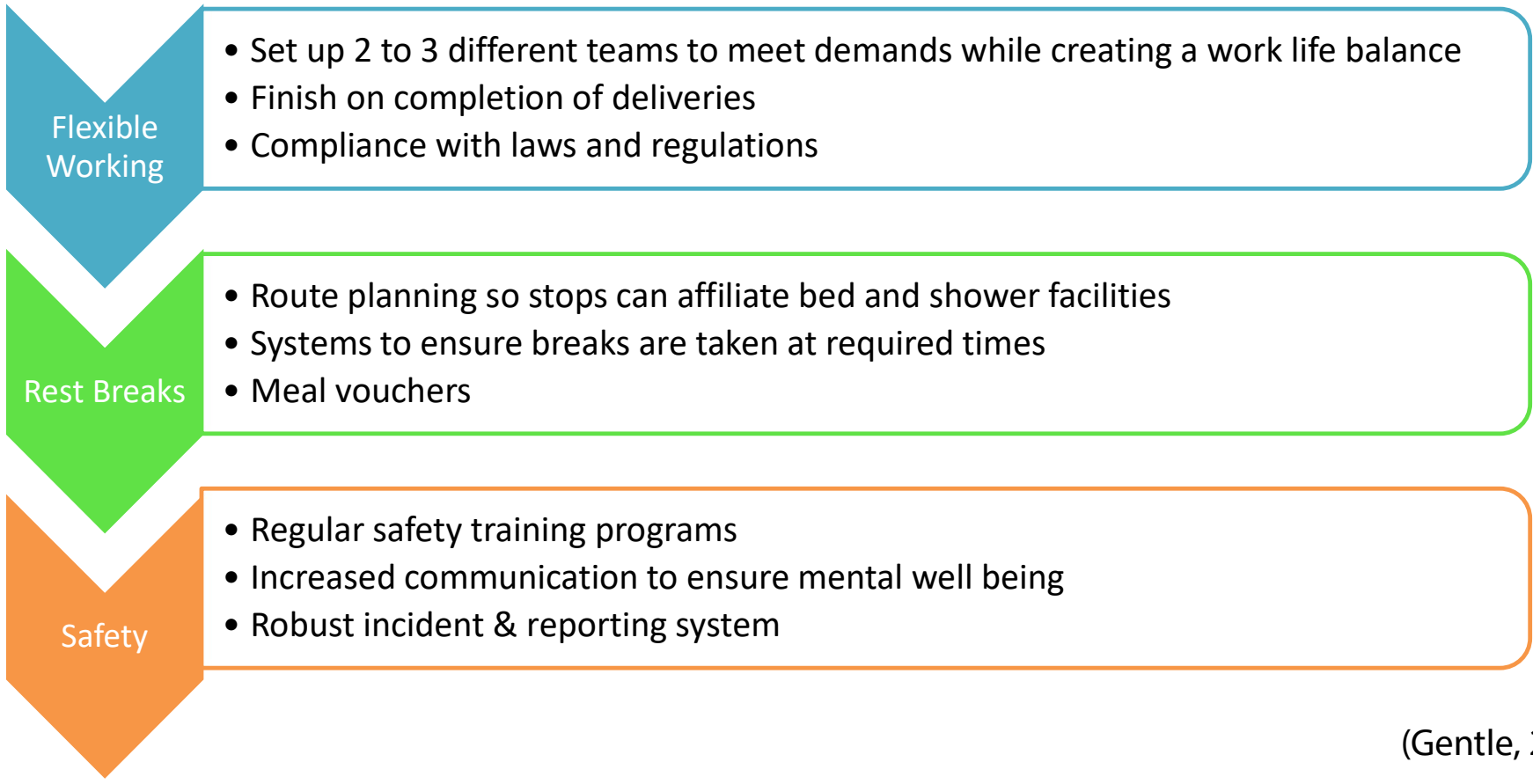
Addressing Driver Shortages and Improving Staff Retention

Cause and Effects Analysis



Addressing Driver Shortages and Improving Staff Retention

How to Create a Better Working Culture



(Gentle, 2019)

Addressing Driver Shortages and Improving Staff Retention

How to Increase Driver Retention



(Smith, 2021)

Addressing Driver Shortages and Improving Staff Retention

How to Implement Competitive Pay and Benefits



(Boin et al., 2020)

