

Leveraging R&D as the catalyst for *innovation* in Defense

Looking further into (new) cooperation opportunities

José Borges

Portuguese Military Academy (AM)
Research Centre (CINAMIL)



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61st IG meeting

„Carol I” National Defence University, Bucharest, 13th February 2024





ACADEMIA MILITAR

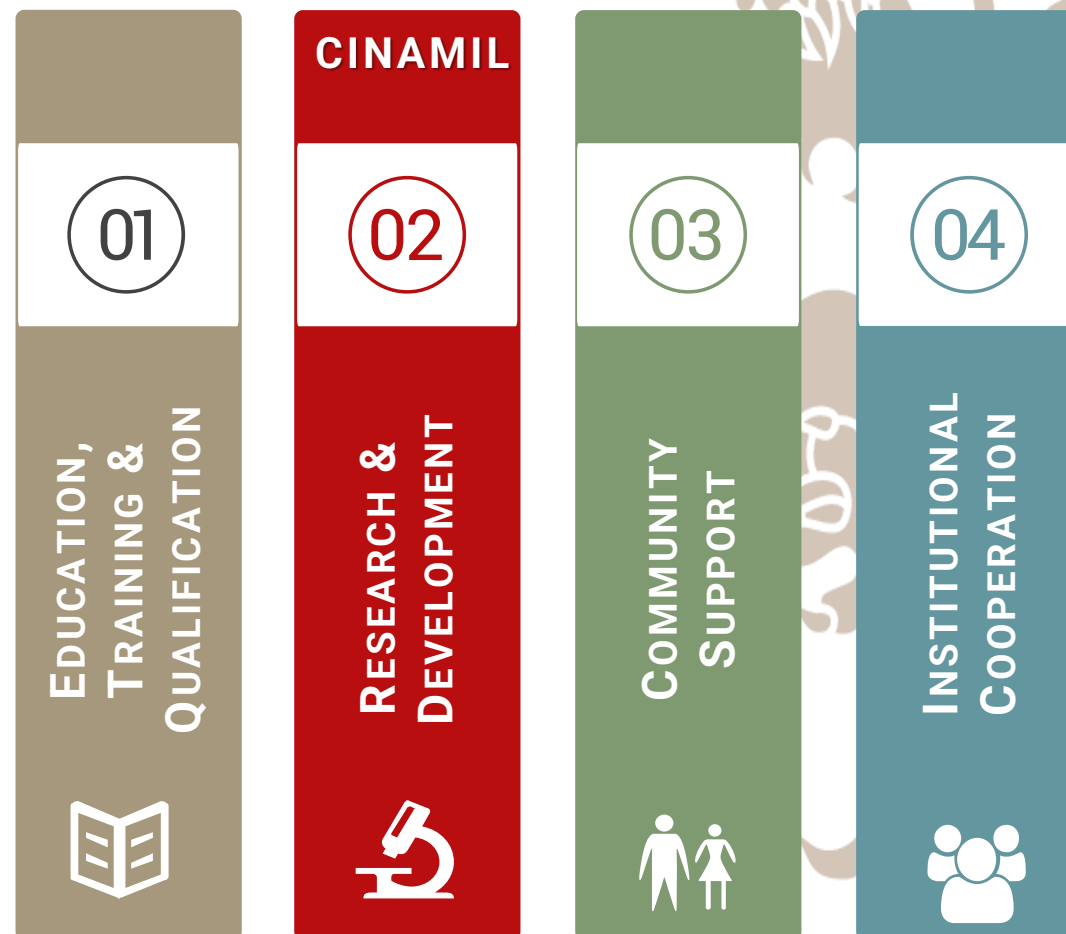
MILITARY ACADEMY

MISSION

The mission of the Military Academy (AM) is to train officers for the Army and the National Republican Guard, enabling them to carry out the duties assigned by statute, to provide the appropriate skills to fulfill the missions of the Army and the GNR and to promote individual development for the exercise of command, direction and leadership functions.



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EXÉRCITO
PORTUGAL

AGENDA

- **Scope**
- **Financial Instruments**
- **Opportunities**



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SCOPE



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*“An **innovation** is a **new** or **improved** **product** or **process** (or their **combination**) that differs significantly from the unit’s previous products or processes and that has been **made available** to potential users (**product**) or brought into use by the unit (**process**).”*

OECD’s Oslo Manual 2018



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What is *innovation*?





CYBER WARFARE
ADVANTAGE AND
READINESS

SPACE
SERVICES

ELECTRO MAGNETIC SPECTRUM
OPERATIONS (EMSO) DOMINANCE

AIR COMBAT PLATFORMS
AND WEAPONS

SPACE
OPERATIONS

AIRBORNE COMMAND AND
INFORM CAPABILITIES

MARITIME DOMAIN
AWARENESS

NAVAL COMBAT AND
MARITIME INTERDICTION

UNDERWATER
AND SEABED
WARFARE

FULL SPECTRUM CYBER DEFENCE
OPERATIONS CAPABILITIES

CHEMICAL BIOLOGICAL RADIOLOGICAL
AND NUCLEAR (CBRN) DEFENCE

MEDICAL
SUPPORT

COHESIVE AND WELL-
TRAINED MILITARIES

SUSTAINABLE
AND AGILE
LOGISTICS

INTEGRATED
AIR AND
MISSILE
DEFENCE

LAND BASED
PRECISION
ENGAGEMENT

FUTURE SOLDIER
SYSTEMS

GROUND
COMBAT
CAPABILITIES

MILITARY
MOBILITY

CRITICAL
INFRASTRUCTURE
PROTECTION AND
ENERGY SECURITY

PERSISTENT
AND RESILIENT
C4ISTAR

THE 2023 EU CAPABILITY DEVELOPMENT PRIORITIES



LAND

- > Ground Combat Capabilities
- > Land Based Precision Engagement
- > Future Soldier Systems



STRATEGIC COMPASS

e
Warfare

- > Maritime Domain Awareness



- > Space Services



- (CBRN) Defence
- > Cohesive & Well-Trained Militaries



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Why *innovation* in defence?



