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01

CILAS PRESENTATION

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2 Shareholders

63% HMS

37% LUMIBIRD MORE THAN LASERS

270 Employees

National & regional economic player

Aérocentre pôle d'excellence régional

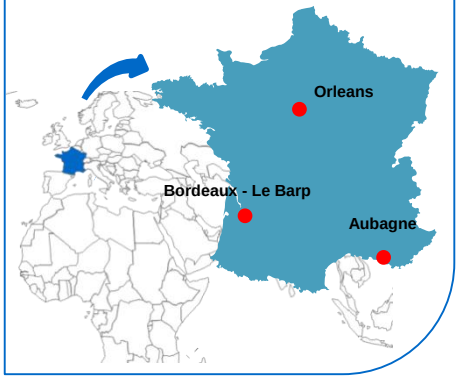
ALPHA RLH

Optitec

GICAT

GICAN

3 industrial sites



cilas

Design, development and production of optronics and laser equipment, adaptive optics and optical coatings for Aerospace, Defence and Industrial applications.

2 joint laboratories with research centers

INSTITUT FRESNEL MARSEILLE

xlim

44% Sales from Exports

AIRBUS

cea

cnes CENTRE NATIONAL D'ÉTUDES SPATIALES

DGA

ESO

LAM

LEONARDO

SRON Netherlands Institute for Space Research

NAVAL GROUP

SAFRAN AEROSPACE · DEFENCE · SECURITY

sodern arianeGROUP

TECNOBIT

ThalesAlenia Space

TMT THIRTY METER TELESCOPE

Quality

Certified to the ISO 9001 and ISO 14001 international standards

Company founding: 1966

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02

CILAS PRODUCTS & ACTIVITIES

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ACTIVITIES

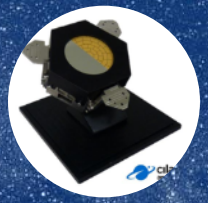
Defence

Laser target designators

Laser sniper and sight detectors

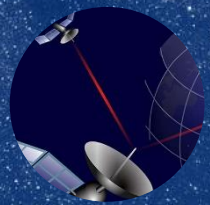
High energy lasers

Space & Astronomy



Adaptive optics (deformable mirrors)

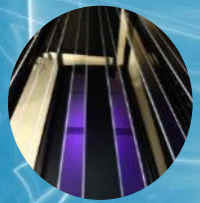
Optical coatings



Spaceborne lasers for LIDAR & telecommunications

Industry & Research

Laser MegaJoule (LMJ)



Optical coatings

Optical ceramics

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CILAS, EXPERT IN HIGH ENERGY LASERS

CILAS develops a family of efficient products on each market segment

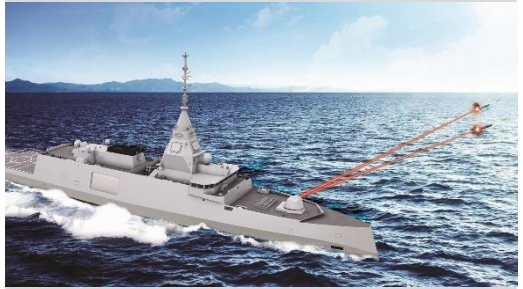
- Driven by its innovative approach **(auto-financing**)
- Offering a technological and operational break
- Focusing on the **laser energy density**
- **Scalable design** : TRL6 – customer oriented and open to discuss integration
- CILAS has an **historical experience** in working on laser weapons

➢ CILAS **focuses on the laser effector (including tracking)** and cooperates with industrial partners for C2 / primo detection, and to further define operational concept.