Addressing Driver Shortages and Improving Staff Retention

Ways to Improve Staff Retention



Clear Communication



Employee Recognition Programs



Work Life Balance



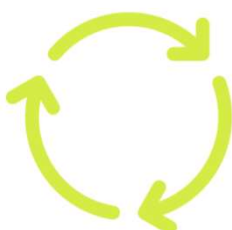
Professional Development Opportunities



Collaborate & Supportive Culture



Employee Wellbeing Initiatives



Performance Feedback & Development



Inclusive & Diverse Workplace

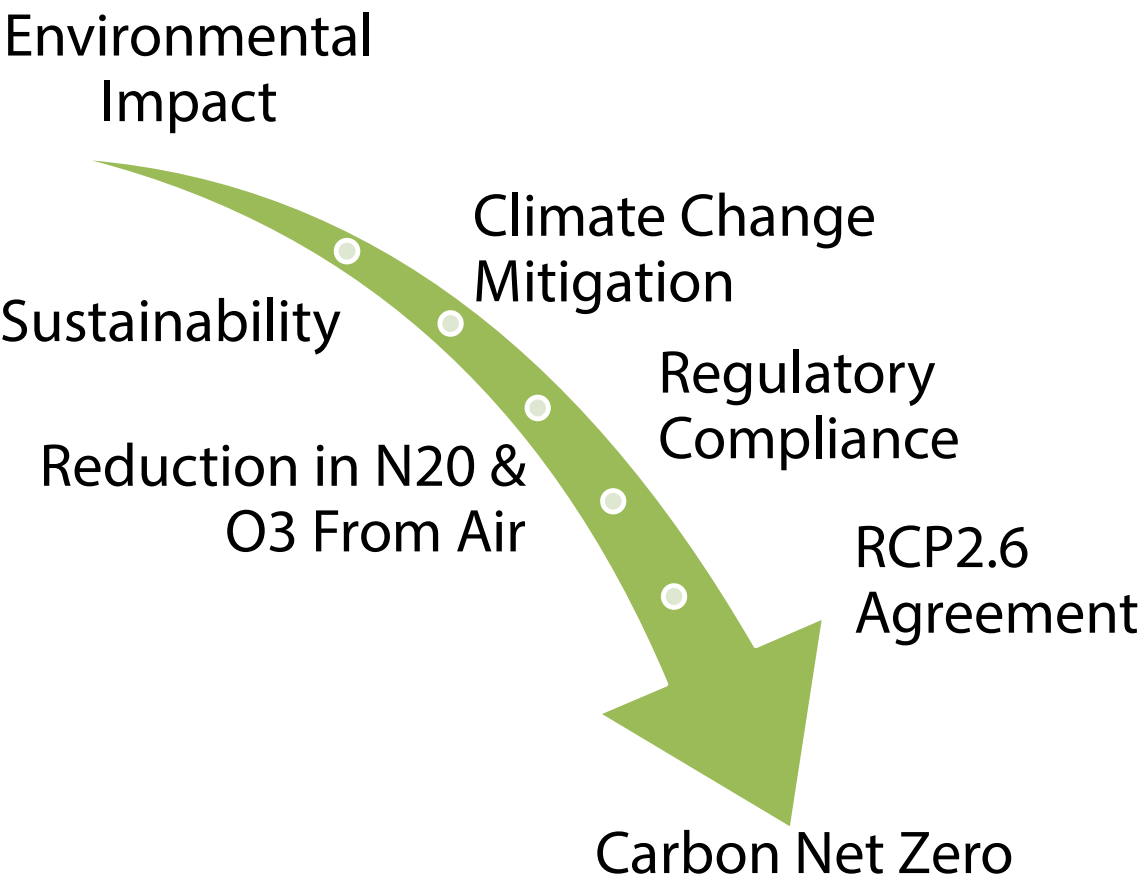


Team Building Activities

(Turner, 2021)

