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WHITE PAPER

# The Road to Sustainable Logistics

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In recent years, sustainability has become a significant concern in the logistics industry. The industry's carbon footprint, particularly in the transportation of goods, has a considerable impact on the environment.

To mitigate this impact, logistics companies have increasingly adopted sustainable practices in their operations.

This white paper examines sustainability in logistics, the challenges faced by the industry, and the measures taken to reduce the environmental impact.

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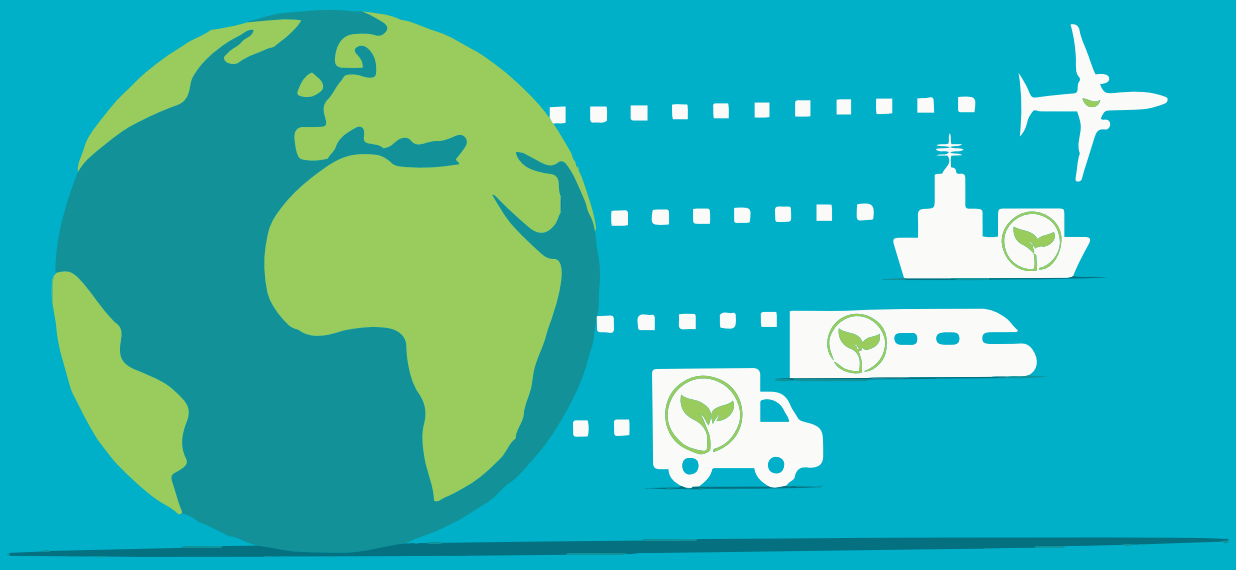
# Sustainability Challenges in Logistics

The logistics industry is one of the largest contributors to greenhouse gas emissions globally, accounting for approximately 10% of total emissions. The industry's primary source of emissions is road transportation, followed by air and sea freight. Road transportation accounts for approximately 80% of logistics emissions. Freight transportation is responsible for a significant portion of these emissions, with heavy-duty trucks and cargo ships being the most significant culprits.

In addition to carbon emissions, the logistics industry generates a considerable amount of waste. Packaging materials, including plastics and paper, contribute significantly to waste generation. The industry is also responsible for the disposal of hazardous materials and the emission of pollutants into the air, water, and soil.



# Sustainability Solutions

In recent years, logistics companies have made significant efforts to reduce their environmental impact by adopting sustainable practices. The following are some of the measures taken to reduce carbon emissions and waste generation in the logistics industry.

## 1 Use of alternative fuels

One of the most effective ways to reduce carbon emissions in the logistics industry is to use alternative fuels. Logistics companies are increasingly adopting electric, hybrid, hydrogen, HVO, and natural gas-powered vehicles in their operations. Electric vehicles produce zero emissions and have a much lower carbon footprint than diesel-powered trucks, however there are technological limitations currently to having heavy electric powered vehicles, particularly over the long distances. Hybrid vehicles combine electric and traditional petrol or diesel engines, resulting in reduced emissions. Natural gas-powered vehicles emit less carbon dioxide than petrol or diesel engines and have a smaller carbon footprint.