HELMA-P

- **Typically C-UAV**
- **Range: 100 – 1500m**
- **For fixed or mobile target**
- **Energy: multikW class @1µm**
- **Available on fix-station from 2022**

HELMA-XP



- **Developments of laser source**
- **Capabilities to match integrators:**
  - **Fiber laser source**
  - **Combining several laser sources**
  - **Pre-compensate turbulences**
  - **Mastering performance pattern**
- **On-going technological works and studies: e.g. TALOS**
- **Mastering the energy density**

DGA EUROPEAN DEFENCE AGENCY TALOS

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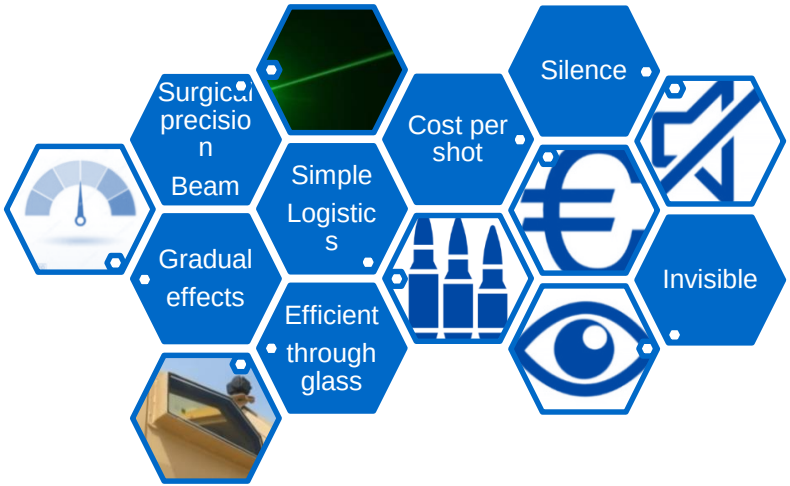
SUMMARY
A TECHNOLOGICAL INNOVATION TO NEUTRALIZE NEW THREATS

Simplicity – Discretion – Immediacy- Cost Effective

- Producing optical/thermal effects on material by energy deposition
- It enables to: saturate sensor, heat, deform, ignite, pierce, poke, cut, destruct…

Acknowledged advantages



PARIS 2024

Helma P has been selected for site protection during 2024 Olympic games in Paris

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CILAS USE OF ARCADIA

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CILAS USE OF ARCADIA METHODOLOGY

CILAS use of Arcadia

- **CILAS has been using a tailored version of Arcadia since early 2019**
- **Wide range of applications:**
  - Defence / R&D european projects / Development of Low, Mid & High Energy Laser
  - Designation / Feasibility study / Development of improved designator
  - Strategy / Low to High Energy Laser line of product

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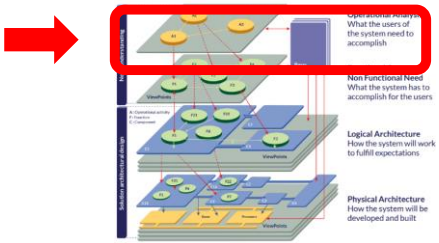
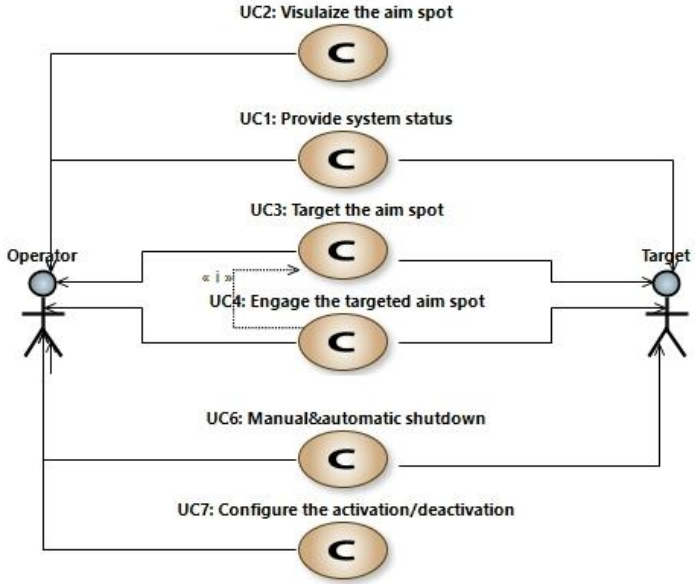
CILAS USE OF ARCADIA METHODOLOGY

Arcadia artefacts used throughout all CILAS projects



- **Operational Analysis related artefacts**
  - [OEBD] Operational Entity Breakdown Diagram (to define operational entities)
  - [OCB] Operational Capabilitty Diagram (to define operational use cases)
  - [MB]&[MCB] Mission and/or Capability Blank diagram (to identify which actors will contribute to Capabilities)
  - [OES] Operational Entity Scenario (to describe the interactions btw operational actors for a specific lifecycle phase)
  - [MSM] Mode State Machine Diagram (to define the lifecycle)



