

Factors Affecting Innovation in Electric Flights



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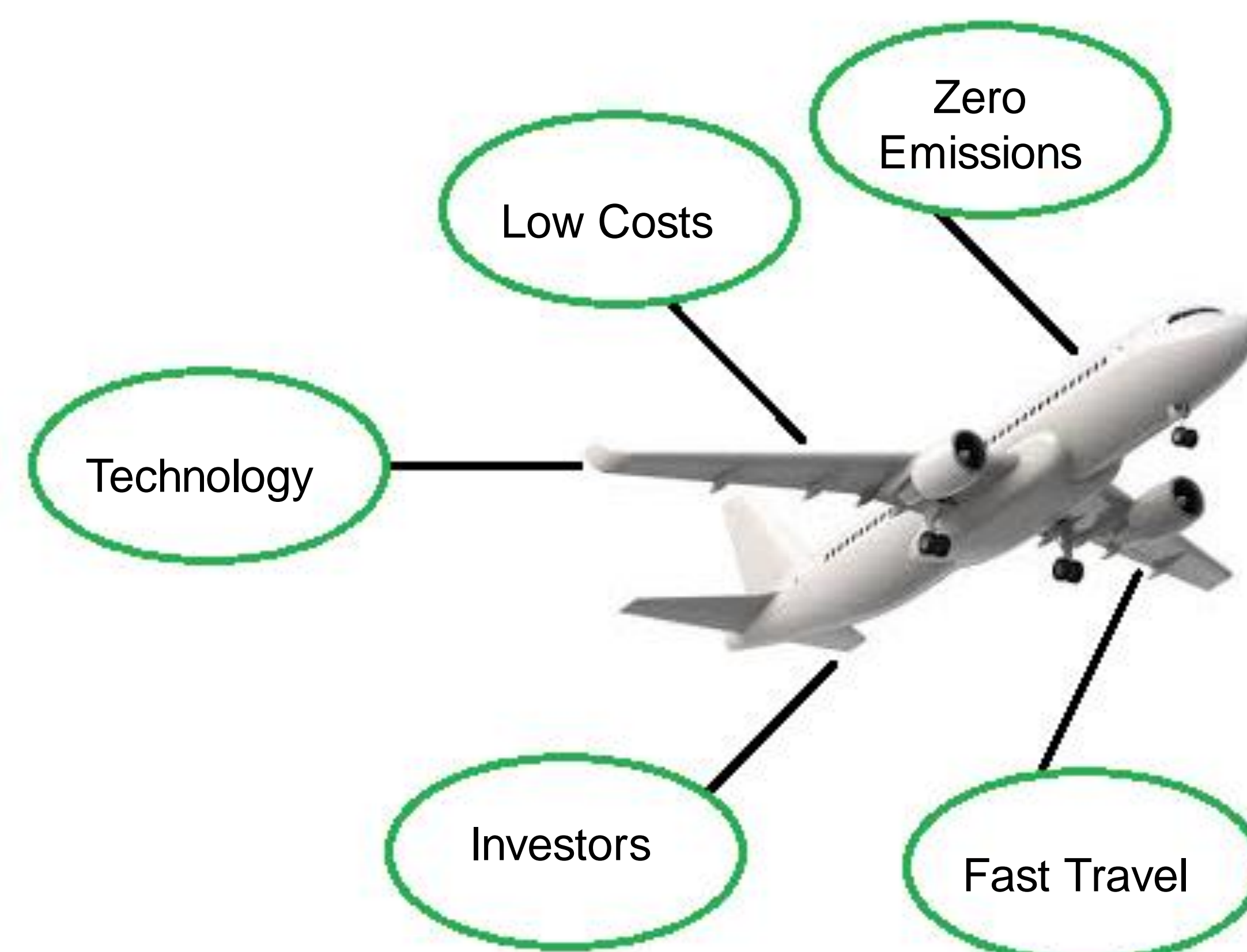
Abstract

Air travel growth in the United States is expected to increase by a rate of 1.8 percent per year over the next 20 years (FAA, 2022). This spike in air travel will dramatically increase the demand for fossil fuels making the aviation industry's carbon footprint more significant. In an attempt to mitigate this risk, the importance of continued work towards electric flight is clearly recognized as a suitable alternative. The first purpose of this paper is to research, comprehend, and present a clear understanding of the factors promoting and preventing innovation in electric flight. Examples of these factors are political pressures, ecological impacts, lack of technology, and safety concerns. The second purpose of this paper is to educate individuals on the current status of electric flight, and to provide recommendations on how to create a more sustainable future in aviation. Knowing what direction electric flight is moving towards while determining the sustainability, future market, and available technology could be vital to investors, large airlines, and the general aviation industry.

