FEAC

Excellence through Engineering Simulation

“Digital Twin & Predicting Engineering in Defense Industry”

About FEAC

FEAC Engineering is a leading solutions provider in **Simulation Driven Engineering / Predicting Engineering & Digital Twin**.

With the use of Advanced **Computer Aided Engineering** tools (CAE) and Optimization Techniques, we achieve substantial **reduction of cost, time and risk** while ensuring **optimal product performance**.

Unlike other companies, we conduct both FEM & BEM to offer **fast, efficient and highly-accurate results** to our partners and clients.

FEAC's experienced world-class team has developed unique solutions in a wide range of sectors by **optimizing products, systems, entities, phenomena and processes** under real-world conditions.

A Trustful Partner

ANSYS 2014 HALL OF FAME COMPETITION
Competition Winner
Best in Show: Corporate

ANSYS Hall Of Fame
Global Simulation Competition

AIRBUS DEFENCE & SPACE
esa

Space & Aeronautics

CERN Courier
NASA's TechBriefs
ANSYS Advantage

Siemens PLM Software
SIEMENS

SIEMENS PLM CAE Suite
Partner

HEMEXPO
NAFEMS
TECHNOPOLIS
si·cluster
a corallia initiative
EBIAITE
STRATEGIS

Proud Member of International
Engineering Associations &
Clusters

CERN
Fermilab

CERN / Fermilab

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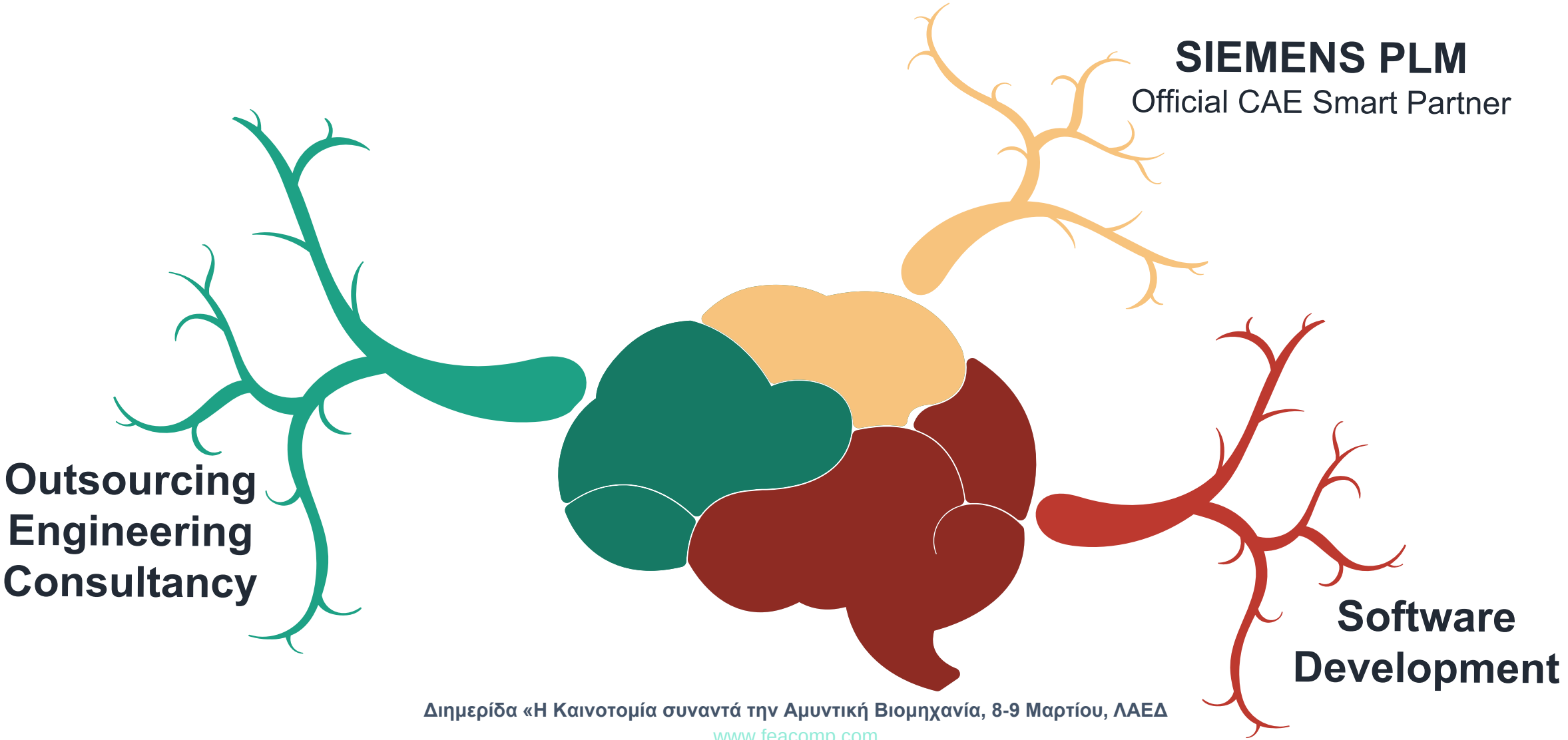
FEAC's Core Business



Funnel Diagram

Segments Vs. Challenges

FEAC

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Siemens PLM Software Partner

