

Master-Thesis Engineering, Fachgebiet Business Engineering and Production

Analysis of a path towards net zero carbon



12.8 million liters of SAF

Sustainable
Aviation
fuel

Could enable

11m 

11 million kg of cargo
shipped from London to
Dallas on a Boeing 777F
cargo aircraft carbon free

1.7b 

1.7 billion doses of
Covid-19 vaccine
transported carbon free
from Brussels to
Singapore*

29x 

29 round-the-world
carbon free flights
of a Boeing 787-9
Dreamliner
passenger aircraft

*Assuming the Covid-19 vaccine vials contain 10 doses each and including the proper transportation packaging

Problem statement

Scientific evidence has pronounced climate change being one of the most urgent challenges of our time. The window of opportunity for accumulating a sustainable future has been declared to be until 2030.

While on one hand governments are developing carbon reducing policies around the world, on the other hand cooperation's are announcing their own strategies to reduce the carbon footprint. Air-freight forwarding is one of the hard to abate sectors representing a fair share of annual carbon emissions therefore, mitigating its environmental impacts is crucial in the strive for a carbon-free future.

It is against this background that Kuehne + Nagel has also been examining ways of reducing the carbon emissions; and have committed to achieve the target of net zero carbon by 2030.

This review-based paper attempts to understand the overall trends and evolution in the airfreight sustainability and provide concrete information at the organizational level to assess and identify the gaps in Kuehne + Nagel's strategies.

Solution concept

In order to answer the research question, an action research approach is adopted which helps in identifying the gaps and challenges by interviewing the experts and customers who are directly involved in the topic.

The purpose was to provide recommendations to Kuehne + Nagel to improve their strategies to achieve their promise of net zero carbon by the end of 2030. The methodology was developed to carry out the research in three stages and was followed throughout the paper. The results from the literature review and interviews with customers delivered valuable insights and helped in understanding current knowledge obstacles to present the future opportunities.

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