FINANCIAL INSTRUMENTS



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National / regional financial instruments



**Pt Army
funds for RD**



**Pt MoD
funds for RD**



**European Regional
Development Fund**



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EDA financial instruments



EUROPEAN
DEFENCE
AGENCY

- **Operational Budget** – *OB Projects*
- **Category B** (pMS “Opt In”) – *Cat B Projects*
- **Category A** (pMS “Opt Out”) – *Cat A Projects*



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<https://eda.europa.eu/>



PROJECTS IN BALLISTICS

Portfolio



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2015

TRL3

BalSim – Simulador de balística para projéteis de Artilharia

TRL6

FIREND – Projétil de Artilharia para o combate de incêndios

TRL3

ProtBal – Desenvolvimento e teste de proteções balísticas

TRL6

ALIR_mcs – Advanced Lightweight Impact Resistant materials, components and structures for UAVs

TRL9

AuxDefense – Advanced Materials for Defense



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2023

TRL9 / MRL 9-10

PolyShell - Desenvolvimento e industrialização de uma granada inerte de 155 mm

TRL6

AMUT – Desenvolvimento e teste de proteções balísticas

TRL6

IMPACT I – Improved Impact Resistance of Lightweight Defence Structures

TRL3

EU DetCode – European Detonation Code

TRL3

PREMIUM - Prediction models for implementation of munition health management

CCB – Centro de Competências em Balística



Cat B Projects

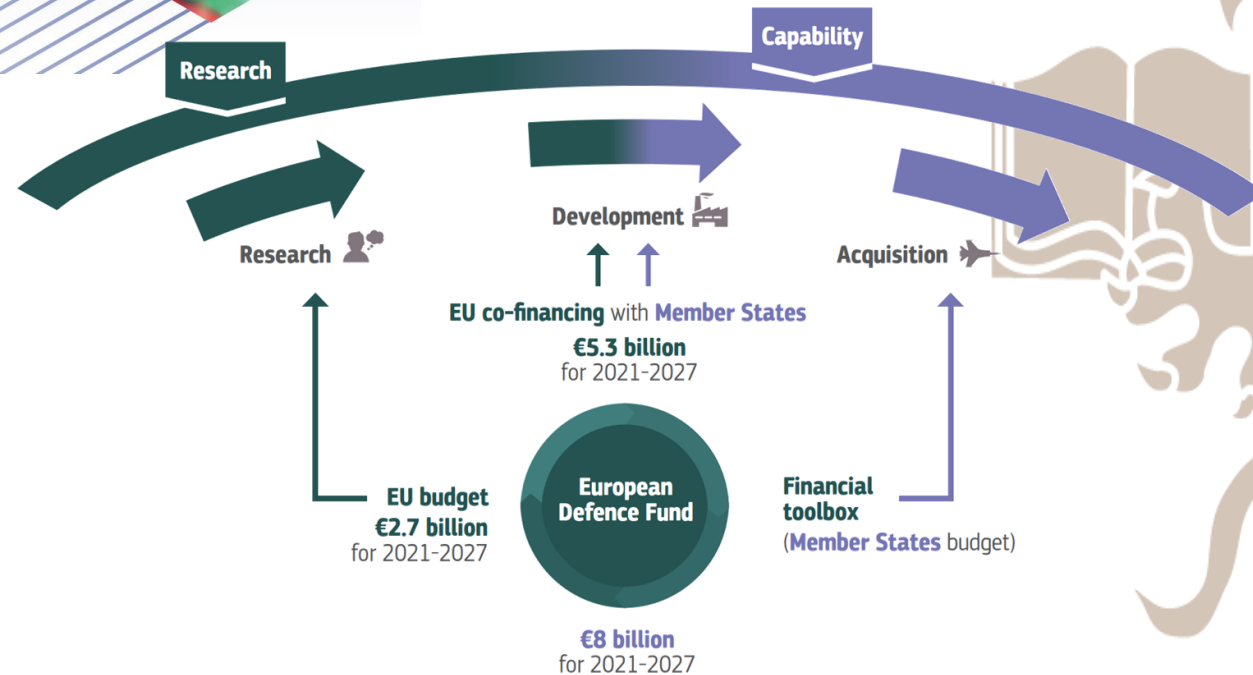




European
Commission



THE EUROPEAN DEFENCE FUND



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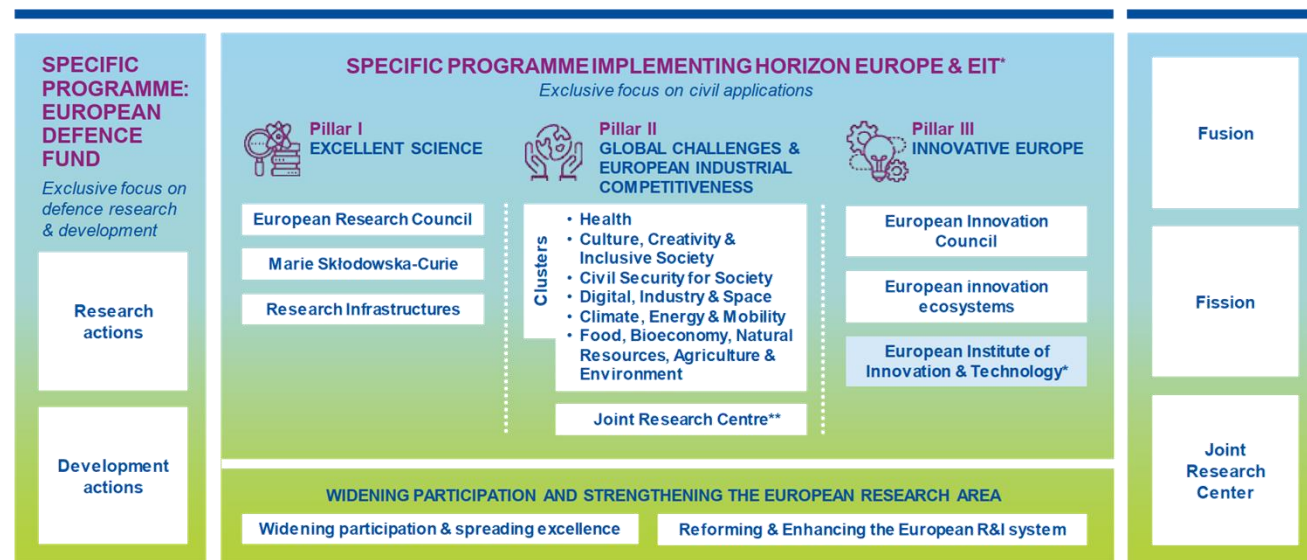
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https://defence-industry-space.ec.europa.eu/eu-defence-industry/european-defence-fund-edf_en





HORIZON EUROPE



* European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

** Non-nuclear activities of JRC



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PROJECTS IN CYBER

Portfolio



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CD TEXP – Cyber Defence Training and EXercises Platform



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INNOVATING SOLUTIONS

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OB Project

 **EUROPEAN
DEFENCE
AGENCY**

15.CAT.OP.042, 18.CAT.NPI.033

Projetos e Iniciativas

defesa.gov.pt/pt/pdefesa/ciberdefesa/pr...

REPÚBLICA PORTUGUESA
DEFESA NACIONAL

Projetos e Iniciativas

Defesa Nacional > Política de Defesa > Ciberdefesa > **Projetos e Iniciativas**

Projeto EDA "Cyber Defence Training and Exercise Platform"

(CD TEXP)


O projeto CD TEXP tem por objetivo implementar a *eLearning* para a disponibilização de conteúdos de exercícios na área ciber para uma vasta comunidade de utilizadores dos países participantes na Agência Europeia de Defesa bem como os utilizadores associados ao projeto NATO.

Defence Project on Cyber Defence Education & Training

EDA-developed cyber training pl...

eda.europa.eu/news-and-events/news/2022/05/25/eda-developed-cyber-training-pl...

EUROPEAN DEFENCE AGENCY



The Cyber Defence Training & Exercise Coordination Platform (CD TEXP), a web-based tool developed at EDA over the last years to support, coordinate and deliver joint cyber training courses and exercises, was handed over today to the Ministry of Defence of Portugal which will host the new collaborative asset.