Specialist CAE SMART Partner

Greece – Cyprus - Malta

HEEDS | STAR – CCM+ | FEMAP | NX-CAE | SIMCENTER 3D

Licensing | Support | Training | Maintenance | Webinars | Seminars | Roadshows /Tradeshows

Διημερίδα «Η Καινοτομία συναντά την Αμυντική Βιομηχανία, 8-9 Μαρτίου, ΛΑΕΔ

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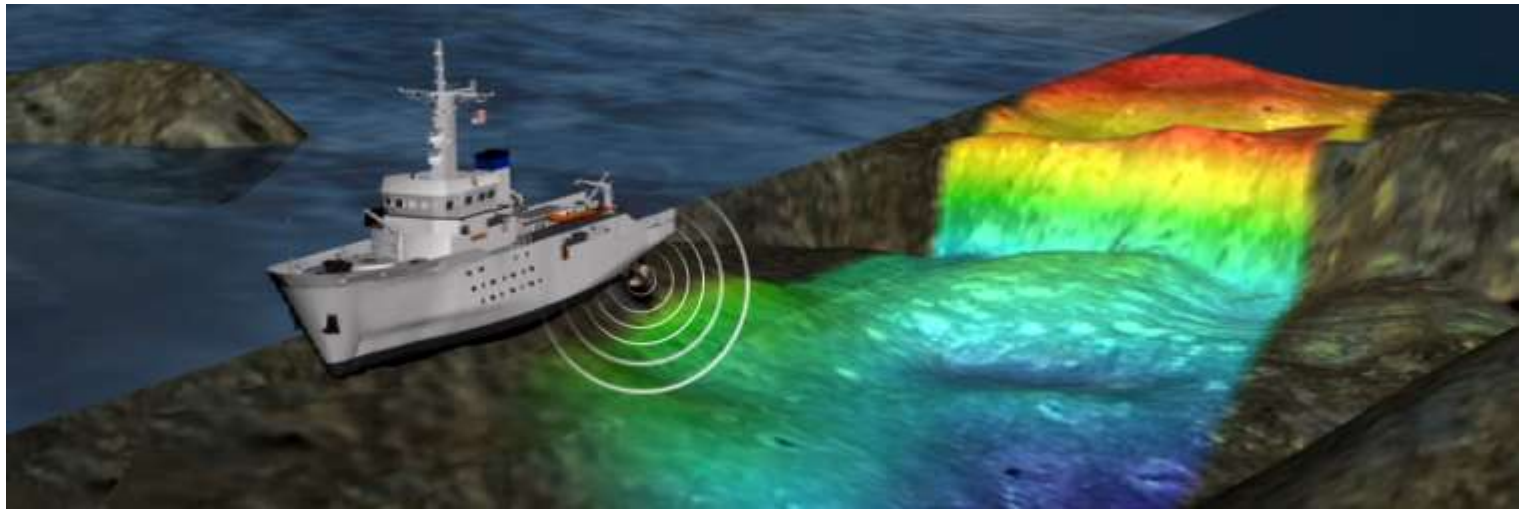
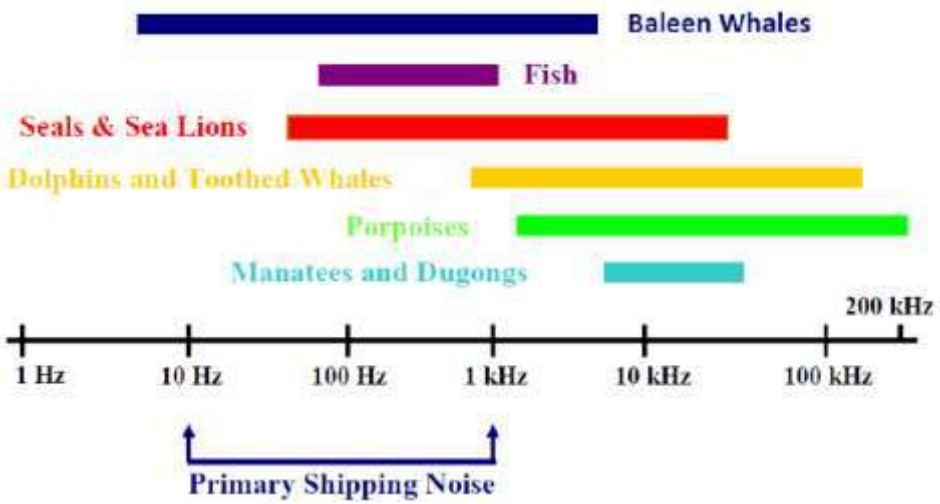
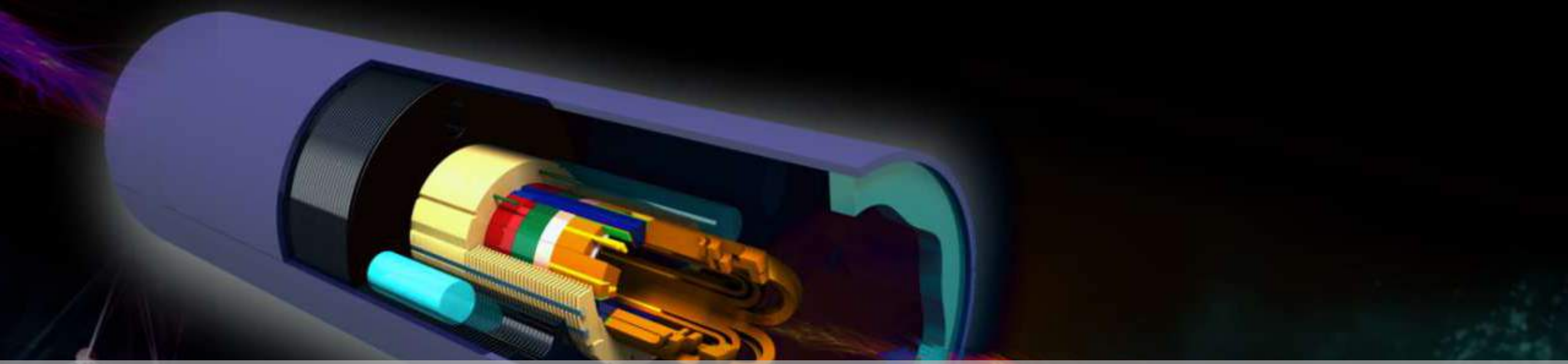
Environmental footprint