Decarbonising the Fleet

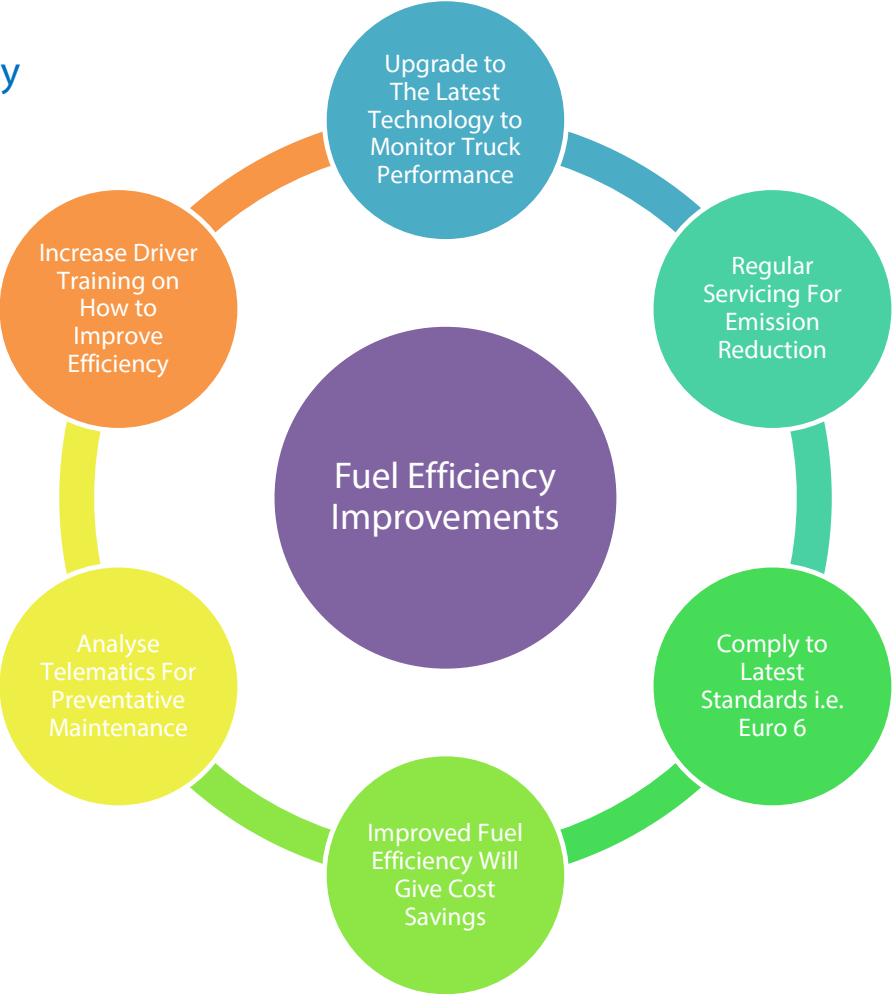
Why Decarbonisation is Important



(Ainalis et al., 2022)

Decarbonising the Fleet

Decarbonising the Fleet Now by Fuel Efficiency Improvements



(Xu and Xu, 2022)

Decarbonising the Fleet
Route Optimisation



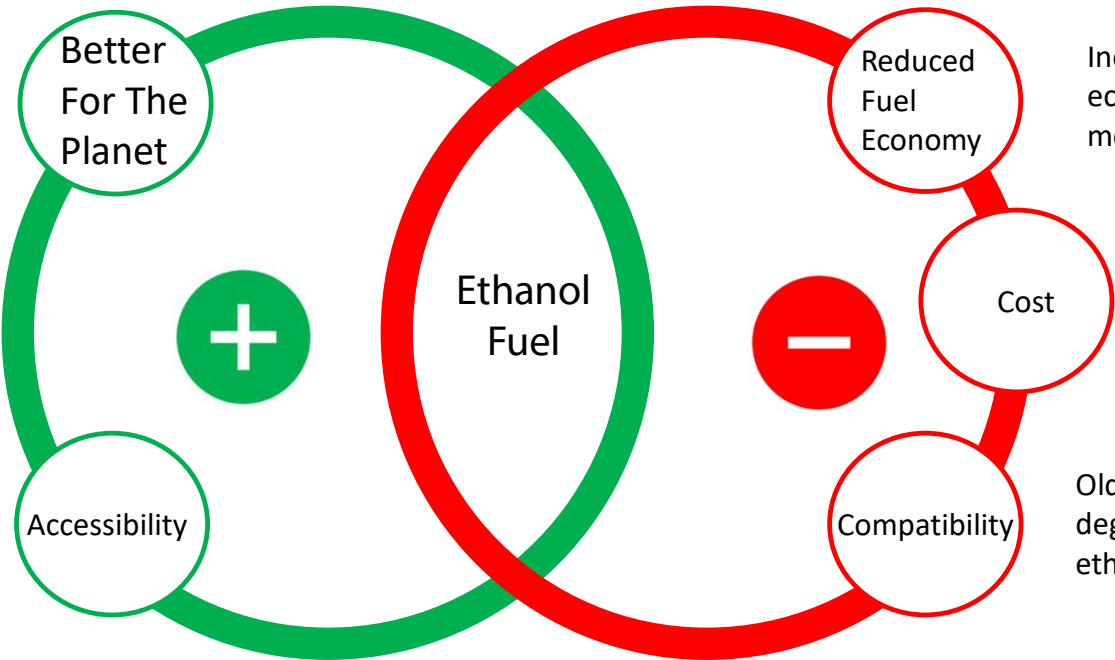
(DHL, 2020)

