



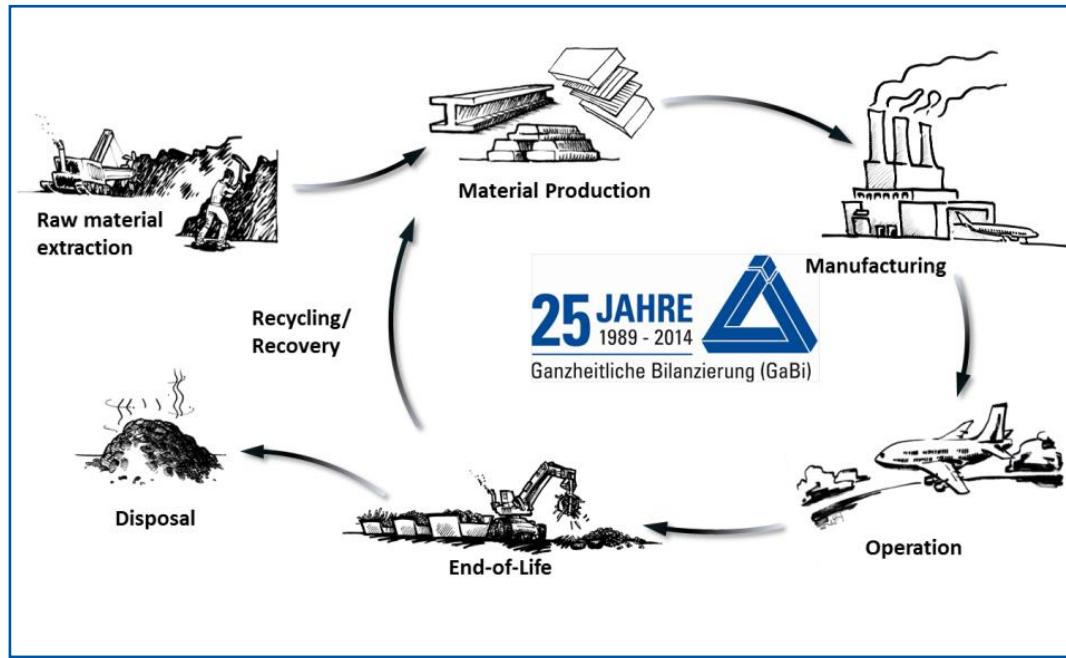
Eco-Design through LCA

Daniel Wehner, Robert Ilg





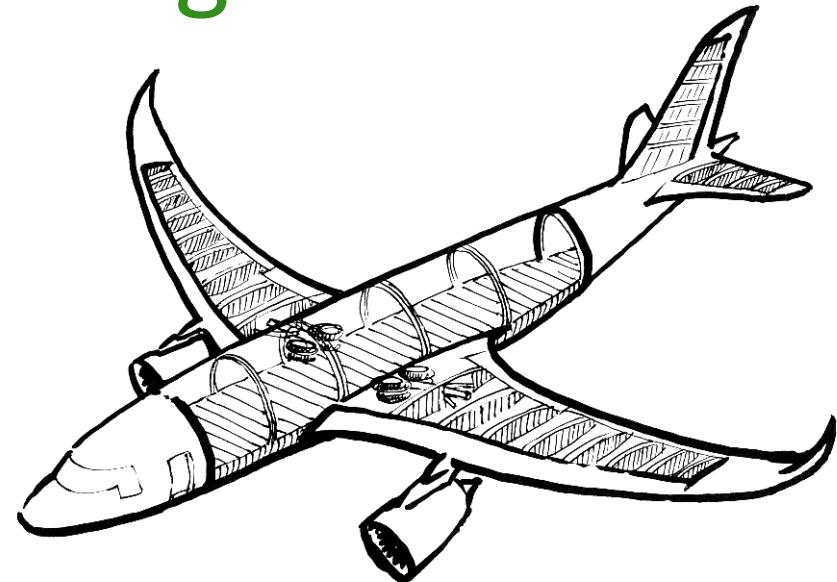
Eco-Design of Aircrafts





The Challenge

- Complexity
- Efficiency
- Accuracy
- Secrecy





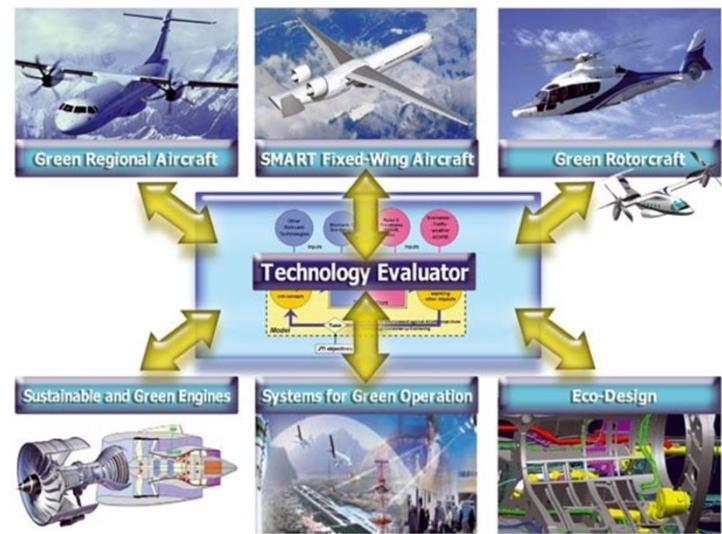
The Challenge

- Complexity → Smart concepts
- Efficiency → Collaboration
- Accuracy → Automation
- Secrecy





