



Education, training, awareness, and cyber ranges

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WG5 education, training, awareness

Education & Professional Training; Jobs & Skills

- Position Paper on **Gaps in Education & Professional Training**
- Participation in Digital Opportunity pilot scheme (EC) – focus on skills, traineeships for young people, etc.

EHR4CYBER Network (Increase visibility and concrete actions for European human resources in cyber)

- Analysis Paper with best practices and recommendations / mapping for a European framework for education and competences (matching profiles and skill-sets) → **Cyber Security Professional certification**
- Envisaging the creation of an online jobs marketplace

Awareness for decision makers: Increased dialogue with EU policy makers and CISO of operators

Awareness for citizens: Cooperation with Europol (No More Ransom campaign) and support to local/national initiatives and campaigns for cyber security education before University level

Creation of ECSO Women4Cyber initiative: gender issue on education & training to increase number of cyber experts



POSITION PAPER
Gaps in European Cyber Education and Professional Training
WG5 | Education, training, awareness, cyber ranges
MARCH 2018



WG5 ANALYSIS
Information and Cyber Security Professional Certification
Task Force WG5 | European Human Resources Network for Cyber
(EHR4CYBER)
NOVEMBER 2018



WG5 cyber ranges

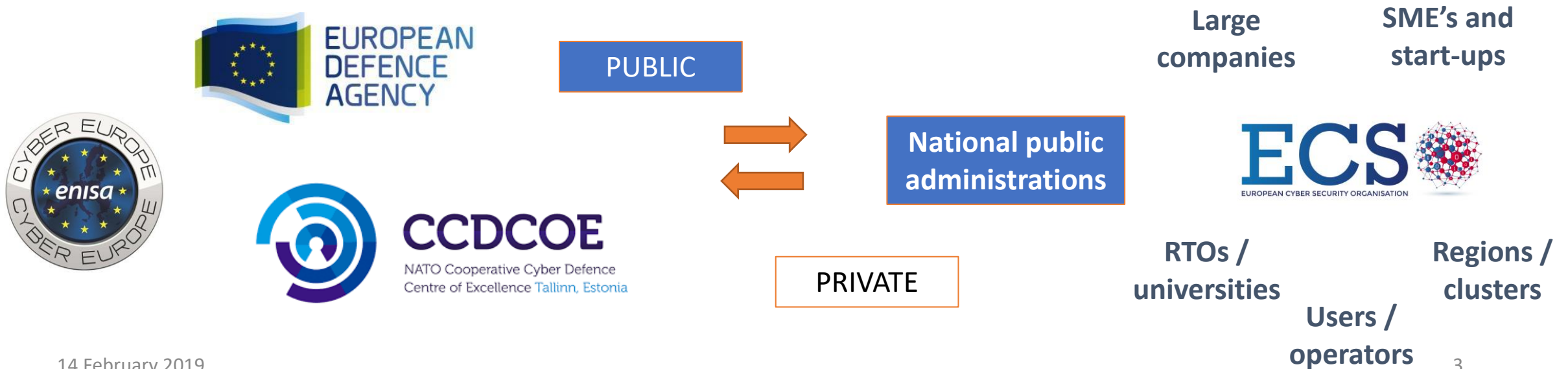
Cyber Ranges

ECSSO internal survey conducted to assess cyber range capabilities and motivations → **cyber range workshop series initiated in collaboration with European Defence Agency (EDA)**

Workshop #1: 16-17 October 2018 in Brussels. To align with EDA on cyber range approaches and agree on a baseline for continued collaboration, focusing on opportunities and motivations for federated approach. Established links between the private sector (industry and research) and EDA (Member States), with around 50 attendees (33 from ECSSO members).

Workshop #2: Spring 2019 in Tallinn (date tbd). To define federated cyber range approach, looking at an industry-wide framework or guidelines, governance, etc.

Workshop #3: Autumn 2019 (location and date tbd). To test the federated cyber range approach with one or two use cases and conducting a small cyber drill.