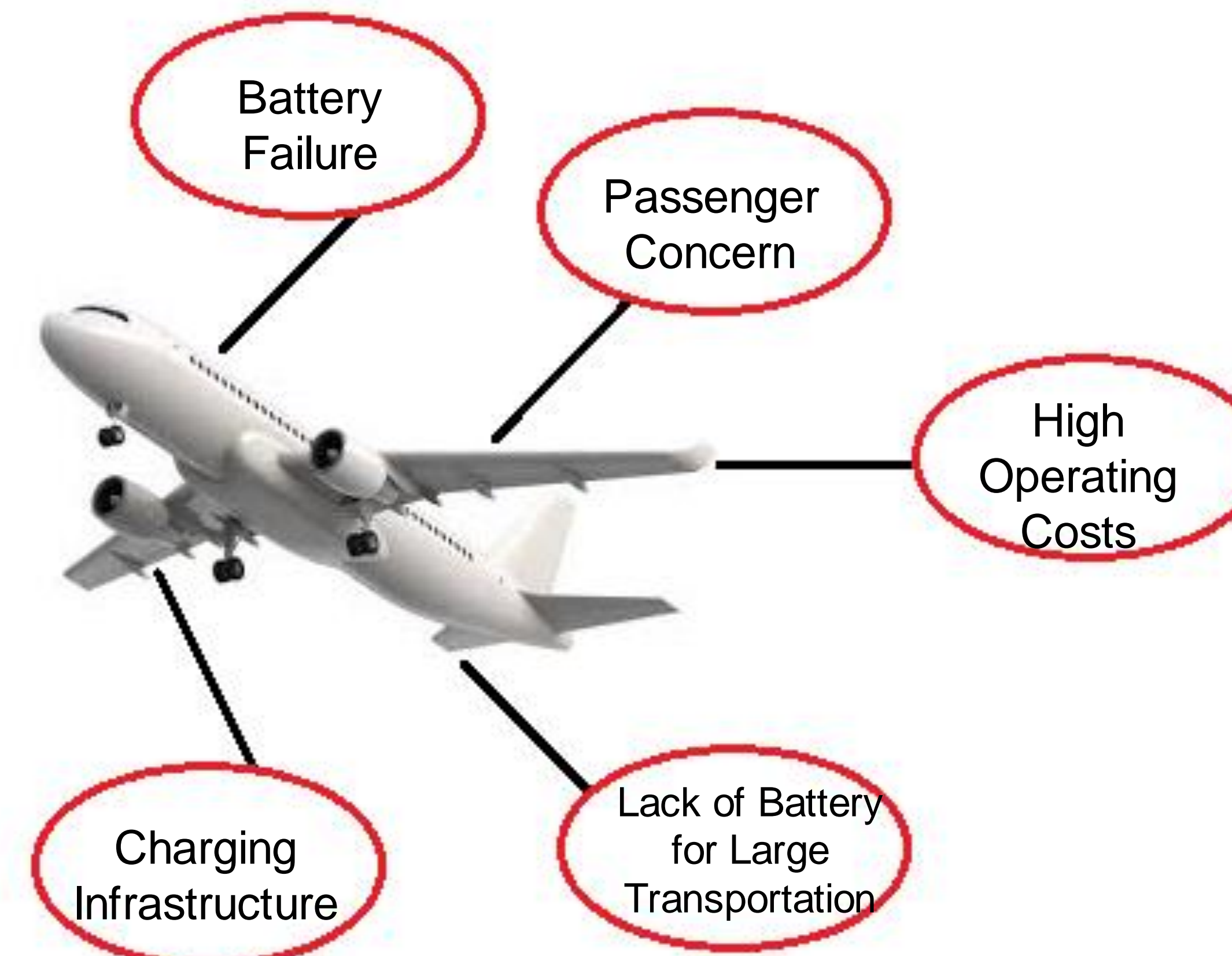
Research Purpose

1. To research, comprehend, and present a clear understanding of the factors promoting and preventing innovation in electric flight.
2. To educate individuals on the current status of electric flight, and to provide recommendations on how to create a more sustainable future in aviation.

Promoting Factors



Preventing Factors



Literature Review

Yang and Song, (2017)

- Electric batteries are expected to meet the growing demand for electric energy density.
- With an increasing emphasis on environmental protection, research and development of clean energy have become a global priority.

Bistline and Young, (2020)

- The net impact of energy storage on emissions depends on interactions among these effects, which in turn depends on grid-specific assumptions about resources, fuel prices, technologies, and policies.