Collaboration within CLEAN SKY



- 6 technology demonstrators
- 500+ partners



LCA Activities in CLEAN SKY

T
E
D
A

Environmental Impact on fleet level

FLEET Level

Information on aircraft global fleet

Airliner

Business Jet

Rotorcraft

Environmental Impact on aircraft level

PART/AIRCRAFT Level

Information on current and future aircraft parts, modules and sub-modules

Airliner

Business Jet

Rotorcraft

→ Efficient analysis tool

Environmental Impact on aviation processes

PROCESS Level

Information on materials, processes and technologies

Airliner

Business Jet

Rotorcraft

→ Aviation-specific database



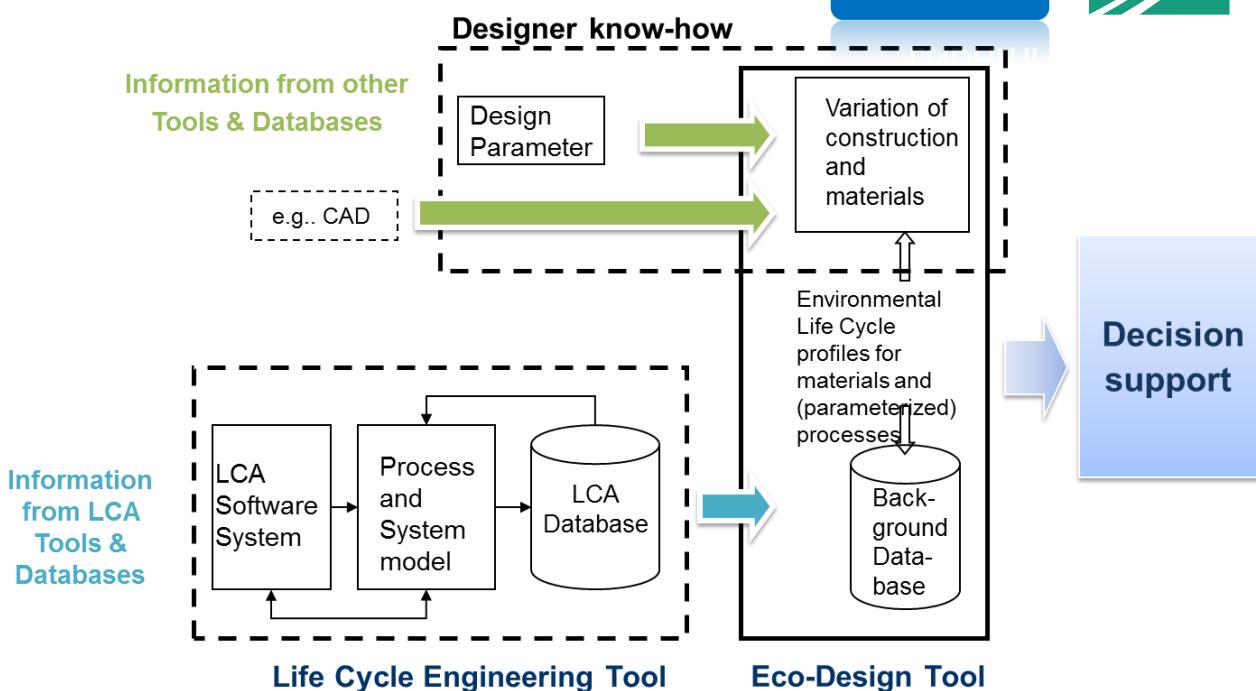


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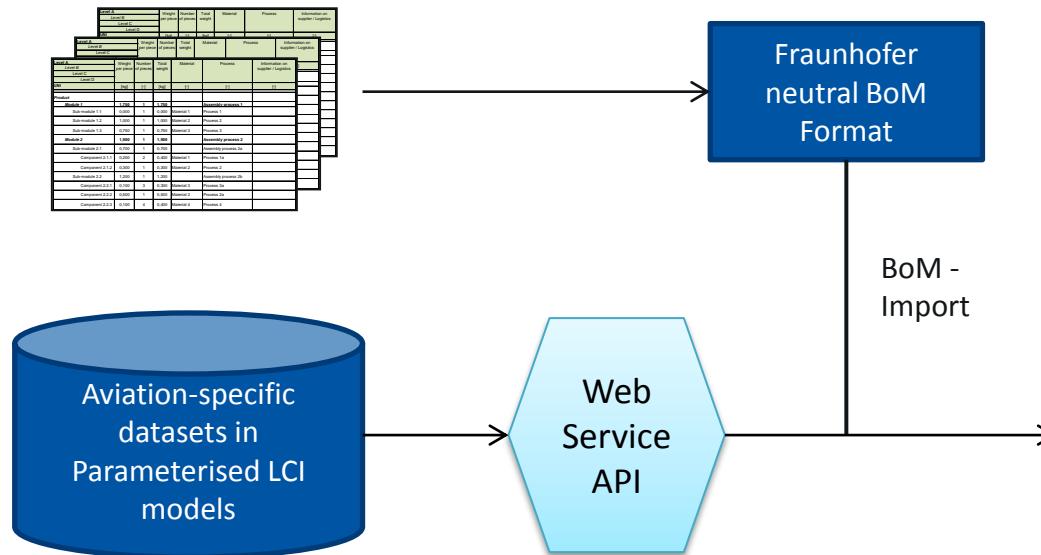
Design Know-How

LCA Expertise





Cloud Infrastructure



Eco-design: User-interface

The screenshot shows a user interface for eco-design. At the top, there's a navigation bar with "Concept Airliner 1", "01 A1B fuselage panel", "Global Warming Potential", "logout", "demo@ecosky.com", and a "Search" field. Below the navigation is a section titled "Production" showing a factory icon and the text "Production (4715.3kg GWIP)". To the right, there's a vertical stack of components: "Stringers (1200.1kg GWIP)", "Assemblies (1273.8kg GWIP)", "Skin (1174.7kg GWIP)", and "Frame (826.1kg GWIP)". Further down, there are two tables under "Component Settings" and "Production Settings".

Parameter	Reference Airliner	Concept Airliner 1	Comment
Alloy Type	Ah2000	Au2000	[+/-]
Number of Skins	1	1	[+/-]
Mass per Skin	48	48	(Component weight in kg)(Material)c: Aluminum

Parameter	Reference Airliner	Concept Airliner 1	Comment
Buy-to-Fly Ratio	1	1	[+/-]
Cold forming	CS EDA Cold Forming	None	[+/-]
Thermal Treatment	None	None	[+/-]
Milling	None	None	[+/-]
Shot peening	None	None	[+/-]
Degreasing	CS EDA Degreasing	CS EDA Degreasing	[+/-]



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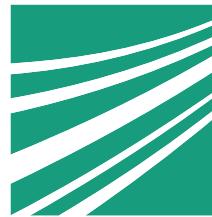
- Easy-to-use interface
- High degree of automation
- Complex LCI model background
- Aviation specific background data
- Integration in company structures
- Multiple scenario options
- Collaboration across distributed teams or even with suppliers

ENDAMI
—
A SUSTANIA 100 Solution





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