Main conclusions

- Commercialisation of higher education, including the rising cost of education and growing number of students will soon lose students to affordable and widely accessible MOOCs → **online courses scale better and can sometimes offer the same level of knowledge at a cheaper price**
 - We are **not producing enough skilled experts** that the industry is desperately looking for. To satisfy the growing demand for skilled cyber security professionals, we need to:
 - Expand educational opportunities at all levels
 - Increase the number of qualified educators
 - Create synergies between educational paths and training possibilities at the workplace
 - Reach the skilled unemployed and displaced workers (workers who are not happy with their current profession)
 - Create the fundamentals for lifelong learning in cyber security
 - We also need to ensure **gender diversity and inclusiveness** of cyber security education and training, to inform and encourage girls and women to engage into cyber security careers.
- *To achieve this, a working cooperation is needed between academia and industry which utilises and combines their available resources to ultimately strengthen the cyber domain together*

Recommendations

- Comprehensive **market study** into the age structure and career history of information and cyber security professionals in the European market, training paths and industry demand should be conducted.
- ECSO should support ENISA and the European standardisation bodies in the development of one **European-wide certification scheme** and baseline requirements for certification schemes to be met under the purview of public procurement, cyber security and critical infrastructure regulation.
- ECSO should coordinate the development of one **European-wide education framework for cyber security** to support young professionals (via formal education), existing professionals, and professionals joining the cyber security field at a later stage (i.e. after completion of formal education).
- Representatives from existing initiatives at EU and national level should be involved to make this a **joint effort**.
- The education framework needs to be **internationally recognised** and accepted. Cooperation with other parties like NIST (US NICE framework) is recommended.

ECSO Women4Cyber Initiative



Context

Cyber security demands a growing number of leaders and experts able to face today's challenges

Weak representativeness and contribution of women

Many pre-existing initiatives mostly targeted on the broader ICT instead of Cyber Security specifically

- Initiative launched under WG5 EHR4CYBER targeting women from top management level (at the beginning), to provide visibility to the concrete actions and achievements of top women in cyber security and be the source of many other initiatives/mechanisms aimed at increasing the role and participation of women in cyber

Kick-Off Meeting

- Launched on 22 January 2019 under the patronage of Commissioner Mariya Gabriel
- 30 + high-level female leaders in Europe as Founding Members from politicians and policy makers, to top management leaders from the private sector and academia, working together to:
 - Encourage women's involvement in cyber security across EU
 - Go beyond awareness and networking
 - Develop a concrete agenda to meet the demand for cyber security professionals in Europe
 - Support the creation of a sustainable and inclusive cyber ecosystem

Twitter: @ecso_eu #Women4Cyber

LinkedIn: #Women4Cyber, [European Cyber Security Organisation \(ECSO\)](#)

European Commission measures to boost key competences and digital skills, as well as the European dimension of education (January 2018)

1. A [Council Recommendation on Key Competences for Lifelong Learning](#): Proposal aiming to improve the development of key competences of people of all ages throughout their lives and to provide guidance to Member States on how to achieve this objective. Particular focus is placed on promoting entrepreneurial drive and innovation-oriented mindsets in order to unlock personal potential, creativity and self-initiative. The EC is also recommending steps to foster competences in science, technology, engineering and mathematics (STEM) and motivate more young people to embark on a career in these fields.
2. A **Digital Education Action Plan** that outlines how the EU can help people, educational institutions and education systems better adapt to life and work in an age of rapid digital change by:
 - Making better use of digital technology for teaching and learning
 - Developing the digital competences and skills needed for living and working in an age of digital transformation
 - Improving education through better data analysis and foresight
 - Initiatives include supporting schools with high-speed broadband connections, scaling up a new self-assessment tool for schools on the use of technology for teaching and learning (SELFIE) and a public awareness campaign on online safety, media literacy and cyber hygiene.
3. A **Council Recommendation on common values, inclusive education and the European dimension of teaching**: This initiative proposes ways in which education can help young people understand the importance of and adhere to common values set out in Article 2 of the Treaty of the European Union. It aims at strengthening social cohesion and contributing to fight the rise of populism, xenophobia, divisive nationalism and the spreading of fake news.

European Commission proposal for Digital Europe Programme (June 2018)

1. Supercomputers
2. Artificial intelligence (AI)
3. **Cybersecurity and trust:** €2 billion will be invested into safeguarding the EU's digital economy, society and democracies through boosting cyber defence and the EU's cybersecurity industry, financing state-of-the-art cybersecurity equipment and infrastructure as well as **supporting the development of the necessary skills and knowledge**. The proposal builds on the wide range of [cybersecurity measures](#) presented in September 2017, and on the [first EU-wide legislation on cybersecurity](#) that came into force in May 2018.
4. **Digital skills: €700 million will ensure that the current and future workforce will have the opportunity to easily acquire advanced digital skills through long-and short-term training courses and on-the-job traineeships**, regardless of their Member State of residence. In the Digital Europe programme, the Digital Innovation Hubs will carry out targeted programmes to help small and medium-sized enterprises and public administrations to equip their personnel with the needed advanced skills to be able access the new opportunities offered by supercomputing, artificial intelligence and cybersecurity.
5. Ensuring a wide use of digital technologies across the economy and society

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CONTACT US



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