Predict the underwater acoustics and noise emission due to vibrating structures





Design of the SEMS of ESA’s JUICE Mission



Design of the high gradient superconducting Quadrupole (MKQXF) for the High-Luminosity LHC (HL-LHC)

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Study of acoustic & elastic waves generated by wind turbines

The waves are propagated through the air and soil affecting nearby residences. The simulation handles effectively the fluid-soil-structure interaction (FSI) phenomenon.

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The World is Evolving

Increasingly complex products

Fast pace of innovation

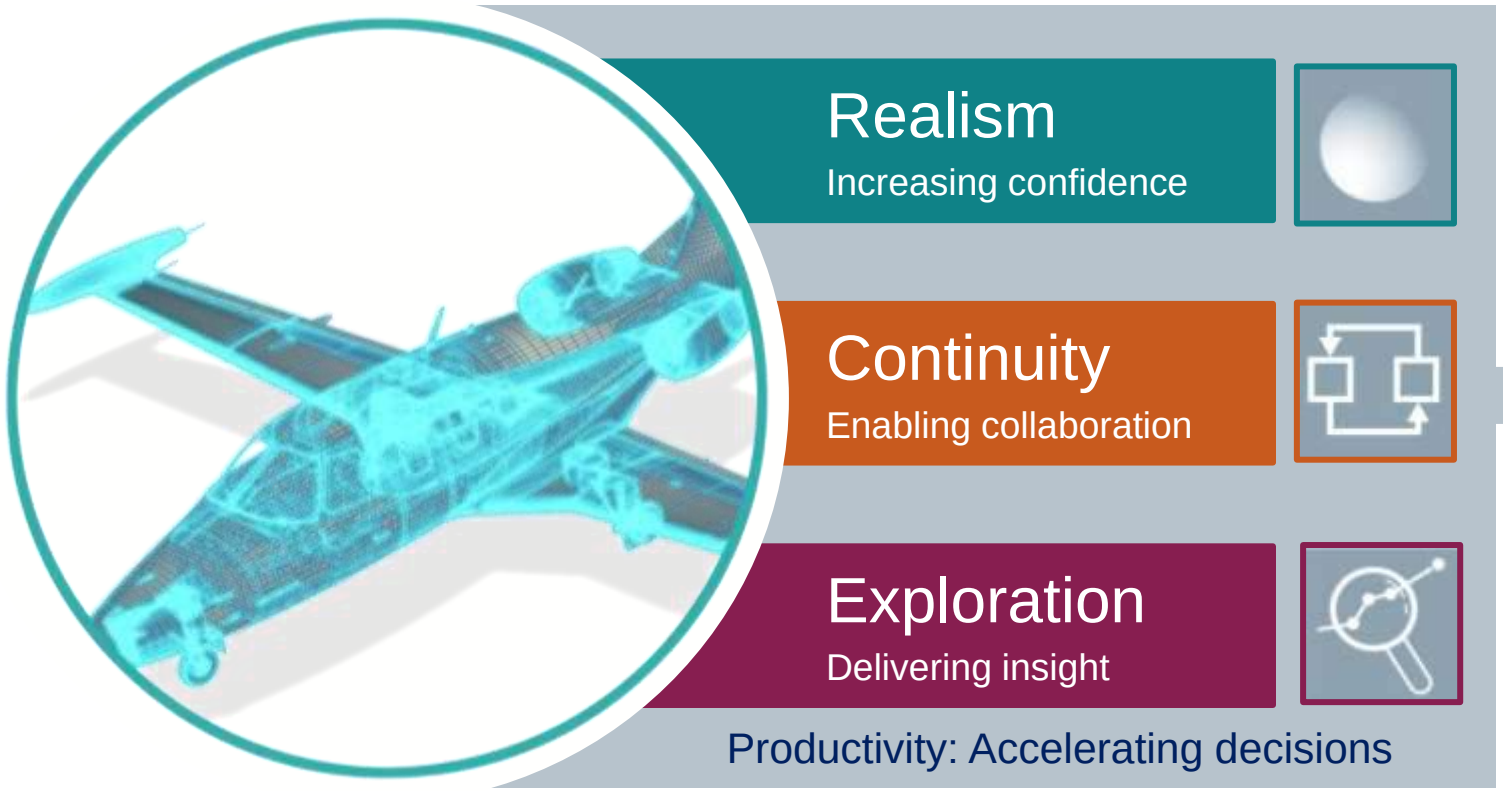
Mass customization and personalization

System of systems

The Holistic Digital Twin

The Holistic Digital Twin

Performance Engineering



Realism
Increasing confidence

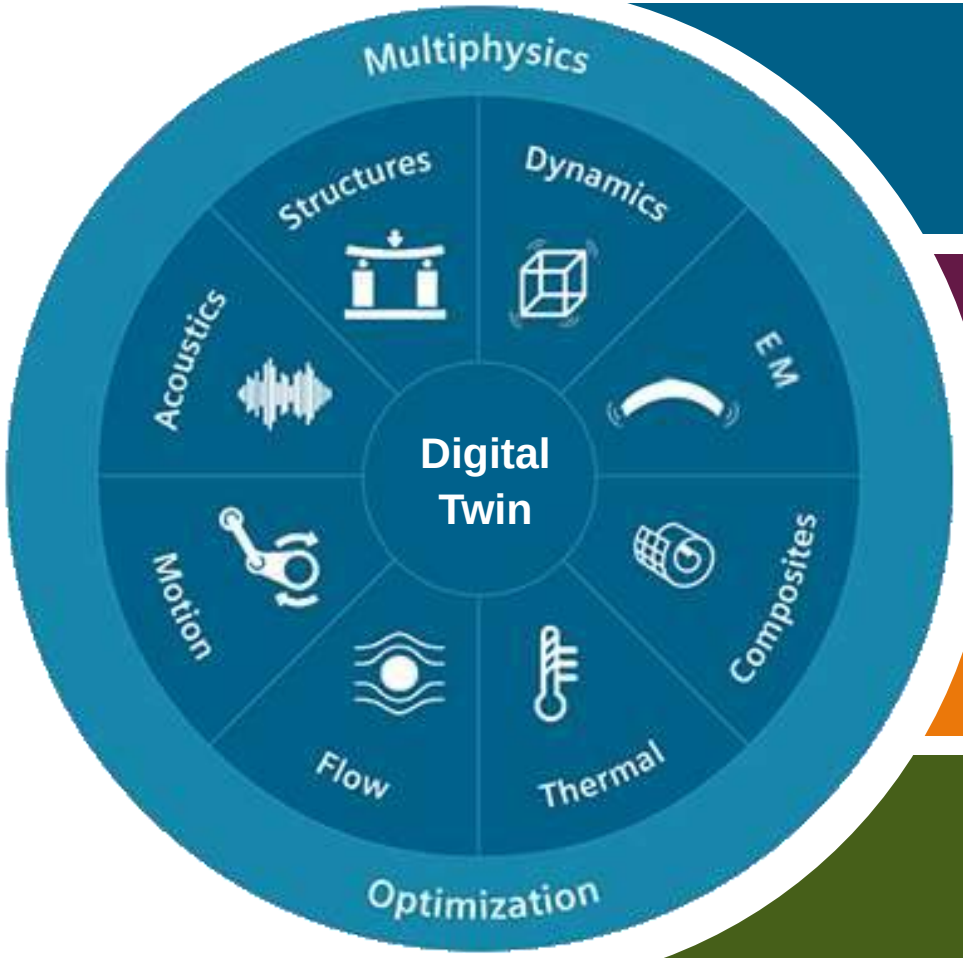
Continuity
Enabling collaboration

Exploration
Delivering insight

Productivity: Accelerating decisions

- Innovative solutions
- Faster to market
- Better products
- Lower development cost
- Increased market agility