Decarbonising the Fleet

Using Ethanol Fuel to Decarbonise the Fleet Now

A higher percentage of bioethanol with petrol will lower carbon dioxide emissions

Ethanol 10% blends are currently available at most fuels stations. New car can be design for a higher percentage blend



Increasing the E% will reduce fuel economy, costing the consumer more

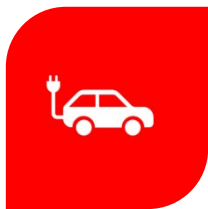
Increased damage will result in higher maintenance costs for the consumer

Older vehicles will have increased degradation with the higher ethanol blend

(Smith, 2022)

Decarbonising the Fleet

What Needs to Change Now to Reduce Carbon Emissions



INVEST IN THE DEVELOPMENT
OF CHARGING
INFRASTRUCTURE



COLLABORATE WITH
GOVERNMENT AGENCIES AND
PRIVATE PARTNERS TO
EXPAND THE CHARGING
NETWORK



IMPLEMENT SMART CHARGING
SOLUTIONS TO OPTIMISE
ENERGY USAGE AND REDUCE
THE IMPACT ON THE GRID



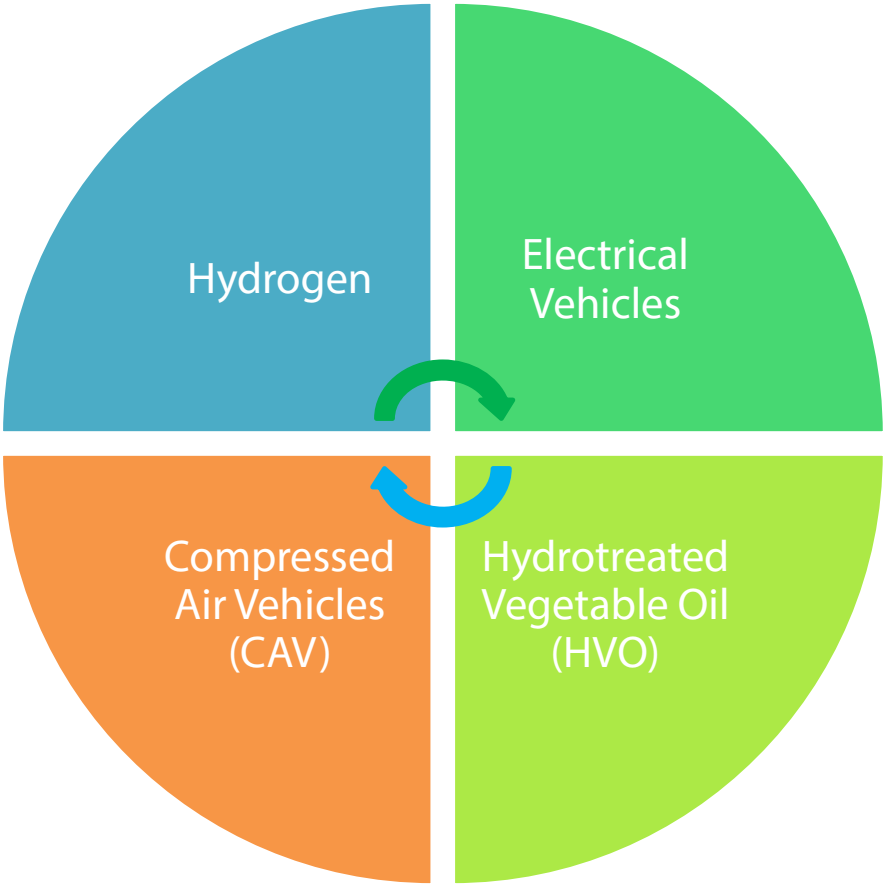
EXPLORE THE USE OF
RENEWABLE ENERGY SOURCES,
SUCH AS SOLAR PANELS, FOR
ON-SITE CHARGING FACILITIES



