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Mapping Key Stakeholders and their Information Requirements to Integrate Ecodesign and its Principles in the Overall Aircraft Development Process

Mélanie Despeisse (presenter), Cecilia Berlin
/ Chalmers University of Technology, Sweden

Nathalie Reich, Ipek Acarbay Kandur
/ Airbus Operations GmbH, Germany

As part of the **Short and Medium Range - Aircraft Architecture and Technology Integration Project (SMR ACAP)**
WP3 Environmental Target Definition, Evaluation & Integration

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Outline

Background & Purpose

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Introduction to WP3

Short and Medium Range – Aircraft Architecture and Technology Integration Project (**SMR ACAP**)

WP3 Environmental Target Definition, Evaluation & Integration

- **WP3.1** Target Definition & Co-Design Approach
  - **WP3.1.3** Environmental Co-Design Approach
    - Identify **key stakeholders**
    - Define their **information requirements**

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Some Definitions

The **environmental co-design approach** aims to embed eco-design principles into the overall aircraft design process and enable a life cycle assessment (LCA) of different aircraft concepts.

Eco-design is defined as a “systematic approach that considers environmental aspects in design and development with the aim to reduce adverse environmental impacts throughout the life cycle of a product” (ISO 14006:2020).

Life cycle assessment (LCA) is a standardised technique to quantify the environmental impact associated with products, both manufactured and consumed (ISO 14040:2006).

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Purpose of the Survey

Collect the **information requirements** of key stakeholders to engage with the environmental co-design approach developed in SMR ACAP WP3.1

Stakeholder Analysis

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Stakeholder Groups

Feasibility & Concept phases

- CA Technical Committee & Contract Management
- CAJU
- Chief Engineer Representatives
- SMR Demo Project Leaders
- SMR ACAP Partners *(this project)*
- Technology Development Partners (SMR Projects Pillar)
- Software Tools (Design, LCA, etc.)
- Environmental Database Suppliers
- Stakeholders responsible for specific Technology Developments on component level
- Stakeholders defining and integrating the developed technologies into a design solution
- Public Policy-Makers

Design & Industrial phases

- (Design / Development) Process Owner
- Environmental Process Owner
- Overall A/C Design (OAD) / Architecture & Integration
- Design Office & M&P (Material & Processes)
- Specific Designers / Development Engineers
- Environmental Engineers / Departments
- Procurement Teams
- Raw Material Suppliers
- Manufacturing Engineering Department / Industrial Architects
- Specific Manufacturing and Assembly Definition Sites/Facilities
- Environmental Engineers in Manufacturing / Plants
- Chief Engineering / Architecture & Integration of Development A/C
- Standard Parts Supplier
- Single Part Suppliers
- (Major) Component Suppliers

MRO Integration phases

- Airline, including Passengers Wishes (Marketing)
- MRO Provider (Operational)
- Aircraft Manufacturer Program
- Regulators / Standards
- Spare Parts Providers (Logistics)
- Components Manufacturer (Repair Parts, Manufactured by MRO)
- Recycler

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Roles

Source: Berlin, C., Bligård, L.-O., Babapour Chafi, M., Eriksson, S. (2022). Development of a stakeholder identification and analysis method for human factors integration in work system design interventions – Change Agent Infrastructure. *Human Factors and Ergonomics In Manufacturing* 32(1), pp. 151-170. https://doi.org/10.1002/hfm.20910

Initiators	•Bring attention to the underlying need for change •Place the problem on the official agenda to be dealt with
Sponsors	•Not directly affected by or active in the intervention •Maintain and support the legitimacy of the intervention, morally or with resources, and keep it on the agenda
Subjects	•Actors who are recipients of the intervention, and whose operations are directly affected by both the original problem (if left unresolved) and the proposed change.
Documenters	•Document the problem formulation, requirements, decisions made, quality criteria and/or the design/execution of the intervention
Convincers	•Use evidence (e.g., statistics, measurements, studies, reports) to convince other actors that there is a legitimate need for action and that change is required.
Change owners	•Assigned legitimate ownership of the problem or intervention, and ensure that the problem is resolved •Determine when the intervention (from **Solution builders**) is sufficiently implemented.
Solution builders	•Responsible for examining, advising on, and eventually solving the problem •Contribute wholly or partly to the design and implementation of the intervention
Blockers	•Inhibit the proposed change due to threat or conflict of interest •May hinder the intervention, or may withhold access, resources, or contacts needed to proceed

