



BrightCon

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# **Towards Sustainable Aviation: Addressing Data Shortcomings and Improvements in Life Cycle Inventories**

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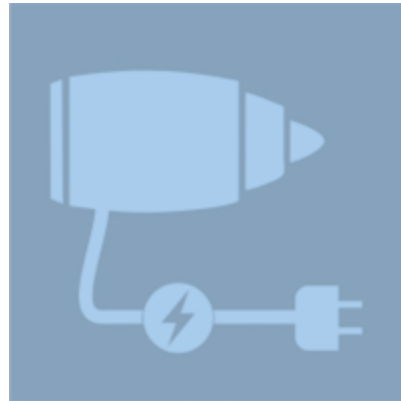
Institute of Maintenance, Repair and Overhaul

# Motivation

## Why Life Cycle Assessment (LCA) in Aviation?



Aviation is **responsible for 3.6 %** of the human-induced GHG<sup>1</sup> emissions



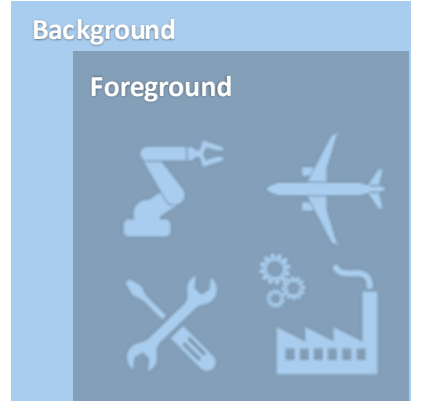
Air transport is **expected to grow** at a faster pace than technology improvement



LCAs assess the **environmental impact** of an aircraft over **its whole lifetime**



Life Cycle Inventories (LCIs) are the backbone of LCAs; however, **data availability** is a major challenge

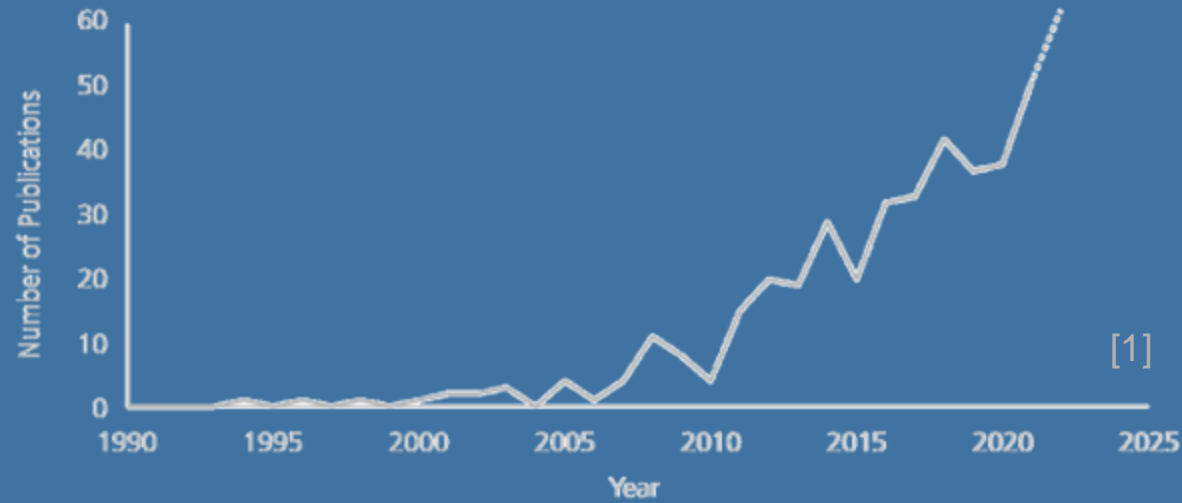


Sector-specific **fore- and background data** are **often lacking**, thus hindering LCA conduction

[1] greenhouse gases

# Motivation

## Why Life Cycle Assessment (LCA) in Aviation?



**CORSIA**

**Carbon Offsetting and Reduction Scheme  
for International Aviation**



**Federal Ministry for Economic Affairs and Climate Action**



# Life Cycle Inventories in Aviation

## Shortcomings and challenges

*“The inventory data for carbon fiber manufacturing [for aircraft] are not well defined in any LCI database.” (Calado et al., 2019)*

