

CyberHubs

European Network of Cybersecurity Skills Hubs

**Actionable Roadmap for Closing
National Cybersecurity Skills Gaps
in alignment with the ECSF**

20 November 2025, ENISA ECSF Workshop

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CyberHubs at a glance



*3-year project
(2024 – 2027)*



*Alliance for
Innovation
Funded under
Erasmus+*



*7 CyberHubs
around Europe*



*21 Partners from
industry, academia
& research
3 Associated
Partners*

The project in a nutshell

European Network of Cybersecurity Skills Hubs (CyberHubs)

In each Hub: 1 National Trade Association + 1 University



Objective: *enhance the cybersecurity skills ecosystem in Europe by establishing a network of 7 Cybersecurity Skills Hubs, which will promote the development of professional skills in cybersecurity and leading to a skilled cybersecurity workforce*

TARGETTING THE WIDER ECO-SYSTEM: ECSF EMPOWERING CYBERHUBS IMPACT



ECSF a key enabler across all CyberHubs stages



ECSF as basic ingredient of the CyberHubs common language and shared understanding within and beyond the partnership

Used for:

- CS Needs Analysis on roles & skills
- Forecasting model
- National CS skills strategies
- CyberHubs Skills & Jobs Dashboard
- Advanced tools matching cybersecurity skills, roles & jobs

ECSF across the project – our key features for success

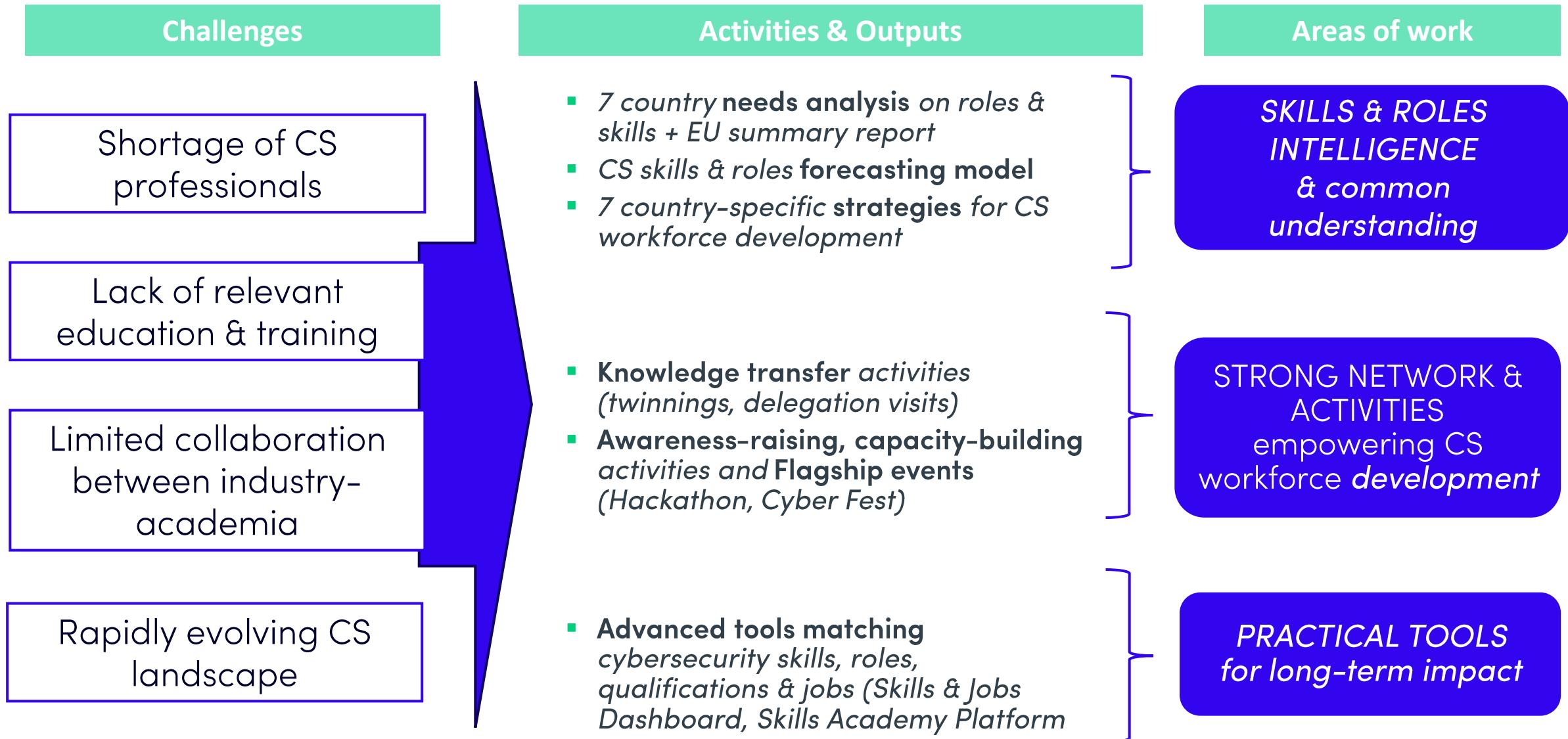
- Getting all on the same page
 - ECSF Introduction Workshop to the consortium
 - ECSF Role Mapping to partners: Understand consortium composition
 - Agreement on a common language: Frameworks + Glossary
- Application of this ECSF enabled common language across activities and outputs for shared understanding
 - Internal and external, within and beyond the partnership
 - Inner-connection, consistency and sustainability of outputs in the short, mid and long-term
- Ongoing incorporation of new coming ECSF related tools & outputs
 - ECSF for NIS2 implementation report (ENISA, 2025)
 - Expected soon: ECSF for secure and trustworthy AI (ENISA, 2026)