INSTALL TELEMATICS SYSTEMS
TO MONITOR AND OPTIMISE
VEHICLE CHARGING AND
ENERGY CONSUMPTION

Decarbonising the Fleet

Alternative Fuels for Future Decarbonisation

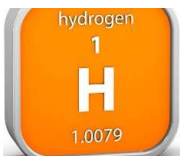


Decarbonising the Fleet

Future Decarbonisation Through Hydrogen and Electric Vehicles

(Smith, 2022)

Hydrogen



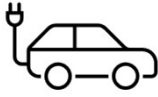
Pros

- **Environmentally Friendly:**
 - Water vapour is the exhaust gas
- **Quick Refuelling:**
 - Roughly 5 to 10 minutes
- **Quiet:**
 - Reduces noise pollution

Cons

- **Limited Vehicle Selection:**
 - Due to popularity the selection of cars is limited
- **Difficult to Refuel:**
 - The infrastructure needed is not yet in place
- **Storage:**
 - Needs robust storage solutions

Electric Vehicles



- **No Exhaust Emissions:**
 - Also 30% reduction in greenhouse gas emissions
- **Fuel Savings:**
 - Around 42% reduction compared to diesel
- **Lower Maintenance:**
 - Fewer moving parts in EV cars compared to diesel cars
- **Government Grants:**
 - Available for new EV cars, reducing total cost of car

- **Long Charing Time:**
 - Forward planning required for charging stations on long journeys
- **Range:**
 - Battery life on EV cars is severely less compared to diesel cars
- **Infrastructure:**
 - The infrastructure is not yet at the required standard. £Billions needs to meet demand for the transition to electric vehicles

Decarbonising the Fleet Future Decarbonisation Through Hydrotreated Vegetable Oil and Compressed Air Vehicles

(Smith, 2022)

HVO



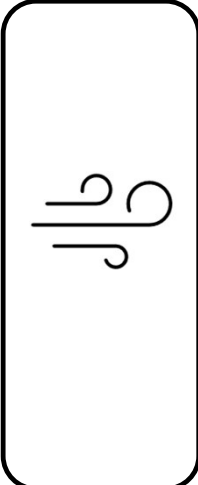
Pros

- **Environmentally Friendly:**
 - 90% fewer greenhouse gas emissions
- **Easy to Store:**
 - Can be stored 10x longer than diesel without quality deterioration
- **No Vehicle Modifications:**
 - Compatible with all diesel engines

Cons

- **Source:**
 - Harder to source compared to petrol & diesel

Compressed Air Vehicle



- **Light**
 - Require fewer internal parts so the engine size can be reduced with lighter materials
- **Environmentally Friendly:**
 - Air is abundant, renewable source.
- **Quick Refill at Service Stations:**
 - Would take a couple of minute to refill

- **Energy Waste:**
 - Significant of waster energy, reducing efficiency and increasing costs for the consumer
- **Lack of Power:**
 - Currently no suitable for travelling at speed or long distances

Decarbonising the Fleet

How the Industry Could Change in the Future



USE OF DRONES FOR
LOCAL DELIVERIES



AUTOMATED TRUCKS



IMPLEMENTATION OF
ARTIFICIAL
INTELLIGENCE



DRIVER BEHAVIOR
MONITORING



MAINTENANCE
OPTIMISATION

(Kuprenko, 2019)

Conclusion

- Logistical industry faces exponential driver shortages and is to be predicted to be 175,000 drivers short by 2026.
- Pay and unsociable hours are the main drivers for this shortage.
- There are several ways to increase the popularity of this occupation by implementing:
 - Better pay and benefits
 - Flexible working
 - Safer resting facilities
 - Government funding for training & salaries
 - Creating an efficient team through collaborations
- It is crucial to become carbon net zero to mitigate climate change and comply with the government plans.
- There are many actions that can be done now:
 - Fuel efficiency improvements
 - Route optimisation
 - Use of ethanol fuel
 - Invest in new infrastructure for electric vehicle charging
 - Explore the use of renewable sources
- The fleet can be decarbonised in the future by:
 - Using alternate fuels:
 - Electric vehicles
 - Hydrotreated vegetable oil
 - Compressed air vehicles
 - Optimisation of artificial intelligence with the use of drones and automated trucks

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