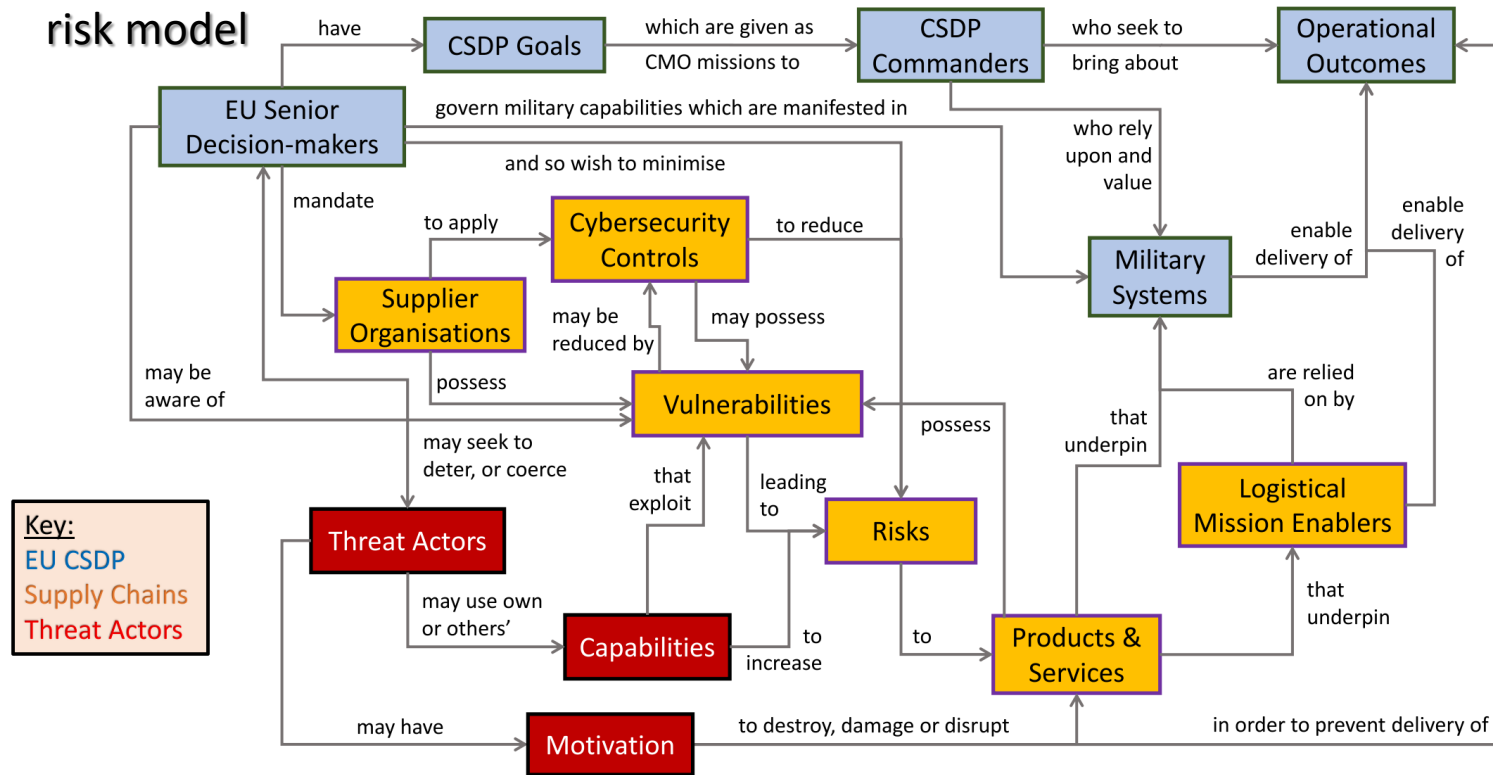
It means that from now on, all common European cyber defence courses and exercises - be they organised by EDA, the European Security and Defence College (ESDC) or individual Member States - can be integrated and delivered through the CD TEXP platform to allow for the joint and remote (virtual) participation of all Member States involved. CD TEXP can also serve as a booking tool for EDA Cyber Ranges Federation exercises and will be an important platform for the implementation of the PESCO project related to 'EU Cyber Academia and Innovation Hub' (CAIH).

24MAY22



Cybersecurity in the Defence Supply Chain

CD CSDP risk model



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VEDETTE

OB Project



**EUROPEAN
DEFENCE
AGENCY**

19.CAT.OP.302 - Lot1, RF01



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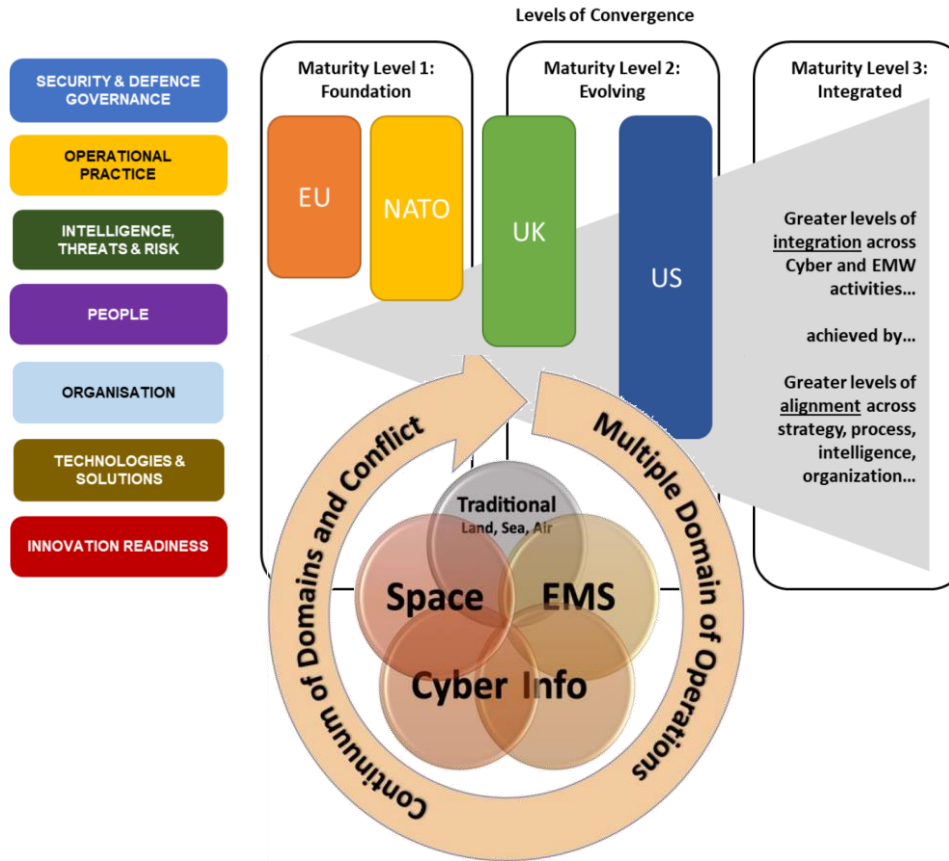
**EXÉRCITO
PORTUGAL**

CEMA – Cyber Defence and Electromagnetic Warfare convergence

EU concepts are well established in terms of EMW, Cybersecurity or Cyber Defence. The Cyber and EMW Convergence is only at a foundational level. In this last context, the EU integrators demonstrate maturity and readiness to enter the CEMA market.