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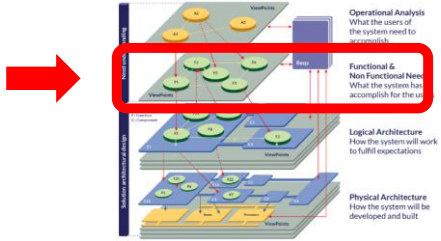
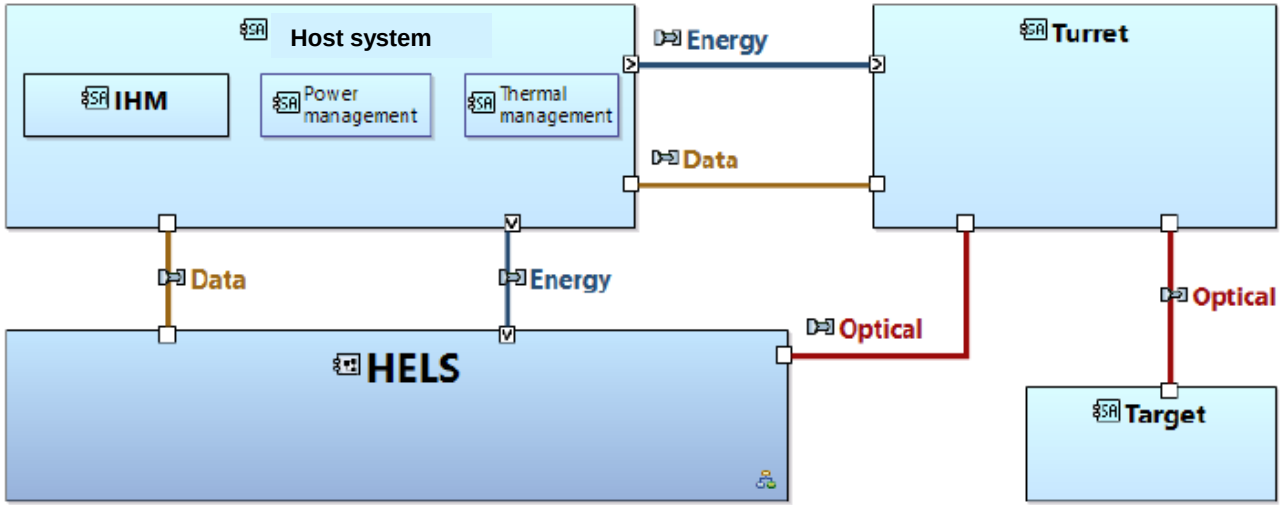
CILAS USE OF ARCADIA METHODOLOGY

Arcadia artefacts used throughout all CILAS projects



- **Functional & Non Functional Need related artefacts**
  - [CSA] Contextual System Actors (to define the interaction between actors and systems)