The Holistic Digital Twin



Thermo-Mechanical Performance

Flow, Structural, Thermal, Vibration, Acoustics, Whole Engine

Emissions & Thermal Management

Thermal balance, Combustion, Emission, Fuel consumption

Systems Performance

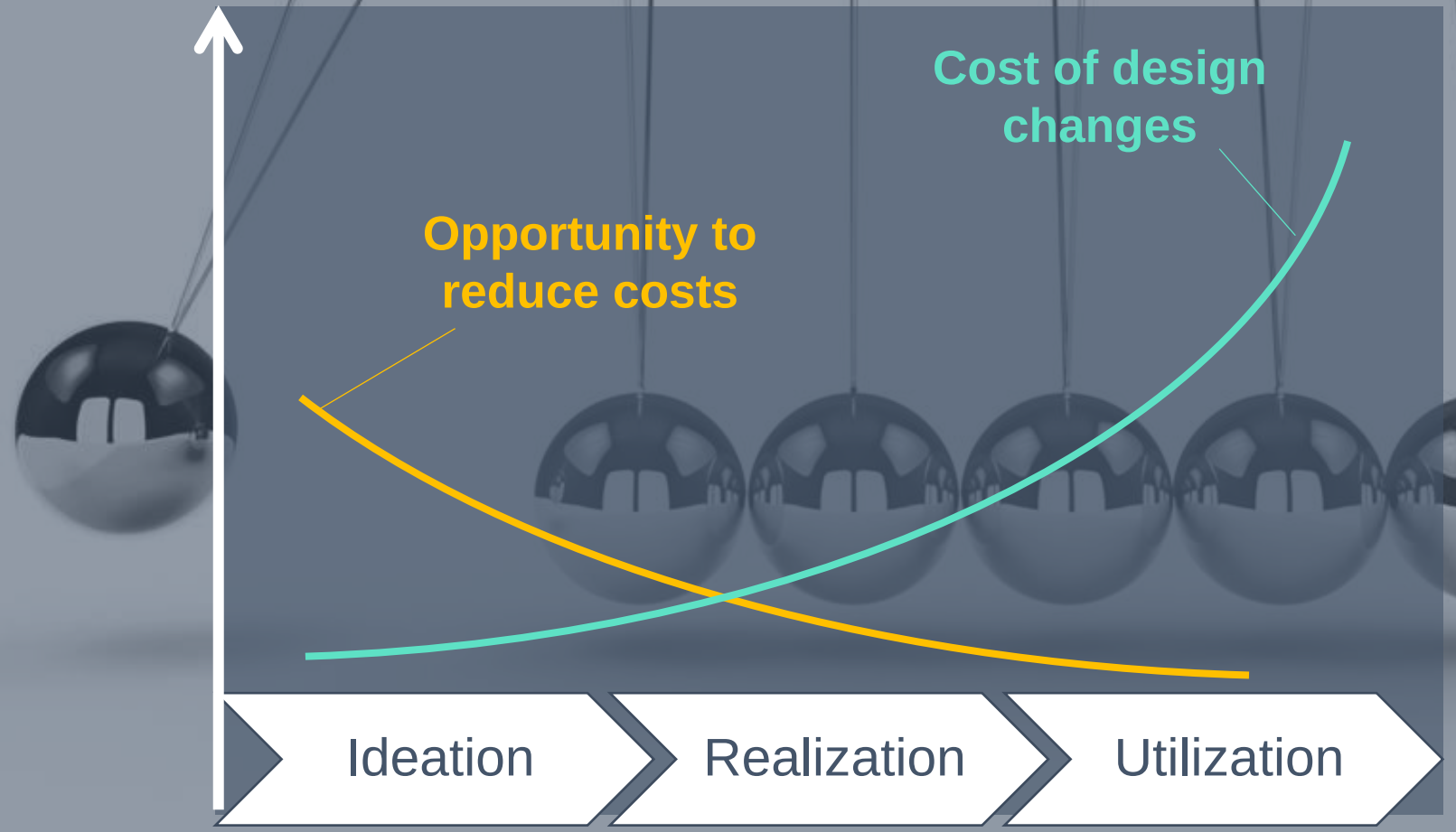