US demonstrates a Maturity Level 2 with an evolving approach to the integration of Cyber and EMW. The US industry reveals strong evidence and diverse product offer and capacity in CEMA.

US thinking seems to be influencing that of the UK and (up to some level) NATO. UK is heading towards Level 2 and NATO Level 1. There is strong evidence of UK industrial commitment and capacity in CEMA.



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VEDETTE

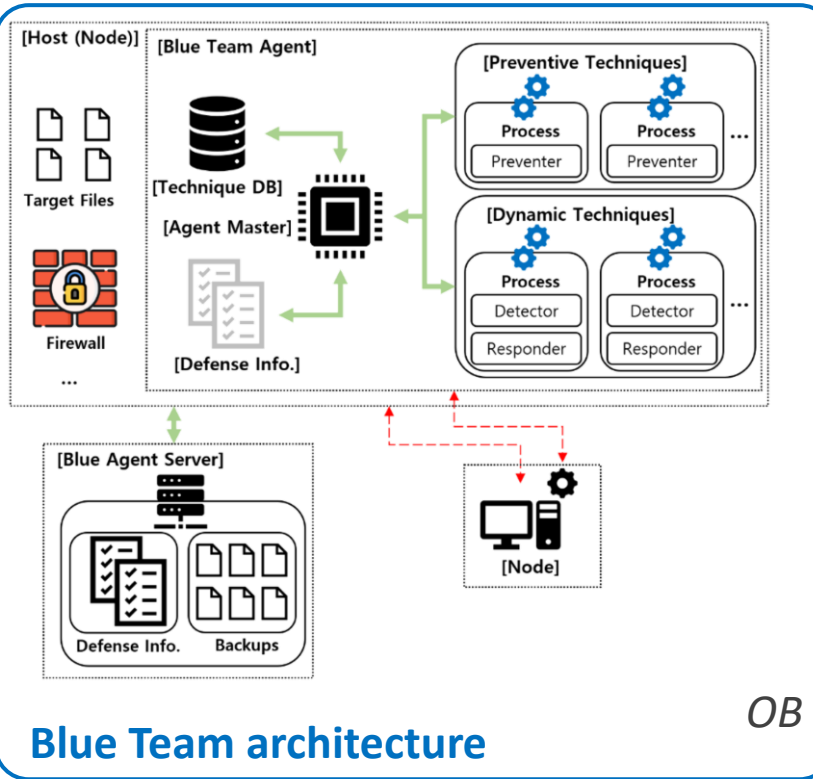
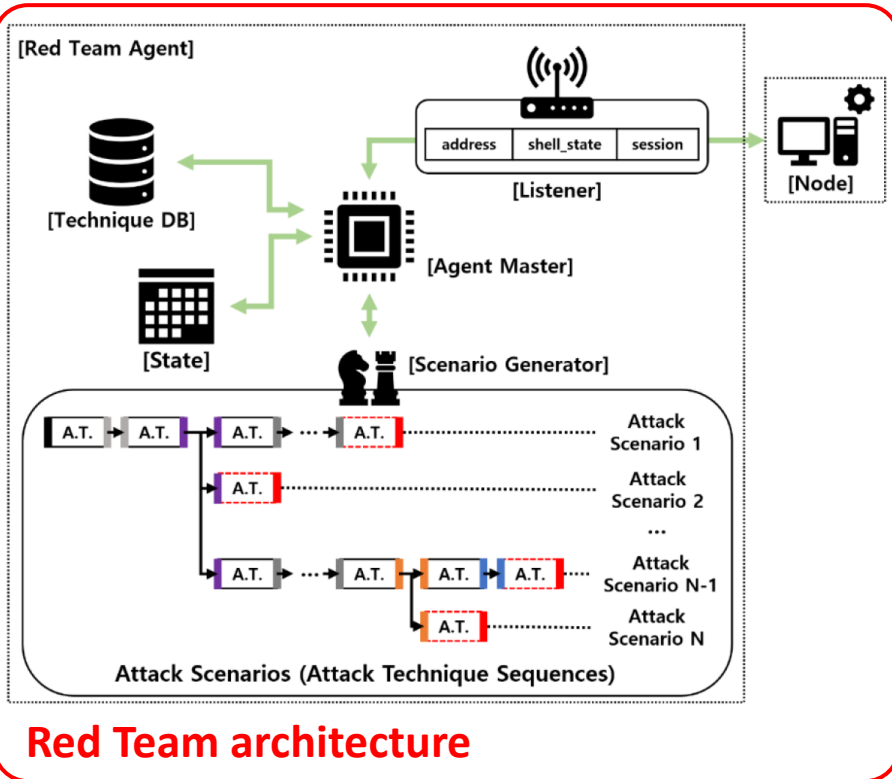
OB Project



