Reflecting on the future of advanced digital skills in Europe by 2030 and beyond

EU-iNSPIRE project

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EU-iNSPIRE project overview

EU-iNSPIRE aims to revolutionize higher education in cybersecurity by developing specialists with expertise across multiple dimensions.

Project Identity

EU-iNSPIRE - INnovative multi-diSciPlinary Industry-focused cybersecurity education for upskilling and ReskIlling the EU workforcE

Project Mission

Creating an advanced educational ecosystem that fosters specialized skills in political, organizational, and technological dimensions of cybersecurity, AI, and cyber insurance

Consortium

Number of partners: 23
Starting Date: January 1, 2025
Duration: 48 months

Funding

Topic: DIGITAL-2023-SKILLS-05-SPECIALEDU
Granting authority: European Health and Digital Executive Agency
Grant Number: 101190054

Project Partners

RESEARCH CENTER UNIVERSITY OF PIRAEUS

École des Ponts business school

UNIVERSITY OF OSLO

Technical University of Munich TUM

UNIVERSIDAD DE MÁLAGA

OPEN UNIVERSITY OF CYPRUS www.ouc.ac.cy

Consiglio Nazionale delle Ricerche

Hybrid CoE

unicri United Nations Interregional Crime and Justice Research Institute

Bitdefender

OBRELA

Sphynx

Cyberalytics

Insuretics

karavias underwriting agency

Asfalys

Eunomia Ltd. Consulting Services

AEGIS IT RESEARCH

CARDET

CYPRUS ORGANISATION FOR STANDARDISATION

BCSO Bulgarian Cyber Security Organisation

Circular Economy Foundation

DIRECTORATUL NAȚIONAL DE SECURITATE CIBERNETICĂ

The Cybersecurity Skills Gap Challenge

Critical Shortage

In 2023, the EU faced a shortage of 260,000-500,000 cybersecurity professionals, with total workforce needs estimated at 883,000. Only 20% of cybersecurity graduates and 19% of ICT specialists are women.

Business Impact

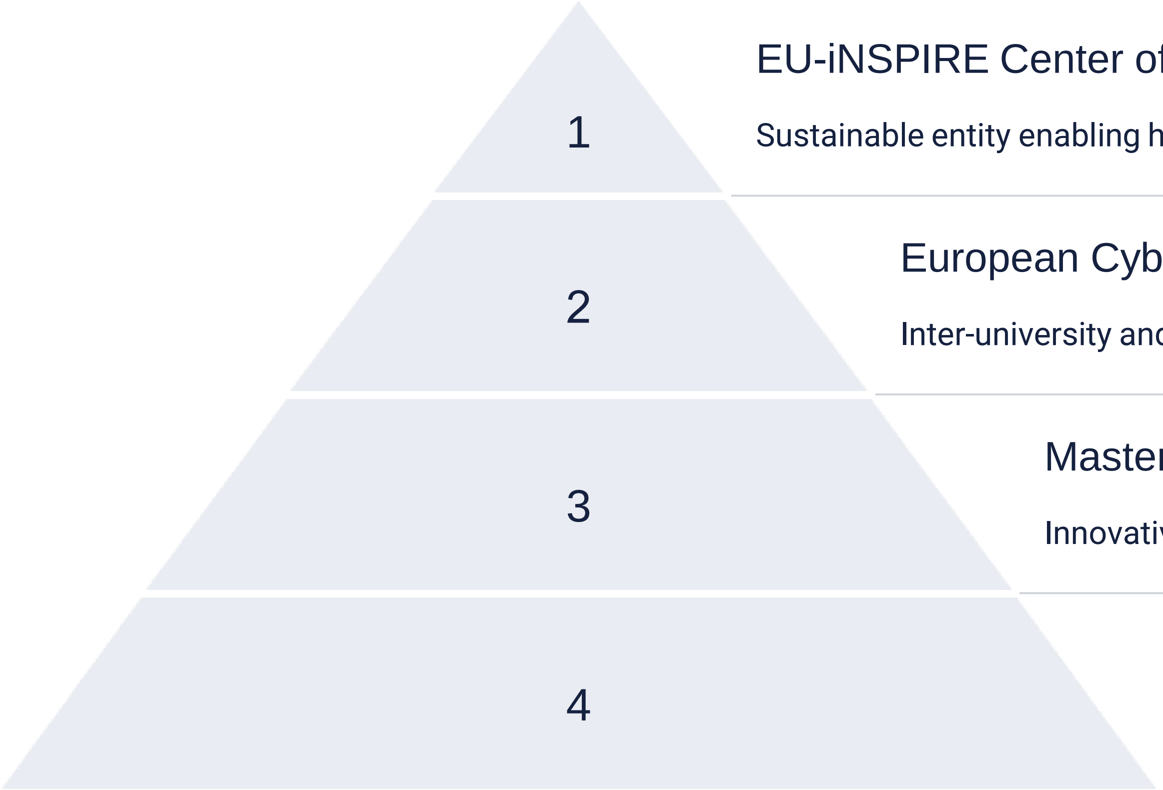
According to the World Economic Forum's 2024 Global Cybersecurity Outlook, 36% of organizations list the skills gap as the main challenge to achieving their cyber-resilience goals.