CyberHubs view on our workshop today

- A key facilitator to creating together and across projects a **European value chain**
 - CyberHubs Sustainability KPI: connections with other EU projects
- ECSF and further related components (e-CF, EQF, ESCO, common terms and definitions) providing the **needed common language** for creating synergies, meeting challenges, optimising processes and outputs together
 - internally and externally
 - in the short, mid and long-term
- Joining forces on a new level across the cybersecurity professional skills eco-system for a **digitally safe and technology sovereign** European Union

CyberHubs project structure



Consortium

Partners



.AGORIA



TAL
TECH



Associated Partners



Needs Analysis – overview 1/4

7 country reports + 1 EU summary report available at cyberhubs.eu

- CS roles in demand now and in the future
- Most needed skills for CS professionals
- Needs for education & training



Data collection (2024) in numbers⁽¹⁾

- 193 papers selected for detailed analysis
- 2 612 job posts analysed
- 616 respondents to questionnaire
- 147 learning programmes analysed
- 120 expert meeting participants

Results of the needs analysis 2/4

Most needed roles⁽²⁾

- Chief Information Security Officer (CISO)
- Cybersecurity Implementer
- Cyber Incident Responder



Chief Information
Security Officer (CISO)



Cyber Incident
Responder



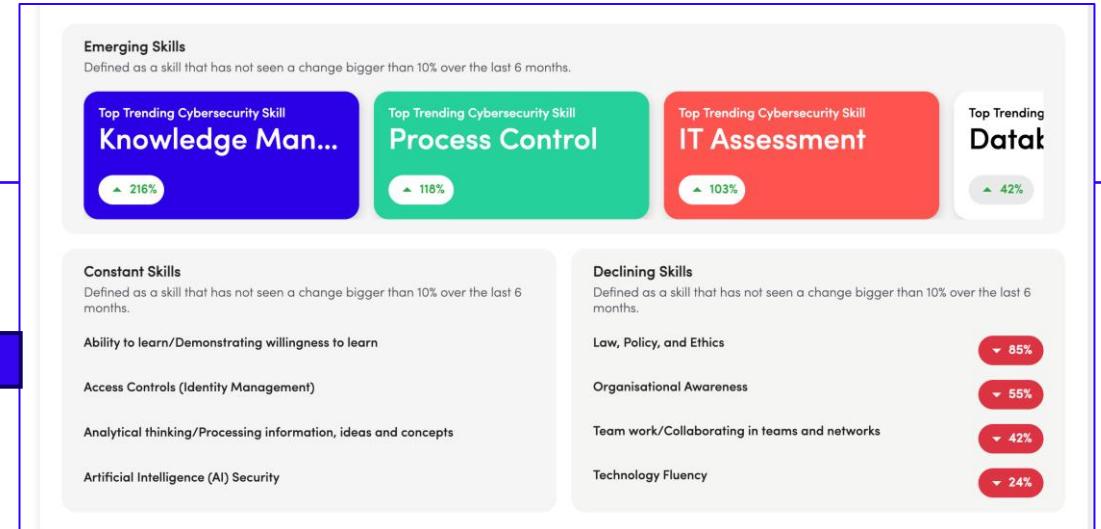
Cybersecurity
Implementer

Need for more technical roles/professionals to combat the more sophisticated threats & increase of need for professionals to help with compliance with regulations (e.g., NIS2).

