



Supporting lifecycle Design Evolutions

October 6th, 2026

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Trusted user base



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A/C-Level Design & Evaluation Across the Lifecycle



Desmo is PACE's aircraft-level, physics-based **design** and **evaluation** environment, enabling engineering teams to understand how air vehicle, systems and configuration decisions affect **overall aircraft performance**.

It allows specialists to analyse the aircraft as an **integrated system**, rather than as isolated subsystems.

- Design and assess air-vehicle
- Evaluate architectural and system-level decisions at aircraft level
- Understand interactions between propulsion, energy, and onboard systems
- Support engineering activities across multiple phases of the aircraft lifecycle



A/C Evaluation Across the Program Lifecycle



Example: A new mission-system package increases electrical demand, cooling requirements and aircraft mass.

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Desmo evaluates the resulting effects on range, endurance, performance margins and mission effectiveness using the same aircraft model.

Supporting Aircraft Architecture Decisions



Evaluate aircraft-level consequences of:

- New propulsion architectures
- Electrical power growth
- Thermal-management concepts
- New mission systems
- Cabin and payload changes
- Future technology insertion

Assess technologies and architectures at aircraft level before committing to detailed development.

From System Design to Aircraft Impact



The challenge

Systems engineers are responsible for decisions that affect:

- Electrical power demand
- Thermal management
- Fuel and energy consumption
- Weight and center of gravity
- Mission systems integration
- Aircraft architecture

Yet the aircraft-level consequences of those decisions are often difficult to quantify without involving multiple specialist teams.

With Desmo

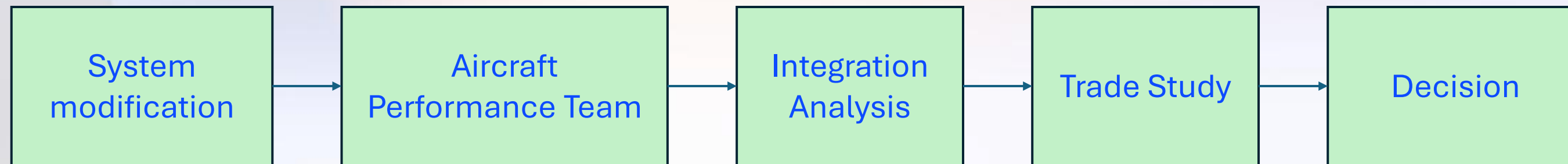
Desmo provides a physics-based aircraft model that allows system specialists to immediately evaluate:

- Aircraft performance impact
- Range and endurance effects
- Mission capability consequences
- Energy and thermal implications
- Cross-system interactions

You continue working in your domain, while Desmo translates system decisions into aircraft-level outcomes.

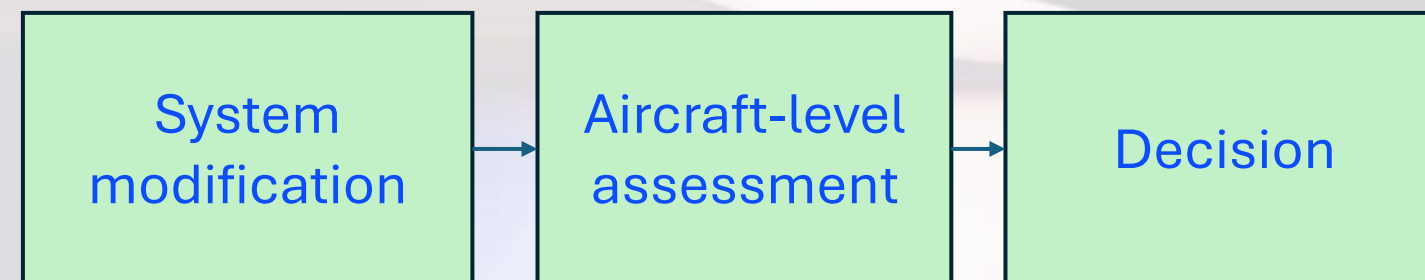
Faster Decisions. Earlier Aircraft-Level Insight.

Traditional workflow



Weeks or months may pass before the true impact becomes visible.

With Desmo



Benefits

- Immediate feedback on design decisions
- Earlier identification of integration issues
- Reduced dependence on multiple specialist groups
- More engineering iterations in less time

Engineers can rapidly evaluate questions such as:

- What is the range penalty of increased electrical loads?
- How does a new avionics suite affect power and cooling margins?
- What is the mission impact of additional sensors or payloads?
- Which architecture option provides the best aircraft-level outcome?

Optimizing the Aircraft, Not Just the System



A subsystem can be locally optimal while degrading overall aircraft performance. Examples:

- Lower equipment weight may increase cooling demand
- Additional mission capability may reduce endurance
- More electrical power may require larger generators and thermal systems
- Architecture changes may create unexpected impacts elsewhere in the aircraft

Desmo provides a holistic engineering view

Desmo connects

- Aircraft configuration
- Propulsion
- Systems
- Mission systems
- Operational concepts

within a single aircraft-level environment.

The result

- Better trade-off studies
- Quantified system-level consequences
- Improved collaboration across disciplines
- More balanced and optimized aircraft architectures
- Technology trade studies

Instead of optimizing a subsystem in isolation, engineers can optimize for overall aircraft and mission effectiveness.

Desmo is an Open Tool



Desmo has been conceived by design as an **open tool** that provides:

- **Customization:** Easily tailored to meet user-specific extensions via authoring tool.
- **External Integration:** Seamless interaction with external software, enabling it to be used within the sizing loop. Full support to FMUs
- **Interoperability:** Can be invoked and controlled by other software systems like MDAO and SPDM tools.
- **Scalability:** Adaptability to different project sizes and complexities, scaling seamlessly to HPC clusters.



Thank You !



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