Lubrication, Gearbox, Fuel, Engine Driven Systems

Integration, Verification & Certification

Virtual & Physical Testing, Component & Integration Testing

Impact

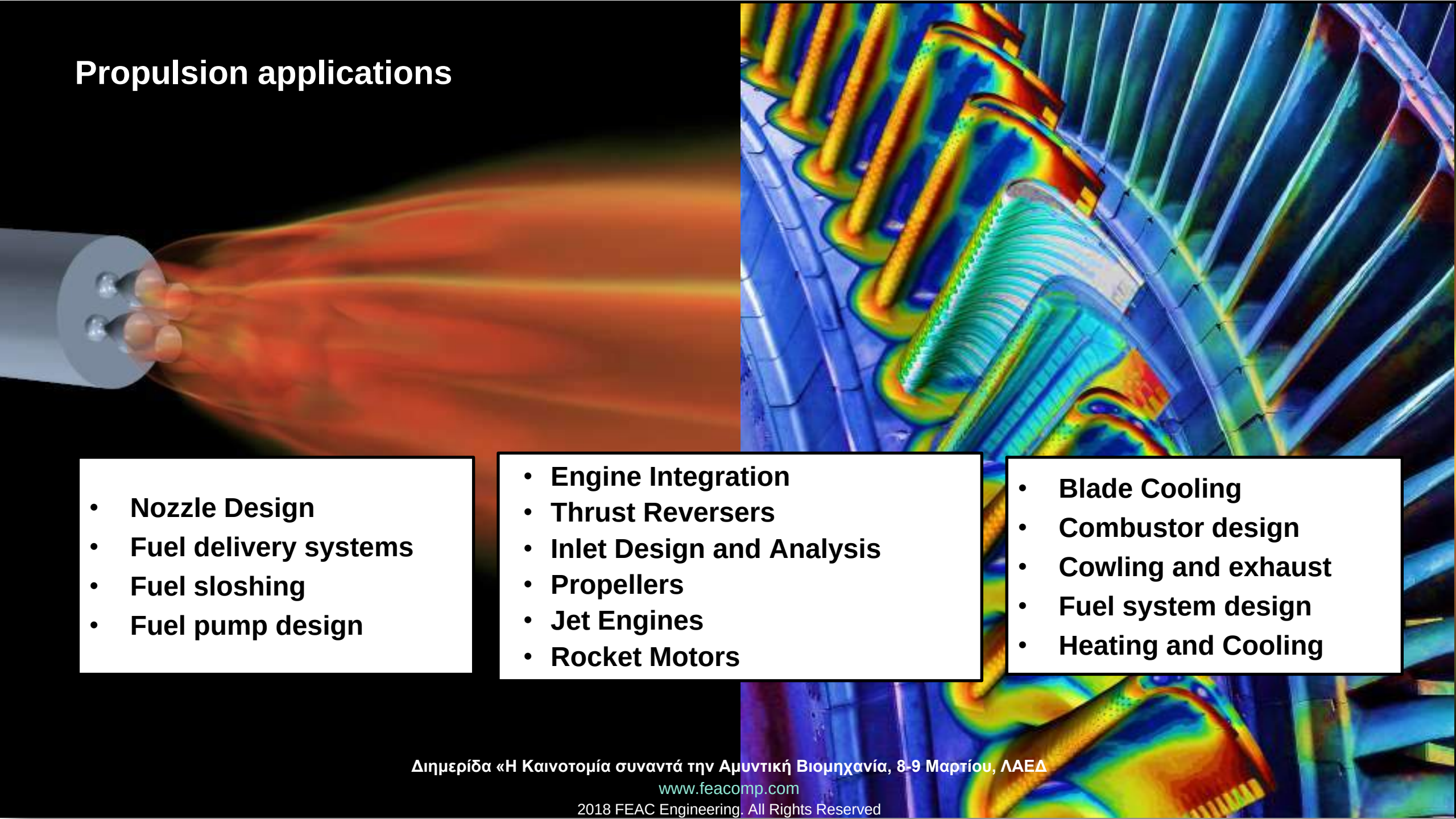
Biggest Impact of Digital Twin is early in the product development process