Results of the needs analysis 3/4

Most needed skills⁽²⁾

 Cybersecurity skills	 IT-related skills	 Organisation-related skills	 Transversal (soft) skills
<ul style="list-style-type: none">Cloud SecurityInformation Systems & Network Security/Cyber ResiliencyData PrivacyThreat AnalysisIncident Management	<ul style="list-style-type: none">System Administration & IntegrationNetwork ManagementEnterprise Architecture & Infrastructure DesignOperating Systems	<ul style="list-style-type: none">Strategic PlanningRisk ManagementBusiness ContinuityProcess Control	<ul style="list-style-type: none">Problem-solvingActing ResponsiblyCommunicationEthical Behaviour



The dashboard displays trends in skills across three categories: Emerging Skills, Constant Skills, and Declining Skills. It includes a list of skills with their respective growth or decline percentages over the last 6 months.

Category	Skill	Change (%)
Emerging Skills	Knowledge Management	+216%
	Process Control	+118%
	IT Assessment	+103%
Constant Skills	Ability to learn/Demonstrating willingness to learn	+10%
	Access Controls (Identity Management)	+10%
	Analytical thinking/Processing information, ideas and concepts	+10%
	Artificial Intelligence (AI) Security	+10%
	Law, Policy, and Ethics	+10%
Declining Skills	Organisational Awareness	-5%
	Team work/Collaborating in teams and networks	-5%
	Technology Fluency	-5%
	85% 55% 42% 24%	-10%

Dashboard with skills trends
(emerging, constant, declining) per role

 CyberHubs

12

(2) Across all CyberHubs country reports and considering all elements of the needs analysis

Results of the needs analysis 4/4

Need for education & training⁽²⁾

- Programmes do not cover sufficiently non-technical skills such as transversal (soft) skills.
- Many countries lack comprehensive programmes that address both emerging **cybersecurity skills** and the necessary **leadership skills** for roles like CISO that are in high demand.
- In many countries, the education and training capacity of E&T providers cannot cater for the increasing need for CS professionals.



National Cybersecurity Skills Strategies

From analysis to strategy to action



Download them at cyberhubs.eu

WHO: Key actors & EU/national legislations impacting the CS landscape

WHAT: Strategic goals (based on needs analysis findings from the country)

HOW/WHEN: High-level action plan on how to activate the ecosystem to reach the goals

REPEAT: Monitoring and evaluation methods/tools for impact

Knowledge transfer activites

CyberHub Delegation Visits

- Visits to Campus Cyber (France) and Cyber Ireland (Ireland) fostered collaboration and shared best practices across CyberHubs, industry, academia, and government.

CyberHub Twinnings

- The 7 CyberHubs shared best practices and solutions to advance cybersecurity skills development.



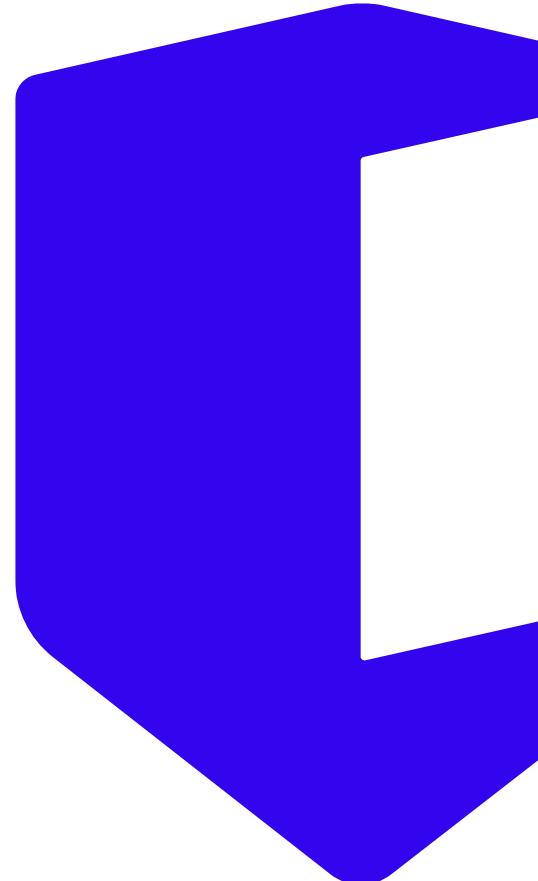
European Cybersecurity Hackathon

- Budapest (17–19 Oct 2025)
- **75 participants from 17 countries** solved real-world cybersecurity challenges
- Targeted roles
- **11 diverse teams** worked on topics like AI threat detection, crisis communication, and cyber-skills forecasting – guided by 15 international mentors and 14 jury members
- Participants gained valuable experience, mentorship, and cross-European connections



Looking ahead: what's coming next

- Piloting of an AI-assisted tool to match individuals' skills to job & learning opportunities
- Cyber Fest (November 2026)
- Strengthen the CyberHubs network, develop partnerships



Thank you

Contact us:

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**Co-funded by
the European Union**

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