Multidisciplinary Need

The EU lacks specific and customizable multi-perspective educational programs for the realization of the European Cybersecurity Skills Framework (ECSF) profiles and other frameworks needed for effective cybersecurity implementation.

As digital transformation practices have been driven by modern ICT systems, the need **for protecting digital infrastructures** against vulnerabilities has grown exponentially. EU critical sectors face risks of exposure **to cyber threats that may lead to data loss or operational disruption**. Numerous regulations, directives, and policy recommendations have been issued at the EU level to strengthen cybersecurity measures.

EU-iNSPIRE Mission and Vision



EU-iNSPIRE Center of Excellence

Sustainable entity enabling high-quality, diverse education

European Cybersecurity Campus

Inter-university and multi-space learning environment

Master's Programs & Certifications

Innovative multidisciplinary curricula and learning paths

Skills Development

Strategic, organizational, and technological dimensions

The EU-iNSPIRE project will **build the next generation** of higher educational ecosystem for exercising specialized capabilities across strategic, organizational, and technological dimensions of cybersecurity, providing the means for advanced upskilling and reskilling master programs. At the core of this mission is t**he establishment of the EU-iNSPIRE Center of Excellence (EU-iNSPIRE CoE)** as the sustainable means for enabling access to high-quality, diverse, and inclusive education, research, and innovation in cybersecurity, aligned with EU digital and green transition strategies. This vision supports **accessible, inclusive, customizable, and personalized lifelong learning** for greater adaptability and employability for future cybersecurity experts.

Educational Programs and Objectives

These programs will be jointly offered through courses in English that provide specialization through curricula and learning paths. The curricula are designed in accordance with EU standards, directives, and fundamental values, covering three semesters (18 months) and contributing to 90 ECTS credits.

Master of Science (MSc) Degree

Led by UPRC, focusing on breakthrough and disruptive scientific methods, mechanisms, and technologies in cybersecurity and AI.

Master of Business Administration (MBA) Degree

Led by EPBS, covering innovative strategic, regulatory, and organizational aspects for cybersecurity and cyber insurance business management.

Master of Science (MSc) by Research Degree

Led by UPRC, emphasizing practical implementation challenges and research projects on policy understanding and deployment of security services and tools.

Certification Programs

Focused thematic certification programs offering flexible learning opportunities and pathways that could lead to micro-credentials for enriching cybersecurity competency profiles.

The EU-iNSPIRE CoE Approach

The EU-iNSPIRE CoE defines the key differentiating factor of the project: the integration of market needs and technology trends to facilitate skills development for the next generation of cybersecurity experts. The Center emphasizes multidisciplinary curricula and the implementation of a compound physical and virtual educational ecosystem.

Human Resources

Management and mobilization of academic teachers and professional mentors, and processes for students' selection, recruitment, and onboarding with emphasis on gender balance and inclusivity. The project will actively recruit female teaching staff and experts through partnerships with initiatives like Women4Cyber, ensuring diverse representation in all programs.

Content, Data, and Services

Development and maintenance of master courses, data management for accreditation and assessment of programs, and services to support program delivery through teaching and mentoring. Course content will integrate EU values and ethics through real-world case studies analyzing instances where EU values have conflicted with cybersecurity practices.

Administration

Processes for awarding masters' degrees and certifications, controlling the complementarity of members, and ensuring the sustainability of the Center beyond the project timeline.

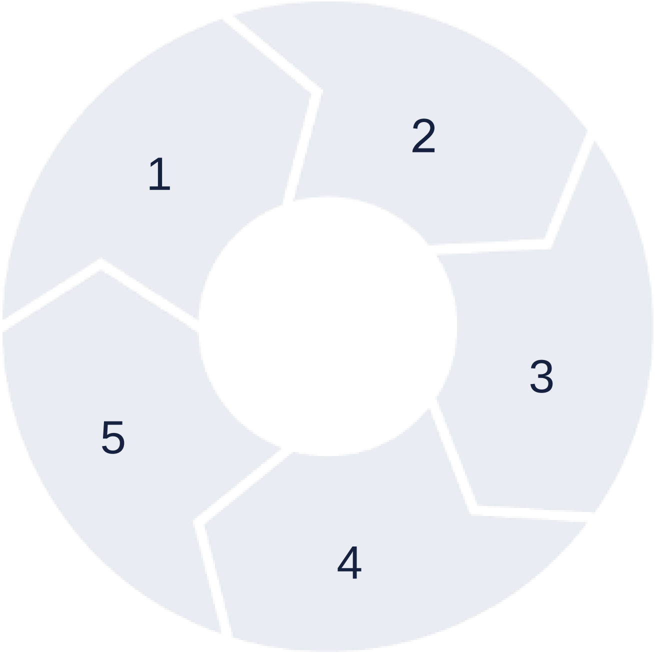
Program Design Principles

Integrating Knowledge

Combining academic, research, and industrial knowledge to boost blends of lecture-driven and practice-oriented forms for continuous skills development.