**EUROPEAN
DEFENCE
AGENCY**

19.CAT.OP.302 - Lot1, RF02

CEMA – Cyber Defence and Electromagnetic Warfare convergence



OB Project



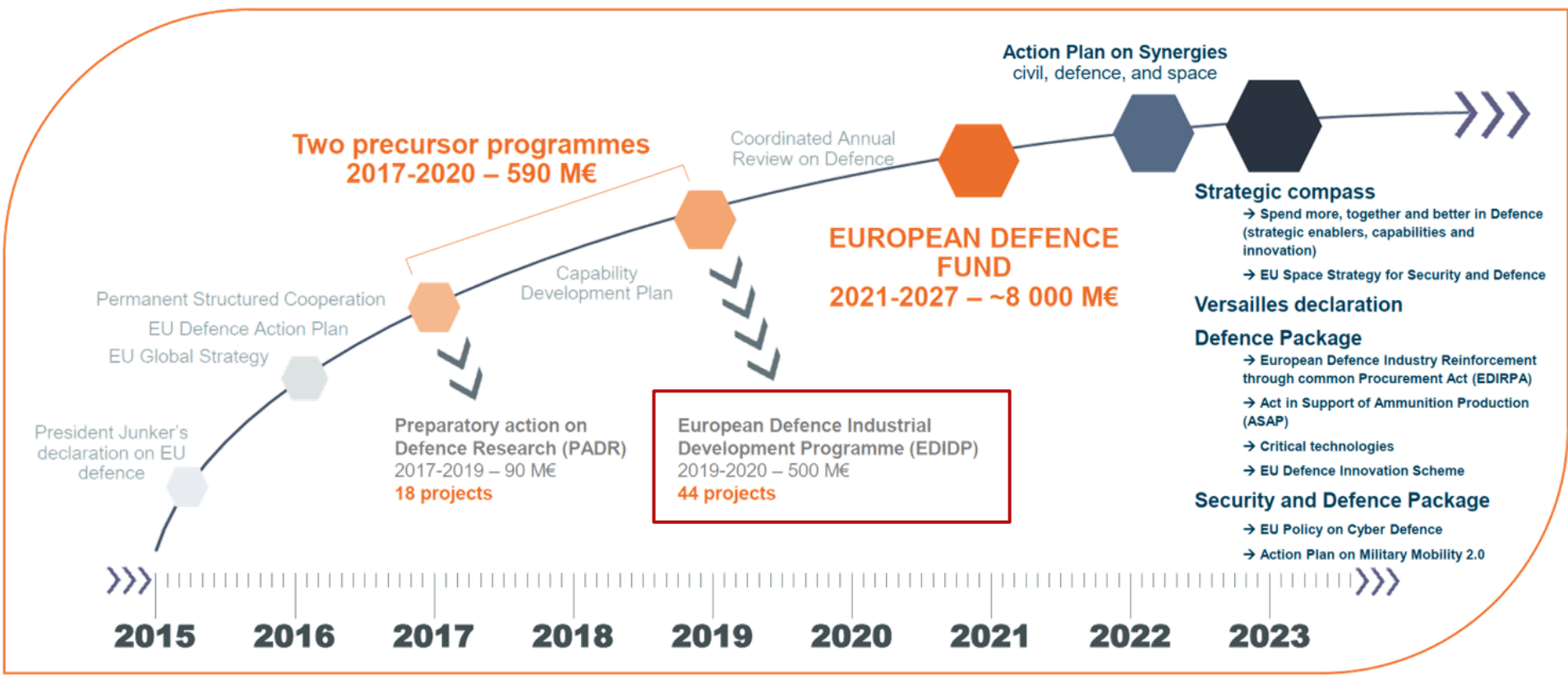
EUROPEAN
DEFENCE
AGENCY

19.CAT.OP.302 - Lot1, RF03



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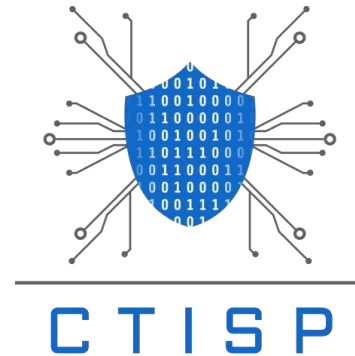




PANDORA

Cyber Defence Platform for Real-time Threat Hunting, Incident Response and Information Sharing

SELECTED PROJECTS -EUROPEAN DEFENCE INDUSTRIAL DEVELOPMENT PROGRAMME (EDIDP) 2019



EDIDP-CSAMN-SSS-2019-006-PANDORA



This project has received funding from the European Defence Industrial Development Programme (EDIDP) under grant agreement No. EDIDP-CSAMN-SSS-2019-006-PANDORA

This project has received funding from the Ministry of National Defence of the Hellenic Republic and the Ministry of Defence of the Republic of Cyprus

TRL7



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<https://www.pandora-edidp.eu/>

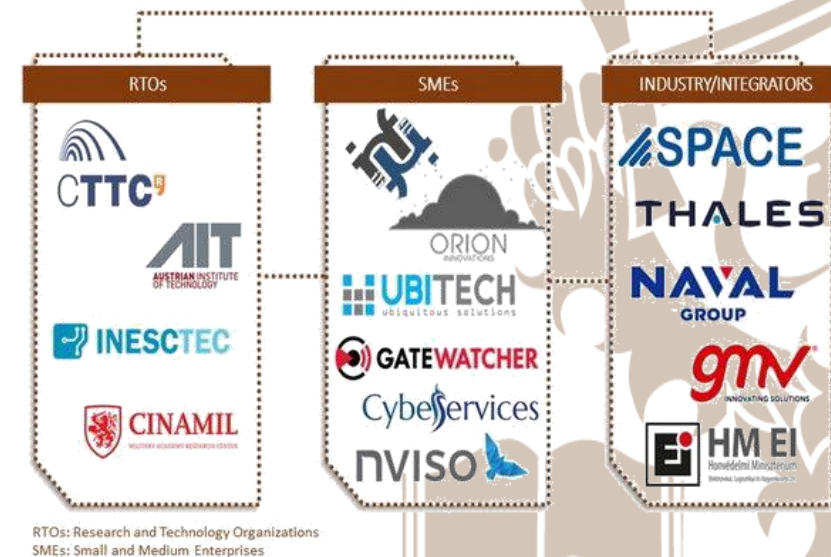


24 months (1st december 2020)

EDF funded (6,8 M€)

consortium (16 partners, 8 Member States)

Áustria AIT - Austrian Institute of Technology. **Bélgica** NVISO CVBA. **Chipre** Ubitech Limited. **Espanha** Centre Tecnologic de Telecomunicacions de Catalunya. **Grécia** Space Hellas S.A. (coordinator); Thales Hellas S.A.; ORION Innovations P.C.; Infili Technologies PC. **França** Naval Group S.A.; Gatewatcher. **Hungria** HM.El. Zrt.; Cyber Services Plc. **Portugal** CINAMIL/Estado Maior do Exército; GMVIS SkySoft S.A.; INESC TEC - Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência.



EDIDP-CSAMN-SSS-2019-006-PANDORA



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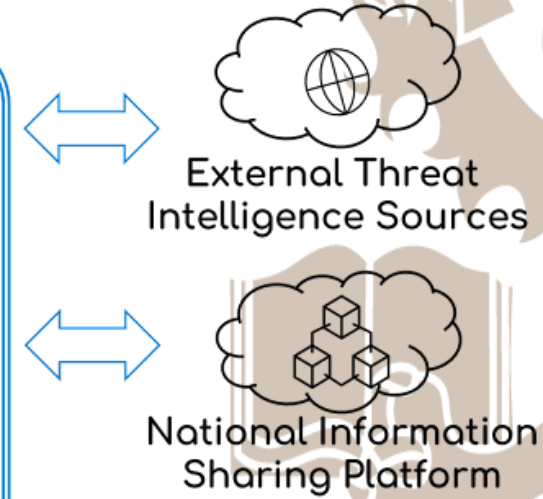
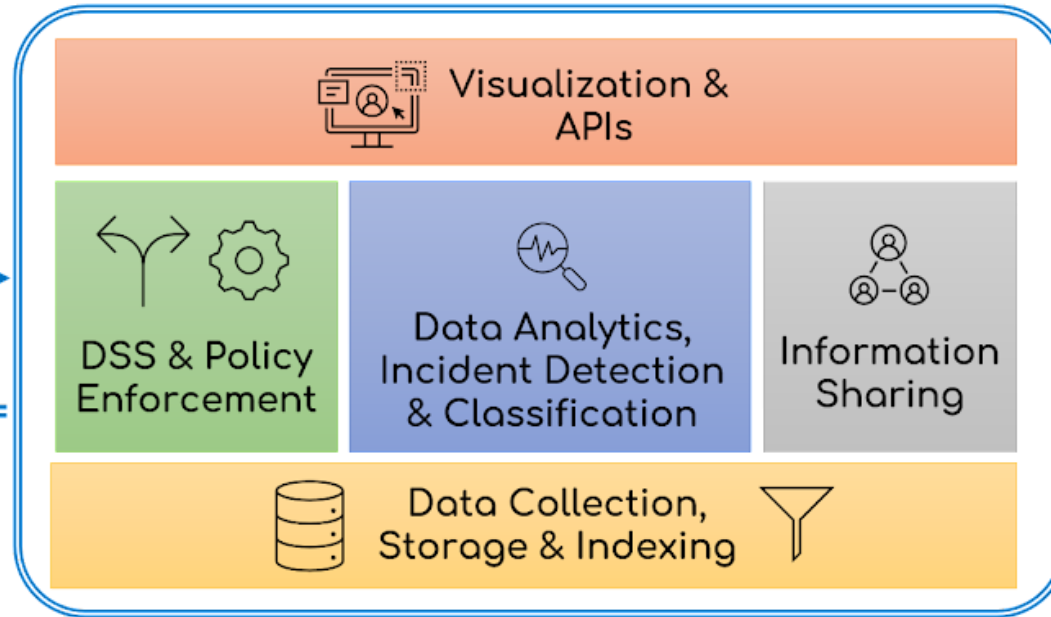
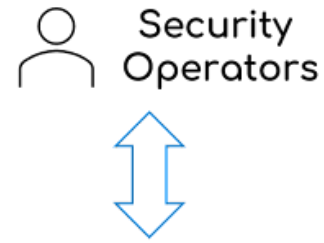
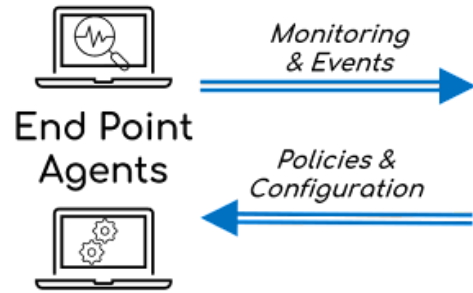
TOTAL COST: € 7,632,434.00
EU CONTRIBUTION : € 6,813,995.00