With Simulation companies are tackling todays aerodynamic problems

- Aerodynamic Optimization
- Drag Prediction
- Stability and Control
- Aero Loads Generation
- Engine Airframe Integration
- Fairing Design
- Aeroelastic Calculations

Propulsion applications



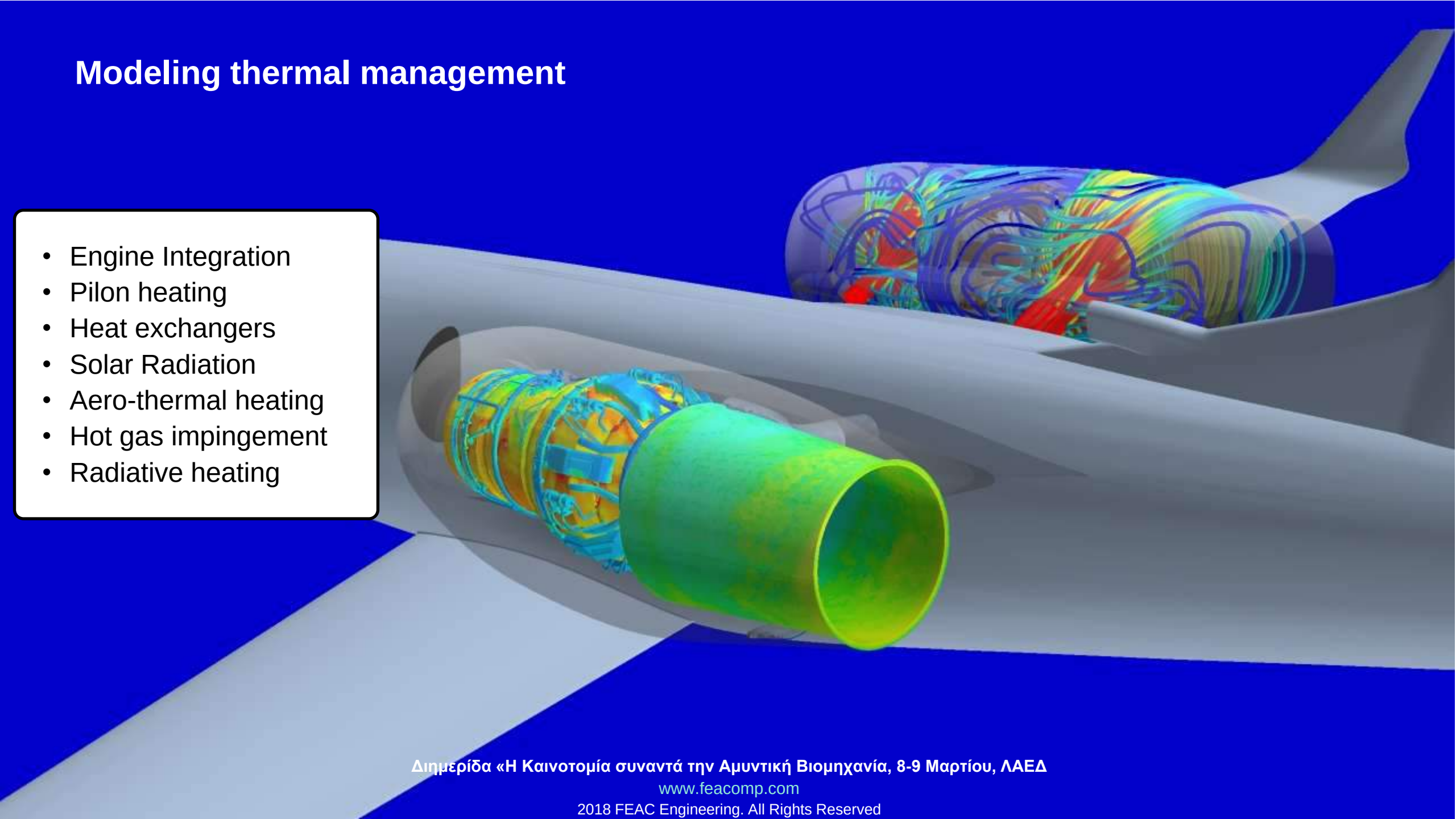
- Nozzle Design
- Fuel delivery systems
- Fuel sloshing
- Fuel pump design