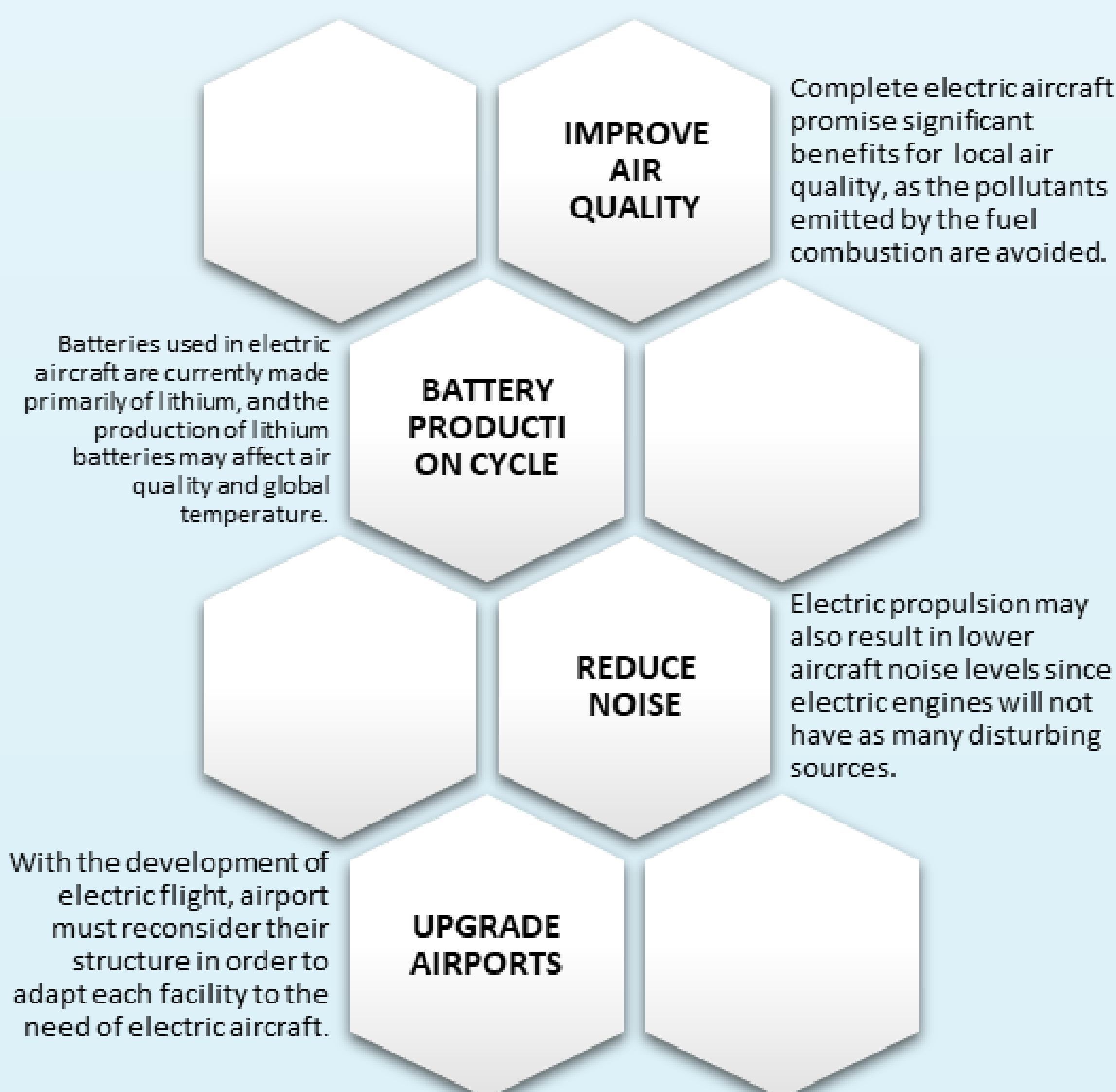
Hoenicke et al, (2021)

- Hybrid electric aircrafts using fuel cells and batteries are an option to reduce emissions in air travel.
- To overcome the threat of climate change, a reduction of carbon dioxide (CO₂) emissions is crucial and a sustainable energy supply by using renewable energies has to be reached.
- The resulting hybrid aircraft using fuel cell and battery produces no local emissions, less noise and is more efficient than conventional aircrafts.

Tariq et al, (2017).

- The increase in the power demand of aircraft, especially in the last two decades, coupled with advancement in battery materials and technology has led to the development of many high energy density batteries.

Effects of Electric Flight



Recommendations



References

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