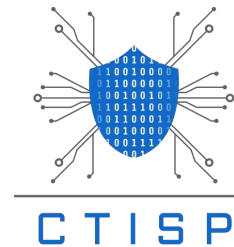
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<https://www.pandora-edidp.eu/>





INCIDENT DETECTION & HANDLING PLATFORM



EDIDP-CSAMN-SSS-2019-006-PANDORA



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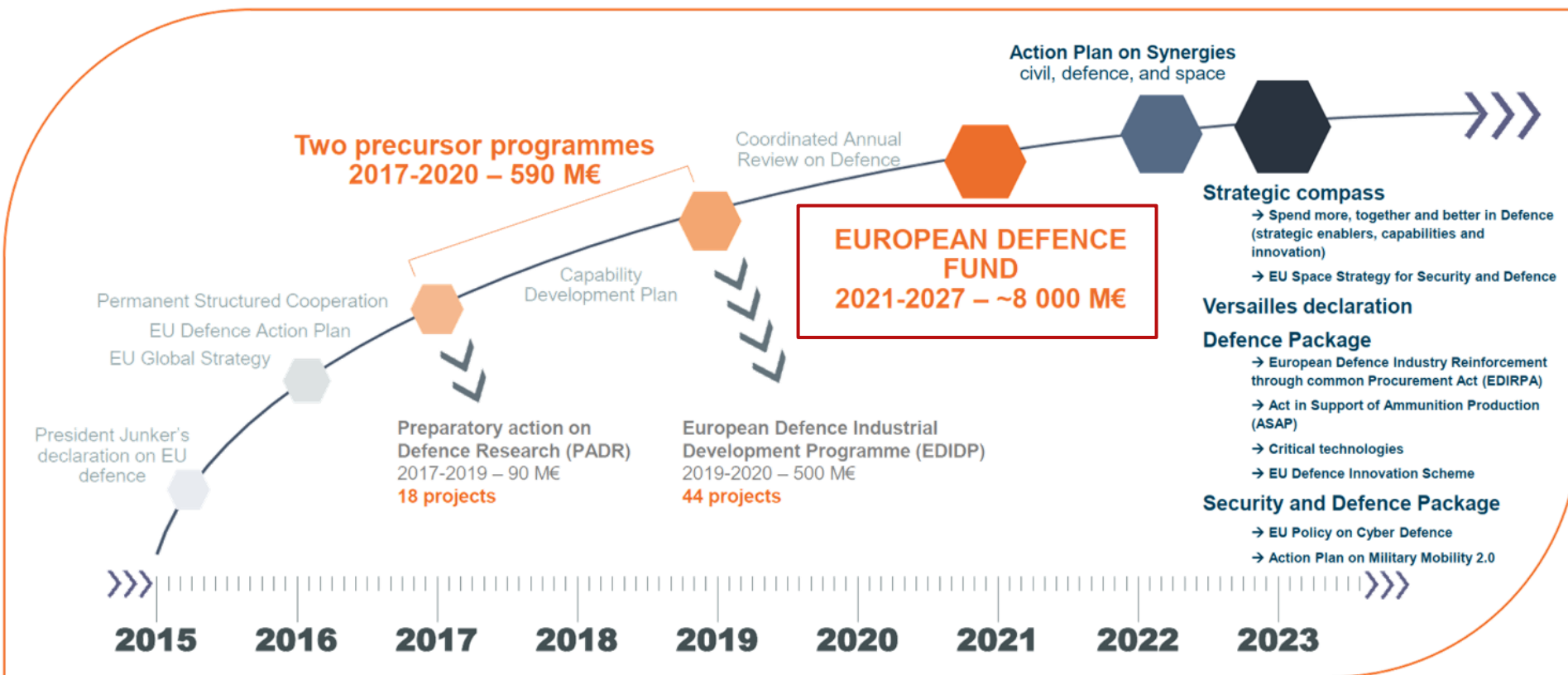
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<https://acting-project.eu/>





ACTING

Advanced European platform and network
of Cybersecurity training and exercises centres



Cybersecurity,
Cyber Defence,
Training,
Exercises,
Situation Awareness,
Cyber Ranges

TRL7

**EUROPEAN
DEFENCE
FUND 2021**



**EUROPEAN
UNION**

Project 101082320-ACTING
EDF-2021-CYBER-D-2



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<https://acting-project.eu/>

Acting
Advanced Cybersecurity Training



**CYBER ACADEMIA
AND
INNOVATION HUB**

**EXÉRCITO
PORTUGAL**

48 months (1st december 2022)

consortium (28 partners, 9 Member States)

Austria Universitat Wien. **Belgium** Ecole Royale Militaire - Koninklijke Militaire School; Naval Group Belgium. **Bulgaria** Institut po Otbrana (coordinator); Fondatsiya Evropreyski Doftueren Institut - Tsentar Iztochna Evropa; National Laboratory of Computer Virology; Pravo i Internet Foundation; Telelink Business Services EAD. **Cyprus** Eight Bells Ltd; Sidroco Holdings Limited; University of Cyprus. **France** Defence Research Institute. **Germany** Visionspace Technologies GMBH. **Greece** Ethniko Kentro Erevnas Kai Technologikis Anaptyxis; Institute of Communication and Computer Systems; Space Hellas; Wings IST Solutions Information & Communication Technologies IKE. **Netherlands** Enquiry BV – Netherlands; Rhea System VB. **Ireland** National University of Ireland Maynooth. **Italy** Stam SRL – Italy; Aanasi Alessandro SRL. **Portugal** CINAMIL/Estado Maior do Exército; GMVIS Skysoft; Lean Space, Unipessoal Lda. **Romenia** Safetech. **Spain** Managing & Innovation Business Partners; Telefonica Moviles Espana SA.