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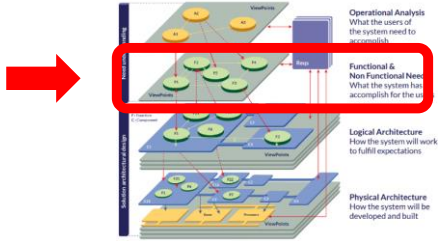
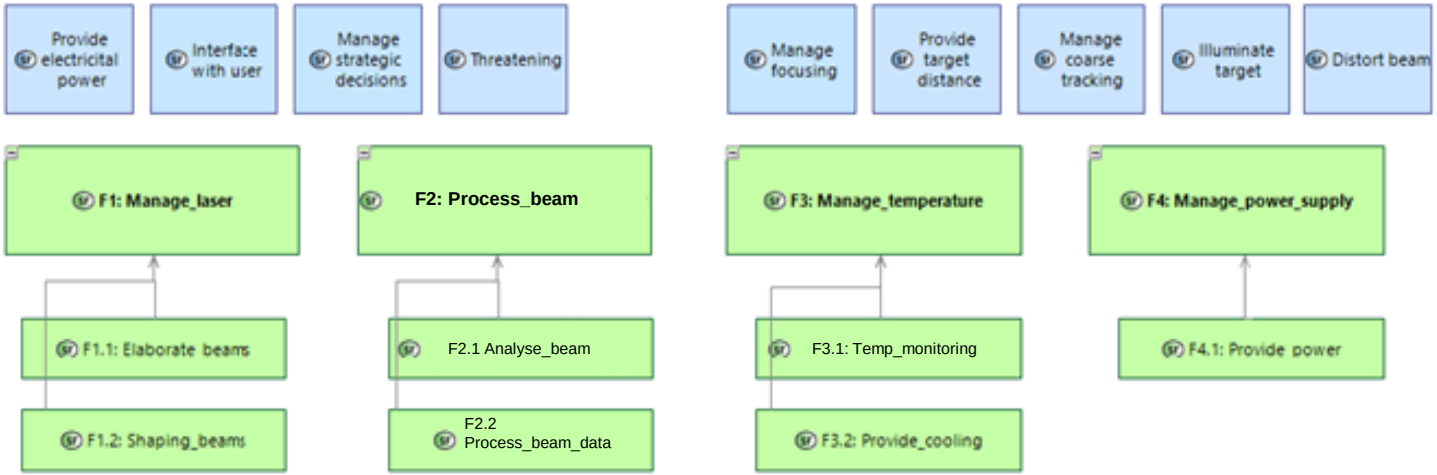
CILAS USE OF ARCADIA METHODOLOGY

Arcadia artefacts used throughout all CILAS projects



- **Functional & Non Functional Need related artefacts**
  - [SFBD] Functional Breakdown Diagram (to define functional architecture)
  - [SDFB] System Dataflow Function Blank (to define functional exchanges btw system functions and external functions)
  - [SAB] System Architecture Diagram (to allocate functions to SOI and external systems)



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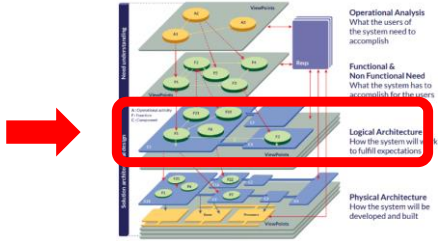
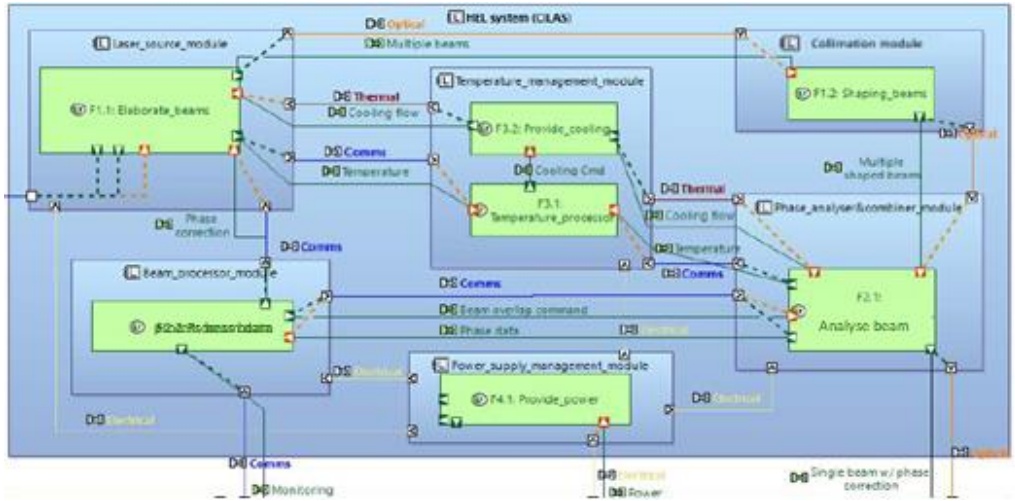
CILAS USE OF ARCADIA METHODOLOGY