Promoting Inclusiveness

Providing training free of charge and encouraging participation with gender equality, inclusiveness, and solidarity aspects.



Multidisciplinary Teams

Allowing groups to work together across disciplines through investigation and invention, reinforcing excellence in education and research.

Embracing Innovation

Using innovative learning methods that bring critical thinking and advance transversal skills for today's fast-changing labor market.

Ensuring Scalability

Creating innovative educational solutions adaptable to cybersecurity challenges of different regions in Europe.

Bachelor holders in ICT and non-ICT sciences

Target audience includes bachelor holders in ICT and non-ICT sciences.

Professionals in cyber insurance, legal, and ethics organizations

Target audience also includes professionals in cyber insurance, legal, and ethics organizations.

Representatives from national cybersecurity authorities

Additionally, representatives from national cybersecurity authorities are part of the target audience.

Key Performance Indicators and Targets

Students Enrolled

Minimum target for students enrolled in masters' programs through blended learning methods.

Certifications

Minimum target for certifications awarded to students during the project lifetime.

Participants

Expected number of participants accessing the provided lecture-driven and practice-oriented learning components.

Courses

Minimum number of courses designed addressing strategic, business, organizational, and technological aspects of cybersecurity.

3 European Cyber Exercise events

Additional key targets include organizing at least 3 European Cyber Exercise events.

10 synergies between HEIs and industry

Establishing at least 10 synergies between HEIs and industry for supporting students in acquiring practical experience.

40% of students from low socio-economic backgrounds

Ensuring at least 40% of students come from low socio-economic backgrounds (compared to the current 20% in cybersecurity courses).

Gender balance monitoring

The project will also monitor gender balance in student recruitment and selection procedures, with specific documentation and reporting on these metrics throughout the project lifecycle.

Workshop “Engaging EU Projects Using the ECSF”

* The key focus of proposed intervention:

The principles of the EU- INSPIRE Master’s Programmes and curricula development paths: skills requirements analysis and existing training landscape. The objectives of this analysis are as follows:

- analyse the current cybersecurity knowledge landscape, including policy, scientific, technological and industrial
- map the EU educational, certification, and skills development ecosystem in cybersecurity
- provide a comprehensive analysis of EU policies, frameworks and initiatives that influence cybersecurity education and workforce development
- propose cybersecurity profiles beyond the existing 12 ECSF profiles to reflect the evolving needs of the industry, research community, and public sector

* The impact of the work EU-INSPIRE project have achieved:

- structural partnerships, collaborations among HEIs and the industry
- programmes and self-standing module offered and taught to students enrolled in all HEIs
- support students in taking part in the programmes and/or in job placements/internships
- establish the EU-iNSPIRE Center of Excellence

Workshop “Engaging EU Projects Using the ECSF”

* How project deliverables relate to or build upon the European Cybersecurity Skills Framework (ECSF)

- ***Assessment of the EU Cybersecurity Landscape***: A review of relevant EU policies, strategies, and regulatory frameworks that shape cybersecurity skills development, including the EU Cybersecurity Act, NIS2 Directive, Cyber Resilience Act, and the AI Act.
- ***Competency Frameworks and Learning Pathways***: Examination of existing cybersecurity competency frameworks such as the European Cybersecurity Skills Framework (ECSF), European Qualifications Framework (EQF), and European Skills, Competences, Qualifications, and Occupations (ESCO), and their role in structuring education and training.
- ***Analysis of Market Needs and Skills Demand***: Identification of key workforce trends, in-demand skills, and cybersecurity job shortages across the EU.
- ***Educational Offerings and Training Programmes***: Evaluation of current cybersecurity educational offerings, including higher education, vocational training, certifications, and EU-funded training initiatives.
- ***Industry-Led Cybersecurity Training Initiatives***: Review of private sector contributions to cybersecurity education through industry-led training, certifications, and academia-industry collaborations.
- ***Expert Insights and Stakeholder Engagement***: Synthesis of perspectives from industry, academia, and policy experts obtained through interviews.

Additional information for the project

Visit our website and follow us on social media:

EU-iNSPIRE

Project's Mission

We are creating a lasting European education program that trains cybersecurity experts, keeps their skills current, and makes sure everyone has access to quality training that matches what employers need.

The project in short

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Website

eu-inspire.eu

LinkedIn

linkedin.com/company/eu-inspire-project

Facebook

facebook.com/eu.inspire.eu

Bluesky

bsky.app/profile/eu-inspire.bsky.social

Twitter/X

x.com/eu_inspire_eu

Zenodo

zenodo.org/communities/eu-inspire

EU-iNSPIRE

Thank you for your time!

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