- Engine Integration
- Thrust Reversers
- Inlet Design and Analysis
- Propellers
- Jet Engines
- Rocket Motors

- Blade Cooling
- Combustor design
- Cowling and exhaust
- Fuel system design
- Heating and Cooling

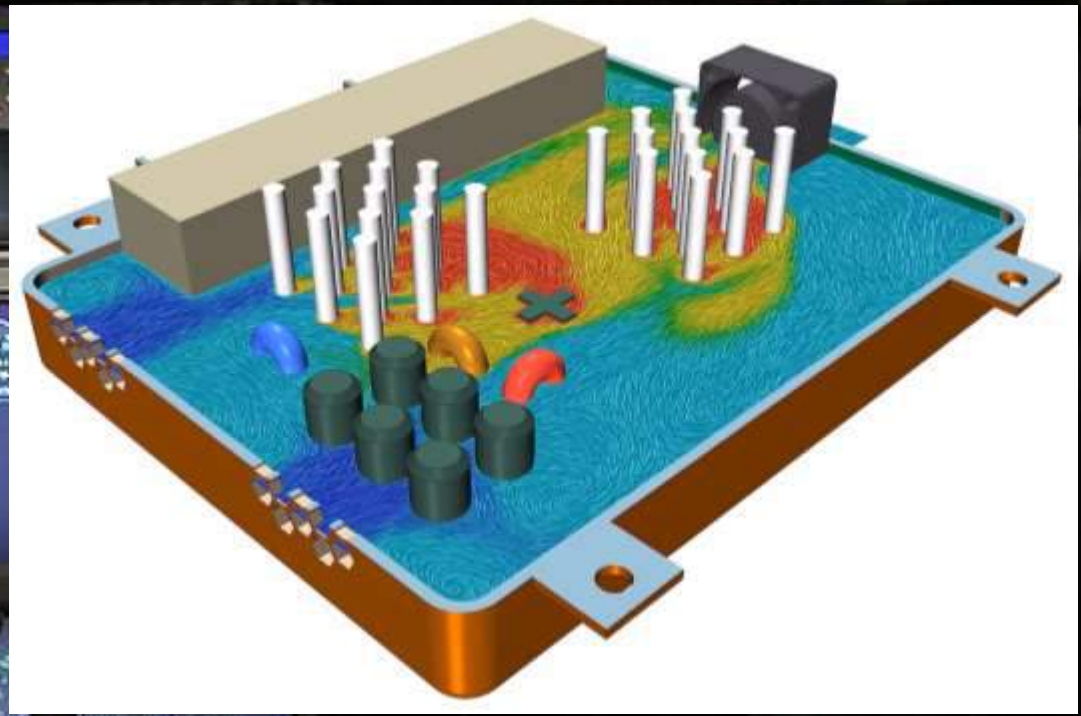
Modeling thermal management

- Engine Integration
- Pilon heating
- Heat exchangers
- Solar Radiation
- Aero-thermal heating
- Hot gas impingement
- Radiative heating



Avionics / Payload / Electronics Cooling

- Complex geometry and flow paths
- Including wires, cables, connectors, etc.
- Conjugate heat transfer
- Cooling
- Fan Performance
- Acoustics



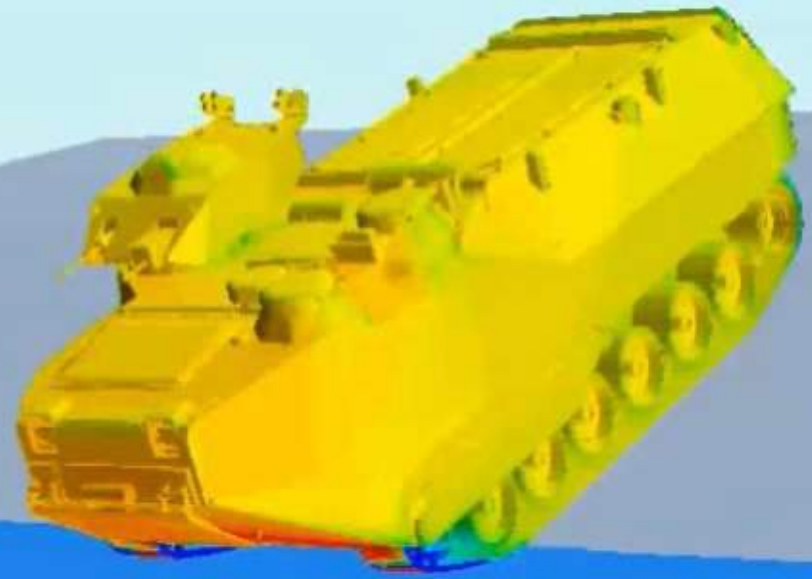
Rotorcraft Design

- **Thermal**
  - Engine Integration
  - Exhaust impingement
  - Avionics cooling

- **Complex Geometry**
  - Body/payload aerodynamics
  - Hub Drag
  - Lubrication
  - Store separation and overset

- **Rotating Geometry**
  - Fan Models
  - Virtual Blade Model
  - Multiple Reference Frames
  - Sliding Interfaces