Arcadia artefacts used throughout all CILAS projects



- **Logical Architecture related artefacts**
  - [FS] Functional Scenario (to define sequence diagram)
  - [LCBD] Logical Components Breakdown Diagram (to define logical components architecture)
  - [LAB] Logical Architecture Diagram (to allocate functions to logical components & type of exchanges btw logical components)
  - [ES] Exchange Scenario (to define sequence diagram)



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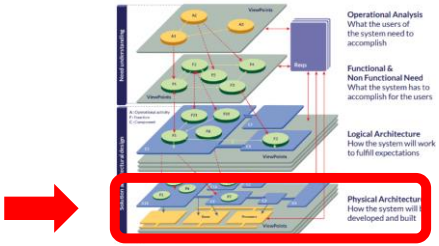
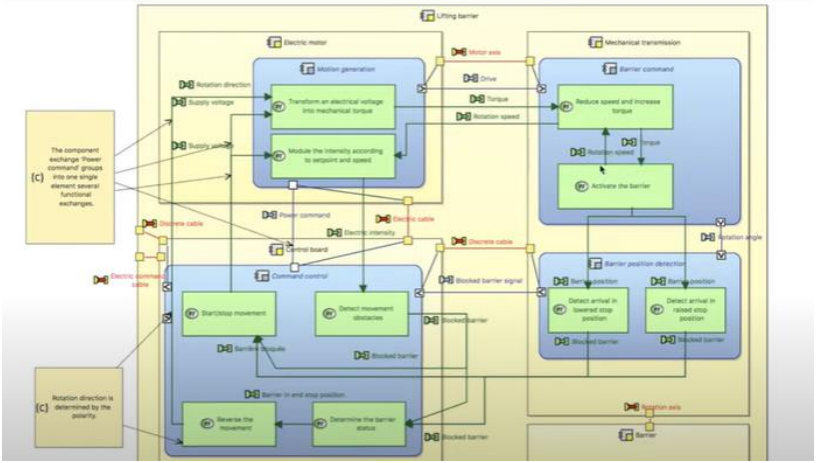
CILAS USE OF ARCADIA METHODOLOGY

Arcadia artefacts used throughout all CILAS projects



- **Physical architecture related artefacts**
  - [PCBD] Physical Components Breakdown Diagram (to define the system components breakdown)
  - [PAB] Physical Architecture diagram (to define and allocate functions and logical components to physical components and identify the different type of exchanges between components)



For illustration purpose only (not an excerpt from CILAS Capella experience)

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BENEFITS AND HURDLES

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BENEFITS AND HURDLES

Hurdles faced while implementing Arcadia

- Resist to change: can be difficult to get traction from all departments/users
- Capella tool can be a bit greedy in terms of resources comsumption (require a strong PC build)
- Projects compatibility with other Capella version: migration of projects can be challenging

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BENEFITS AND HURDLES

Benefits drawn from Arcadia implementation

- Provide guidelines and canvas to ensure all project elements are produced and properly connected to one another
- Smooth capitalisation of information and knowledge on complex products (allow for quick handover, quick way to bring one up to speed, better communication)
- Flexible methodology that can be tailored depending on needs, available resources, complexity of the project, etc.
- Provide a single source of information accessible/understandable for people coming from different background
- Efficient to establish rational and organic bondaries between involved entities
- Upon application over several projects and products, allow for identification of trends and ways to optimise and rationalise the products/projetcs management

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CONCLUSIONS

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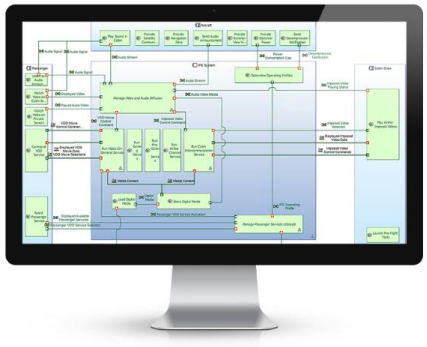
CONCLUSIONS

Implementing Arcadia: way forward

- Arcadia implementation and Capella use turned out beneficial so far
- Need to keep deploying on relevant projects
- Look for ways to tailor Capella to make it more user friendly
- Need to adapt means and best practice in order to ease Capella use
- Need to process feedbacks and put up relevant metrics to help with culture change within the company



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THANK YOU
#laserandbeyond