TOTAL COST: € 17,784,582.50
EU CONTRIBUTION : € 16,258,054.13

Acting
Advanced Cybersecurity Training



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OVER WATCH



Integrated holographic management map for safety and crisis events

Artificial Intelligence, 5G, Drones, Climatic Changes, Cybersecurity,
Natural Disasters



Project – 101082320 – OVERWATCH
HORIZON – EUSPA – 2021 – SPACE

TRL6



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<https://cordis.europa.eu/project/id/101082320>



Topic	HORIZON-EUSPA-2021-SPACE-02-52 EGNSS applications for Safety and Crisis management
Acronym – Name	OVERWATCH – Integrated holographic management map for safety and crisis events
Grant agreement	101082320
CORDIS' link	https://doi.org/10.3030/101082320
Webpage	https://overwatchproject.eu/
Total cost	€ 3 619 906,25
EU contribution	€ 2 998 934,38
Start date	November 2022
End date	October 2025
Duration	36 months / 3 years



EUSPA - EU Agency for the Space Programme

@EU4Space

The OVERWATCH project from @HorizonEU kicked-off today at our EUSPA HQ!

OVERWATCH is the 1st #HorizonEU project we launch, it will exploit @CopernicusEU & Galileo synergies to enhance the capabilities of disaster response teams.




Ithaca Srl and 6 others

2:45 PM · Nov 11, 2022


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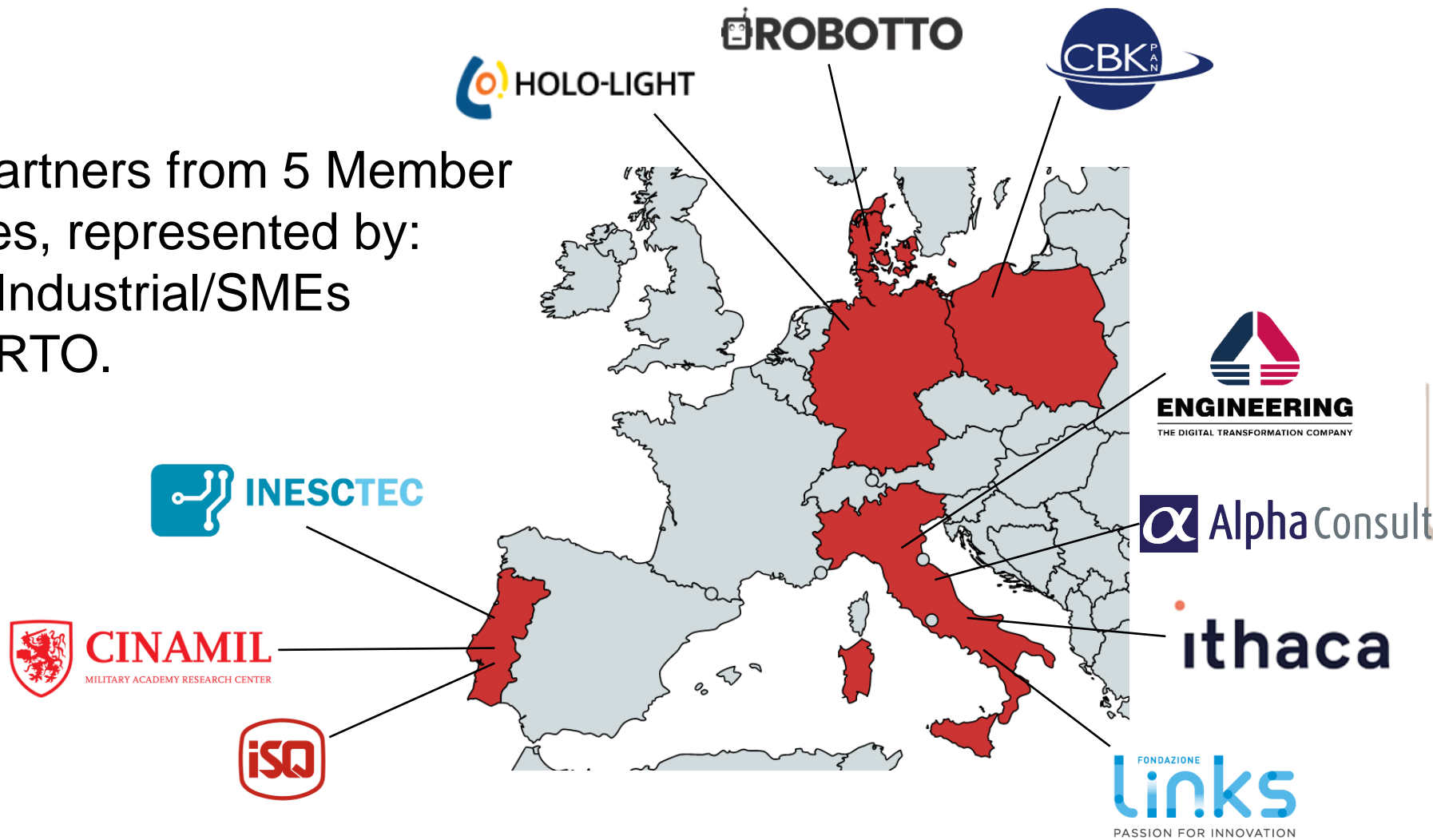


Project funded from the Horizon Europe call "HORIZON-EUSPA-2021", topic HORIZON-EUSPA-2021-SPACE-02-52, under agreement No. 101082320



10 partners from 5 Member States, represented by:

- 5 Industrial/SMEs
- 5 RTO.



COMPETENCIES FOR THE TEDs

European Defence Skills Partnership



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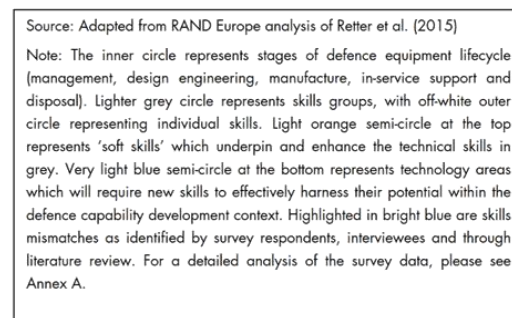
Vision on defence related skills for Europe today and tomorrow

January 2019



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FORESIGHT



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EDA Technology Foresight Exercise 2021

