



# Modelon

YOUR EXPERT PARTNER IN AEROSPACE SYSTEMS MODELING AND SIMULATION

## ABOUT MODELON:

Modelon provides software solutions and expert services to organizations that use model-based simulation tools to design and develop technical systems. Modelon's Library Suite, Creator Suite, and Deployment Suite are leading products available in the market today for modeling, simulation and optimization. Our products enable companies to focus on delivering a unified picture of product system interaction and performance – from product concept to operation.

Modelon is an industry leader in model-based systems engineering with a goal of advancing open-standard technologies, allowing customers to leverage their tools of choice and share models throughout the product development cycle. Today, we serve a clientele base across a wide range of industry sectors which include some of the largest companies in the world.



**Modelon Library Suite**

*Powered by Modelica*



**Modelon Creator Suite**



**Modelon Deployment Suite**

*Powered by FMI*

## MODELON CONTACT

Modelon provides full portfolio solutions world wide.

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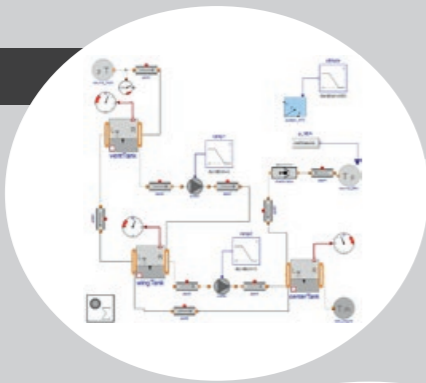
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# INTEGRATED AEROSPACE SYSTEMS DESIGN

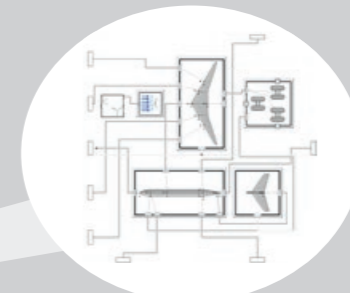
## FUEL SYSTEM

- Inerting
- Thermal analysis
- Flammability
- Fuel management
- Fuel injection



## AIRCRAFT

- Flight control
- Ground interaction
- Structural sizing
- Assessment and trade-off
- Requirements engineering



## ACTUATION

- Electro mechanical systems
- Local hydraulic packs
- Hydraulic actuation
- Structural flexibility



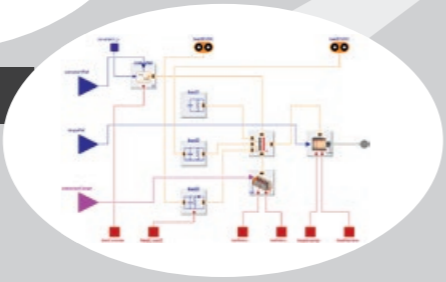
## THERMAL MANAGEMENT

- Heat source integration
- Fuel and ram air interaction
- Environmental control
- Supplemental cooling
- Ice protection



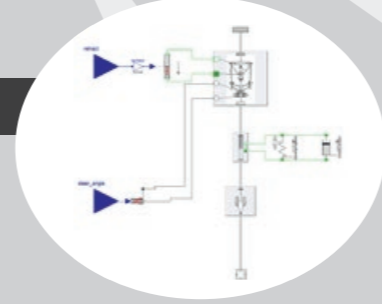
## SECONDARY POWER

- Electrification
- Power plant interaction
- Hydraulics
- Pneumatics
- Network sizing
- Safety and reliability



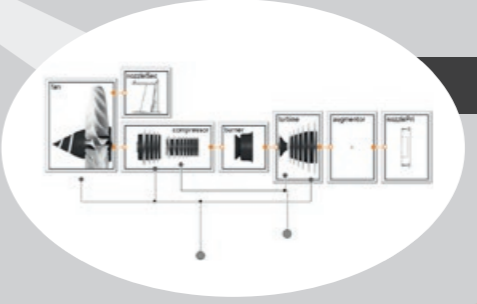
## LANDING GEARS

- Stopping distance
- Shock absorber
- Shimmy
- Kinematics



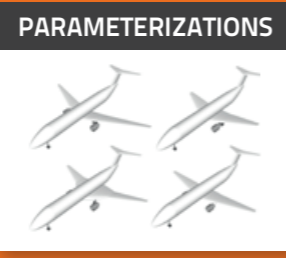
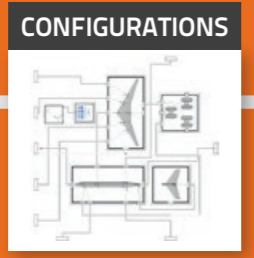
## POWER PLANT

- Hybrid propulsion
- Cycle performance
- Engine control
- Secondary power offtakes



### INCLUDE ALL DOMAINS

Using multi-domain physical system simulation



### MANAGE PRODUCT COMPLEXITY

Build models rapidly with preconfigured templates and reuse them across the V-cycle

### TRANSFORM THE MODEL

Based on automatic symbolic transformation, pose the model as simulation, optimization, or realtime problem