*“Existing life cycle inventory (LCI) databases [...] do not cover aircraft maintenance.” (Rupcic et al., 2023)*



### **Raising environmental awareness**

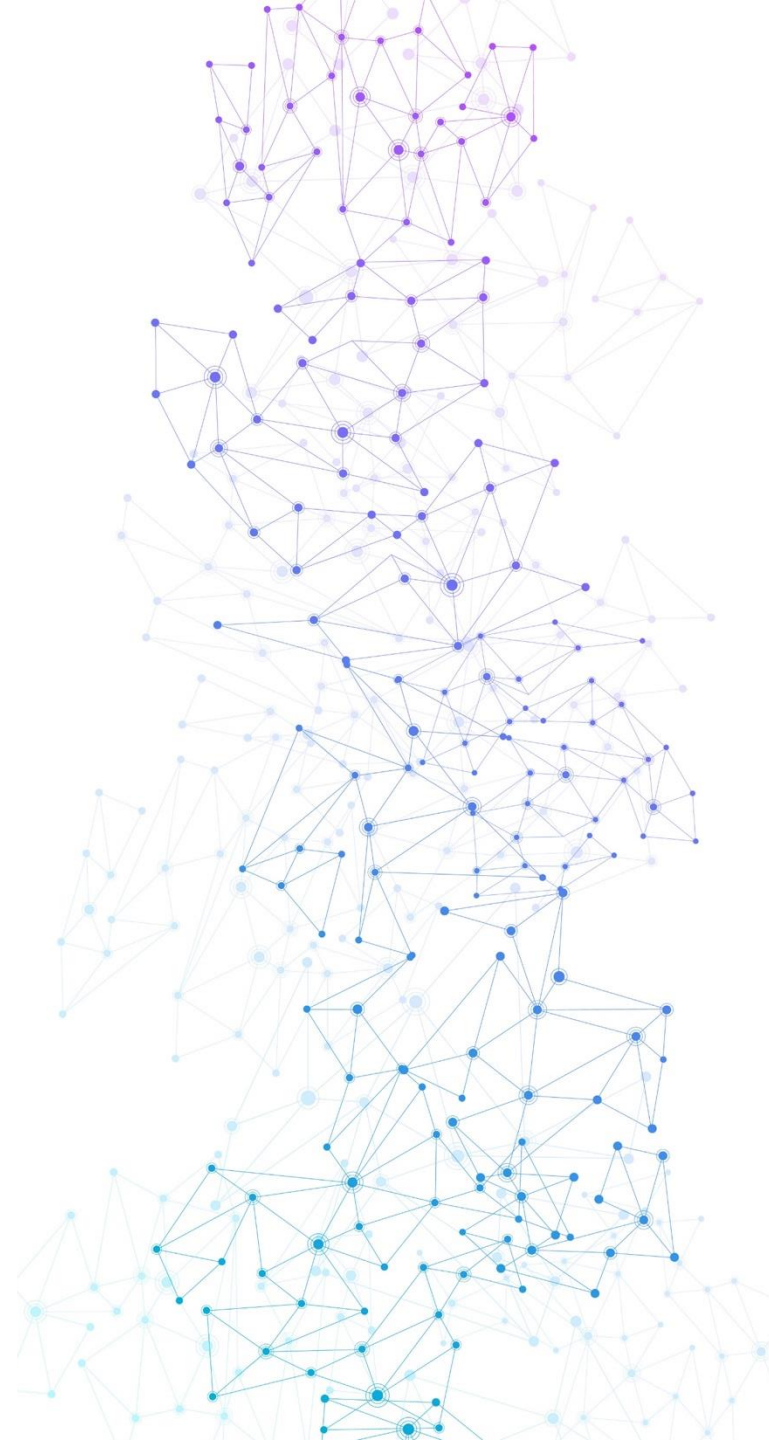
- Design for Environment (DfE)
- ecodesign

### **Primary, granular data collection**

- LCA is a new discipline in aviation
- Not clear for suppliers what data is necessary

### **Digital Product Passport (DPP)**

- Data traceability and availability in highly complex supply chains



# MEANINGFUL LCI DATA:



**HOW TO FACE  
CONFIDENTIALITY  
AND ENSURE  
REPRESENTATIVE DATA?**

?



**HOW TO RAISE  
AWARENESS WITHIN  
NEW AND EMERGING  
SECTORS IN LCA?**



# Thank you for your attention!

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