Ground Vehicle Defense

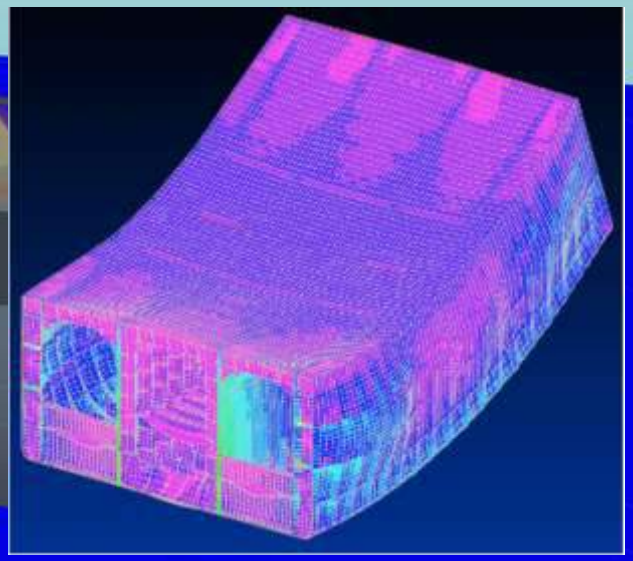


- **Vehicle Aerodynamics**
  - Aerodynamic Performance
  - Aeroacoustics
  - Water/Dirt Management
- **Auxiliary/Secondary Flows**
  - Air Intakes
  - Exhaust
- **Vehicle Thermal Management**
  - Engine/Transmission Cooling
  - Underhood Components
  - Electronics Cooling
- **Cabin Simulations**
  - HVAC
  - De-ice/Defog
  - Human-Effects
- **Batteries and Electric Machines**

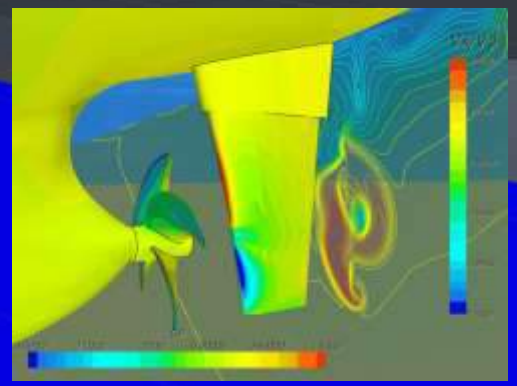
Marine Defense

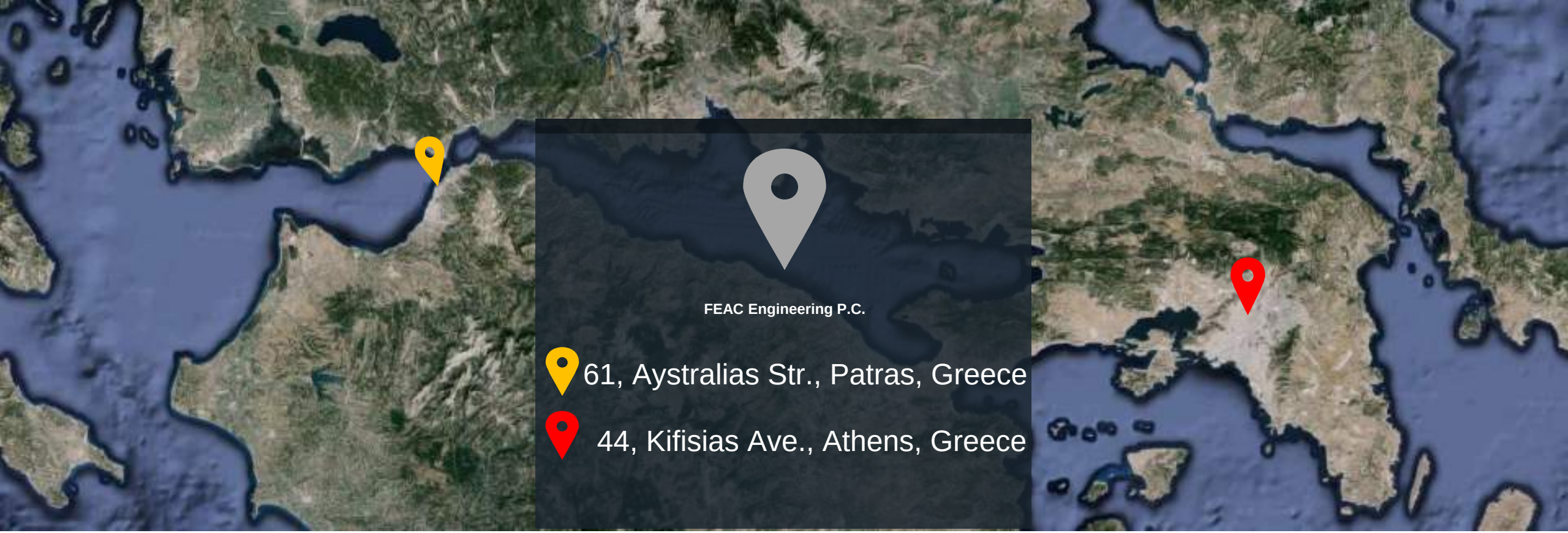
Deformation Prediction during Docking Period in combination with the use of *3D Measurements* & *3D Scanning* Information

- especially in case of AFT Hull section long Projecting Beam, sitting on blocks
- because of Hot Works performing
- because of extensive wear of steel plates and stiffeners by rust



- Structural
- Vibration
- Cathodic Protection
- Ship Signature
- Hydrodynamics
- Propulsion
- Cavitation
- Aerodynamics





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