### INTERACT SEAMLESSLY

Collaborate the model-based way, and execute your models on multiple tools using the open standards Modelica and FMI

### STEADY-STATE AND SIZING

### CONTROL DESIGN



### HUMAN-IN-THE-LOOP



### PARTNERS

### GET FULL MODEL ACCESS

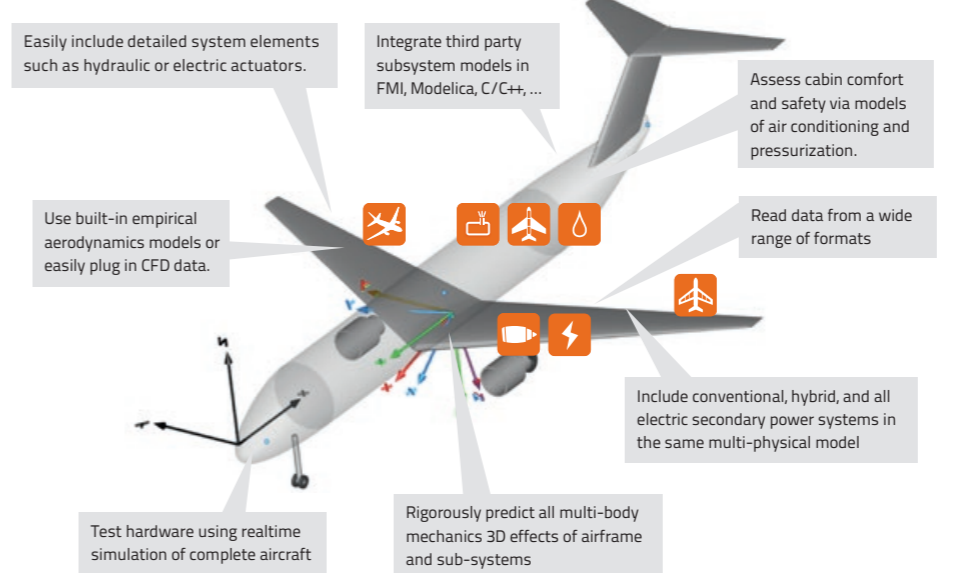
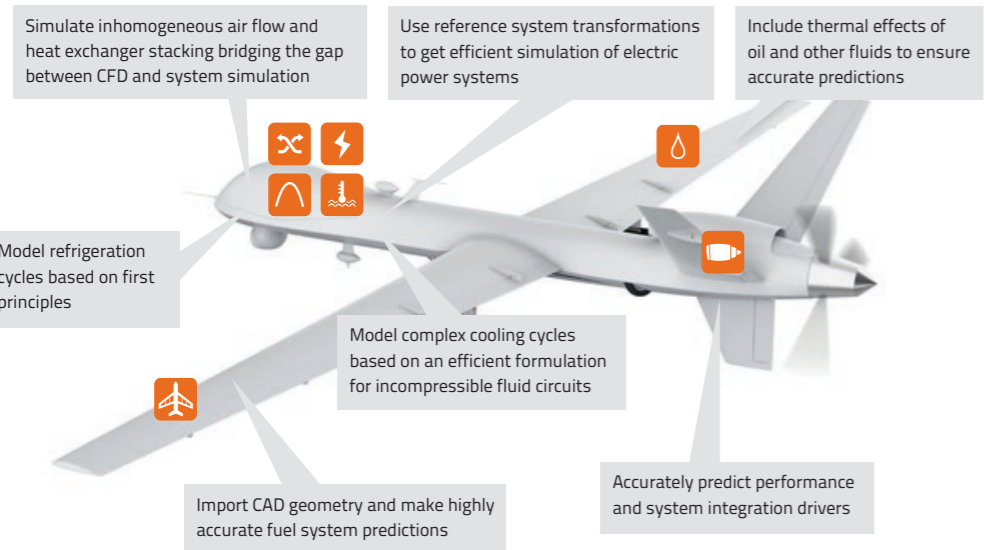
to equations in engineering language

```

equation
(thrust = drag) * VTAS =
  massAircraft * Constants.g_n * height_dot
+ massAircraft * VTAS * VTAS_dot;

massAircraft = massAircraftEIV + massFuel;
der(massFuel) = -FuelFlow;
fuelFlow = thrust * SFC;

CL = massAircraft * Constants.g_n / (rho/2 * VTAS^2 * S);
CD = dragPolar(CL, ReynoldsNumber);
drag = CD * rho * VTAS^2 * S / 2;
    
```



### MODELICA AND FMI TOOLS

- FMI Toolbox
- FMI Add-In
- OPTIMICA Compiler Toolkit

### MODELICA LIBRARIES

- Hydraulics Library
- Pneumatics Library
- Electric Power Library
- Environmental Control Library
- Fuel System Library
- Liquid Cooling Library
- Vapor Cycle Library
- Fuel Cell Library
- Heat Exchanger Library
- Jet Propulsion Library
- Aircraft Dynamics Library
- Electrification Library