**Kammac is currently on a journey to convert all of our fleet to HVO within the next three years. Hydro Treated Vegetable Oil is a sustainable replacement for traditional diesel and can reduce our carbon by up to 95%.**

## 2 Using Traffic Management Systems

Another way to reduce emissions in the logistics industry is to optimise routes. Kammac uses our Traffic Management System (TMS) to select optimal routes for drivers, reducing the distance travelled on journeys, and therefore, the carbon emissions. Optimised routes can also reduce traffic congestion, resulting in shorter delivery times and lower fuel consumption for all.

Additionally, at Kammac our TMS has allowed us to significantly decrease our incidences of half or empty loads. This helps to make the most of vehicle usage and reduce the amount of wasted journeys. Like many of the green initiatives, it makes sense both for the planet and for our bottom line.

## 3 Use of Eco-Friendly Packaging

The logistics industry generates a considerable amount of waste through the use of packaging materials. To reduce waste generation, Kammac is adopting eco-friendly packaging materials, such as biodegradable plastics, recycled paper, and reusable packaging where possible. These materials are environmentally friendly and help reduce the amount of waste generated.

Much of this has been driven by our customers who are also invested in limiting their negative impact on the planet. Through our connections and experience of the requirements, we're able to offer our customers additional options and advice to ease the transition.

## 4 Recycling and Waste Management

Even with responsible and efficient use of materials, activities such as co-packing inevitably generate waste. Recycling programmes therefore become critical to mitigating our impact. At Kammac, our recycling programme incorporates, packaging materials for plastics, paper, and cardboard. For our co-packing sites, which generate the most materials for recycling we incorporate bailers. This helps to reduce the number of collections required for the material, further reducing the associated carbon emissions.

## 5 Energy-Efficient Warehouses

Logistics companies are adopting energy-efficient practices in their warehouses to reduce energy consumption and carbon emissions. Energy-efficient lighting systems, heating, ventilation, and air conditioning (HVAC) systems, and insulation reduce energy consumption in warehouses, resulting in lower carbon emissions. Additionally, many companies are already or in the process of utilising solar and wind power as green energy sources. Excess energy generated by this can be sold back into the power grid. Kammac only use energy providers that offer green or carbon neutral energy solutions.

## 6 Adopting Alternative Modes of Transportation

The methods of transportation for logistics companies are extremely varied. Some last mile companies are adopting methods such as bike couriers for example to reduce their pollution, and Heineken is making some deliveries in the Netherlands by barge. For land freight transport, trucks have remained the principal method however.

## 7 Teams and Training

Appointing responsible individuals and teams to manage a company's sustainability agenda can do a lot to help keep them on track. As with all projects however it is important to ensure that there is sufficient support from senior leadership in order to back up the team when necessary, as well as realistic expectations for time and budget.

Additional training for employees can help to support broader aims, for example Kammac is starting its Go Green Team training across the business this year. This will include education for employees on ways to be more environmentally friendly in both their work and personal lives as well as providing important insights into the necessity for environmental responsibility.

## 8 Additional Ways to Support Environmental Aims

Kammac like many companies have committed to planting trees both at home and abroad to support broader environmental aims at reforestation. The key to this type of activity is to ensure that the partner organisation you select is highly accredited for example by Gold Standard, or the Verified Carbon Standard.

Additionally, there are some logistics businesses investigating more environmentally friendly ways to manage water run off from large hard standing areas, and roofs. These can include Sustainable Drainage Systems such as filtration pools, and swales which all help to prevent drained water from immediately running into drainage, but manage it to promote local ecosystems.

# Benefits of Sustainable Practices in Logistics

Adopting sustainable practices in logistics has several benefits for logistics companies, the environment, and society at large. Some of these benefits include:

## 1 Reduced Carbon Footprint

Sustainable practices, such as the use of alternative fuels, optimised routing, and energy-efficient warehouses, reduce carbon emissions in the logistics industry. This reduction contributes to a cleaner environment and reduces the industry's impact on climate change.

## 2 Cost Savings

Adopting sustainable practices can result in cost savings for logistics companies. Alternative fuels, such as natural gas, can be cheaper than traditional petrol or diesel fuel. Optimised routing reduces fuel consumption, resulting in lower fuel costs. Energy-efficient warehouses reduce energy consumption, resulting in lower electricity bills.

## 3 Increased Efficiency

Sustainable practices, such as optimised routing and energy-efficient warehouses, increase the efficiency of logistics operations. Optimised routing reduces delivery times, resulting in faster and more reliable delivery. Energy-efficient warehouses reduce energy consumption, resulting in a more efficient use of resources.