Information Requirements

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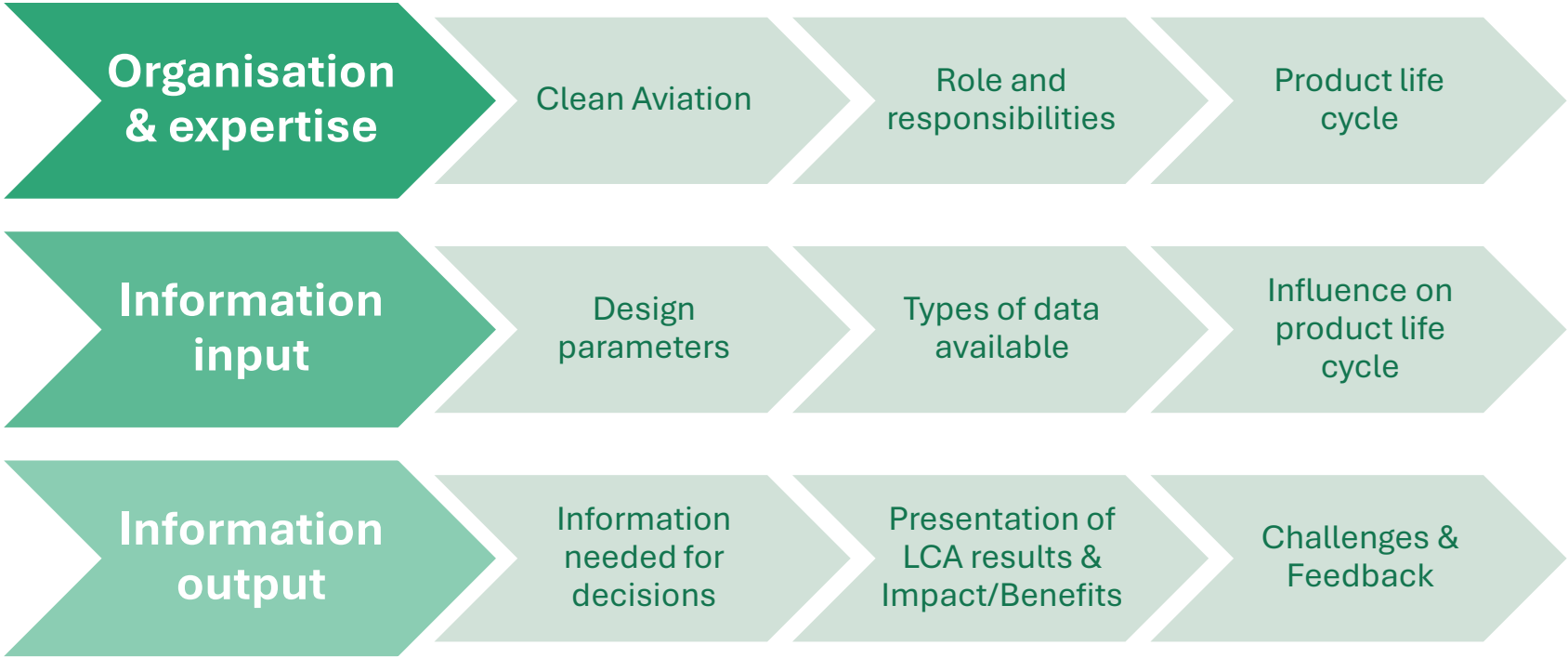
Survey Structure



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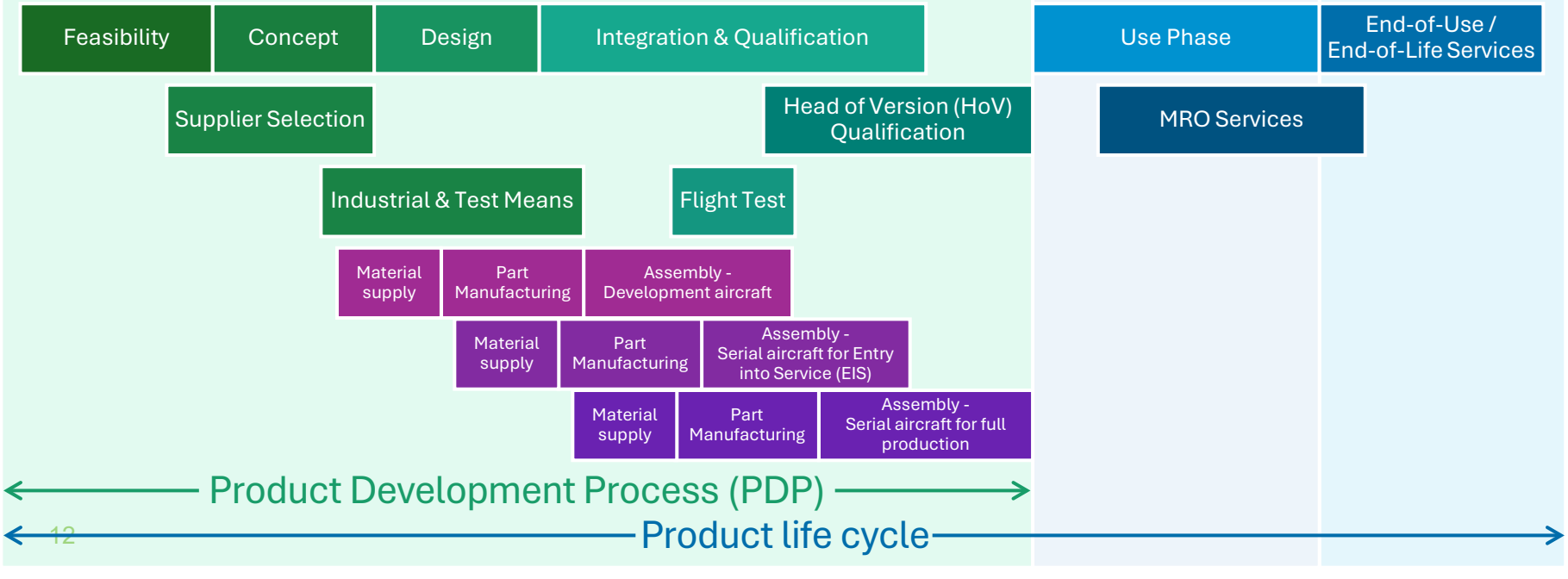
The Product Development Process and Life Cycle Stages



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LCA Insights, Impact & Benefits

Insights from LCA results

- Environmental hotspots
- Comparative LCA results
- Contribution of specific parameters/decisions
- Uncertainty / Sensitivity analysis (robustness)
- Etc.

Areas of impact

- Material/energy sourcing and efficiency
- Waste management and pollution prevention
- Logistics / Supply chain optimization
- Circularity
- Etc.

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Invitation to Participate to the Survey

https://forms.office.com/e/eYitRxK9Ku

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