Forwarding The Past, rewinding The Futures



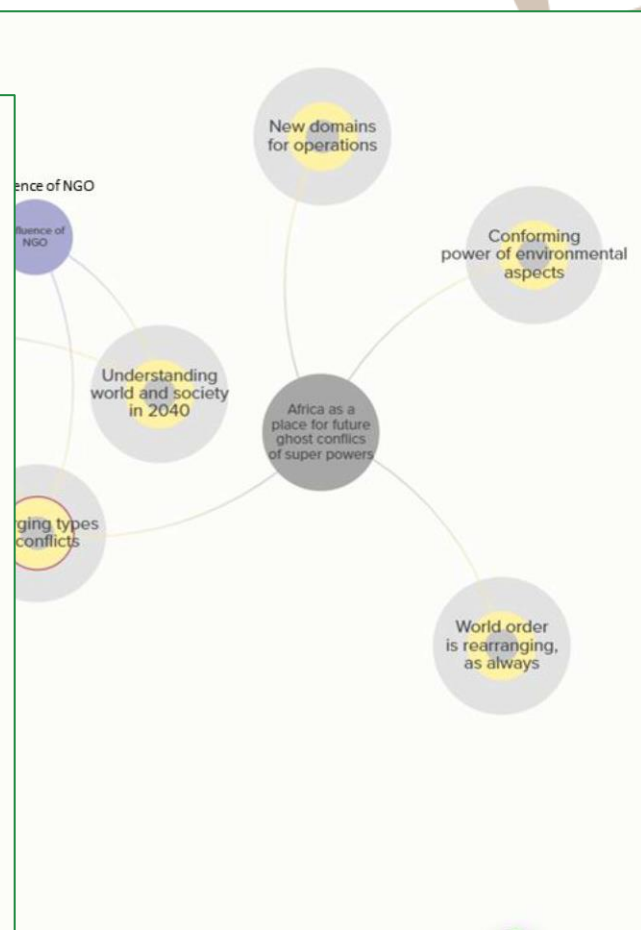
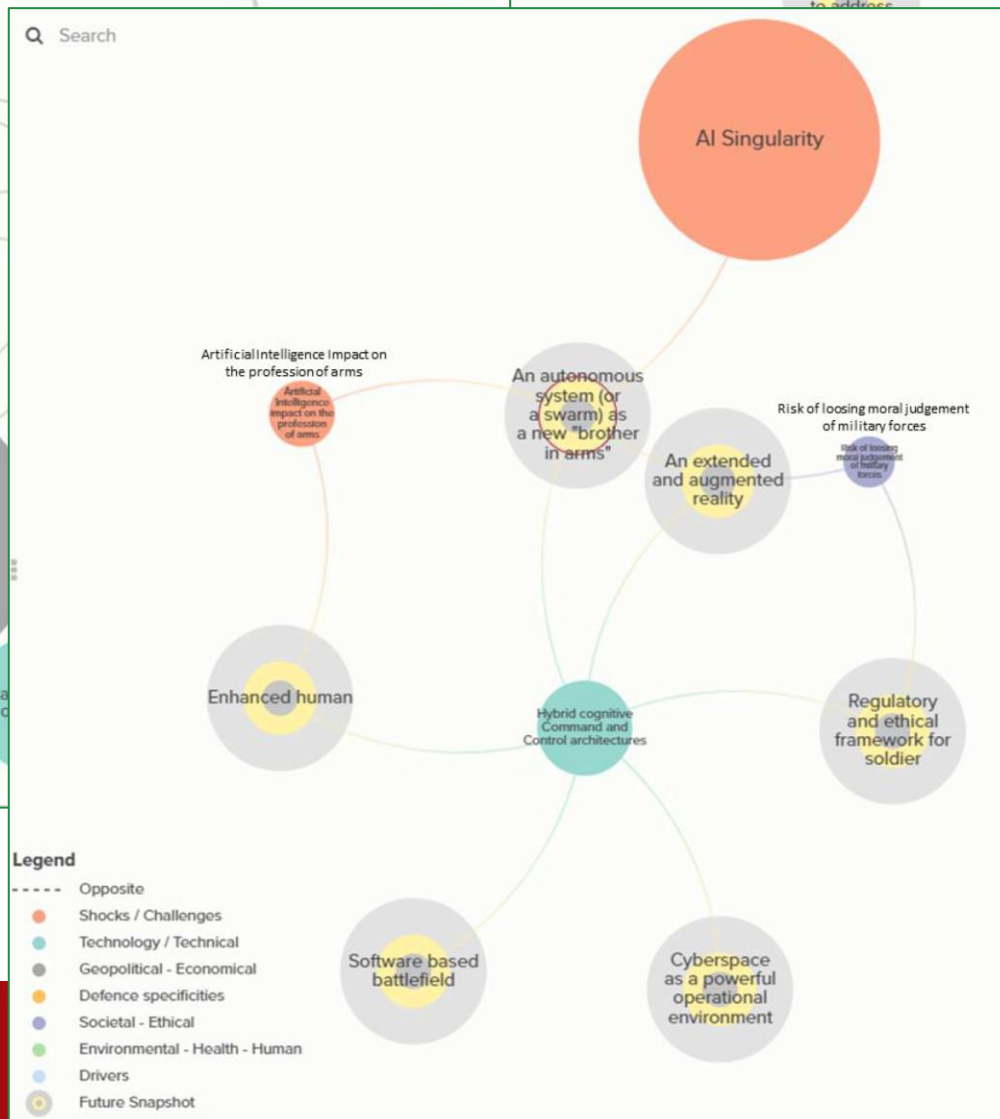
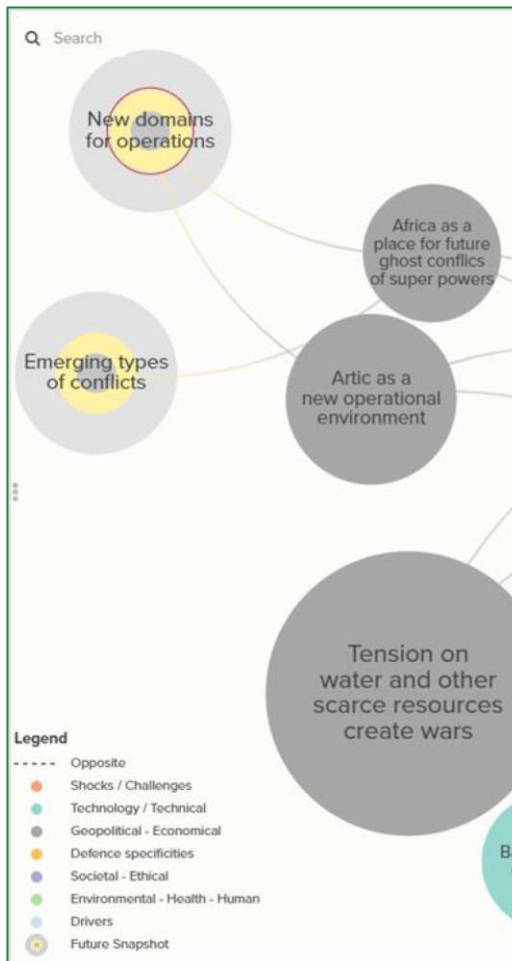
July 2021

EDA Technology Foresight Exercise 2021



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OPPORTUNITIES



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OBRIGADO!

jose.borges@academiamilitar.pt
cinamil@academiamilitar.pt



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