## 4 Improved Brand Image

Adopting sustainable practices can improve the brand image of logistics companies. Consumers are becoming increasingly environmentally conscious, and companies that prioritize sustainability are viewed more favourably. Sustainable practices can also improve the company's reputation among stakeholders, including investors, suppliers, and employees.

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# Challenges in Implementing Sustainable Practices

While there are several benefits to adopting sustainable practices in logistics, there are also several challenges in implementing these practices.

Some of these challenges include:

## 1 High Costs

Implementing sustainable practices, such as using alternative fuels and energy-efficient warehouses, can be costly. The cost of purchasing new vehicles and equipment, implementing new technology, and training employees can be significant.

## 2 Limited Infrastructure

The infrastructure for alternative fuels, such as electric charging stations and hydrogen refuelling stations, is limited in many regions. This can make it difficult for logistics companies to adopt these fuels in their operations.

## 3 Resistance to Change

Implementing sustainable practices may require changes to existing logistics operations, which can be met with resistance from employees and management. It may also require changes in the supply chain, such as working with new suppliers or changing packaging materials, which can be challenging.

# Conclusions

Sustainability in logistics is becoming increasingly important as the industry seeks to reduce its environmental impact. While many logistics companies are already adopting more sustainable practices such as the use of alternative fuels, optimised routing, and eco-friendly packaging there are still a lot of challenges to fulfilling some of the ambitious goals being set.

These practices have several benefits, including reduced carbon footprint, cost savings, increased efficiency, and improved brand image. However, there are also challenges in implementing sustainable practices, including high costs, limited infrastructure, and resistance to change.

As the logistics industry continues to prioritize sustainability, it is essential to address these challenges to achieve a more sustainable future.

# Further reading

Here are some research papers and articles that support the facts and figures presented in this white paper and provide additional information on sustainability in logistics:

**1- "Sustainability in the Supply Chain: A Literature Review on Research Methodologies" by C. C. Wong, S. L. Lai, and C. K. Cheng (2012)**

This paper reviews the research methodologies used in the literature on sustainability in the supply chain, including logistics. It highlights the importance of incorporating sustainability considerations into logistics operations and provides examples of sustainable practices that have been adopted by logistics companies.

**2- "Green logistics: The sustainable logistics solution" by R. M. Greening and D. B. W. Wong (1998)**

This article provides an overview of green logistics and its potential benefits, including reduced carbon emissions and waste generation, cost savings, and improved brand image. It also highlights some of the challenges in implementing green logistics, including the need for collaboration between stakeholders and the high costs of implementing sustainable practices.

**3- "Sustainable Logistics: Trends, Impacts, and Opportunities" by M. A. R. Olivares and L. C. Villalobos (2017)**

This paper examines the trends, impacts, and opportunities associated with sustainable logistics. It provides an overview of the sustainable logistics landscape and highlights the benefits of adopting sustainable practices, such as cost savings, improved efficiency, and reduced environmental impact. It also discusses some of the challenges associated with implementing sustainable logistics and provides recommendations for overcoming these challenges.

**4- "Sustainability in Logistics: A Systematic Review and Future Research Agenda" by A. V. Bhagwat and S. Sharma (2020)**

This paper provides a systematic review of the literature on sustainability in logistics and identifies a future research agenda for the field. It highlights the importance of incorporating sustainability considerations into logistics operations and provides examples of sustainable practices that have been adopted by logistics companies. It also identifies areas for future research, such as the impact of sustainable logistics on supply chain performance and the role of technology in facilitating sustainable logistics.

**5- "The Impact of Green Logistics Practices on Customer Satisfaction and Loyalty: Evidence from the Greek 3PL Industry" by E. V. Chatzopoulou and A. C. Zopiatis (2020)**

This paper examines the impact of green logistics practices on customer satisfaction and loyalty in the Greek third-party logistics (3PL) industry. It finds that the adoption of green logistics practices, such as the use of alternative fuels and eco-friendly packaging, has a positive impact on customer satisfaction and loyalty. It also highlights the potential for green logistics practices to improve the brand image of logistics companies and attract environmentally conscious customers.

These research papers and articles provide a comprehensive understanding of sustainability in logistics and the benefits and challenges associated with adopting sustainable practices. They also provide recommendations for future research and highlight the potential for sustainable logistics to improve the environmental and social performance of the logistics industry.

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