

Turku University of Applied Sciences

Kriisitietoisuuden sisällyttäminen opetukseen
ja TKI-toimintaan eri aloilla – kuinka
häiriöosaaminen jalkautuu
ammattikorkeakoulun toimintaan?

Head of Education and Research Jarkko Paavola

Kriisitietoisuus / häiriöosaaminen?

Häiriöosaaminen = resilienssitaidot?

TULEVAISUUSSANASTO

Resilienssi



SV Resiliens / **EN** Resilience

Ihmisten ja yhteisöjen kyky toimia muuttuvissa olosuhteissa ja kohdata häiriöitä ja kriisejä. Myös kykyä palautua ja toipua kriiseistä ja kehittyä jopa entistä vahvemmiksi kriisin jälkeen. Esimerkiksi yhteiskunnan kyky toipua sodasta tai luonnon kyky palauttaa ekosysteemien tasapaino.

<https://www.sitra.fi/tulevaisuussanasto/resilienssi/>

World Economic Forum Global Risks

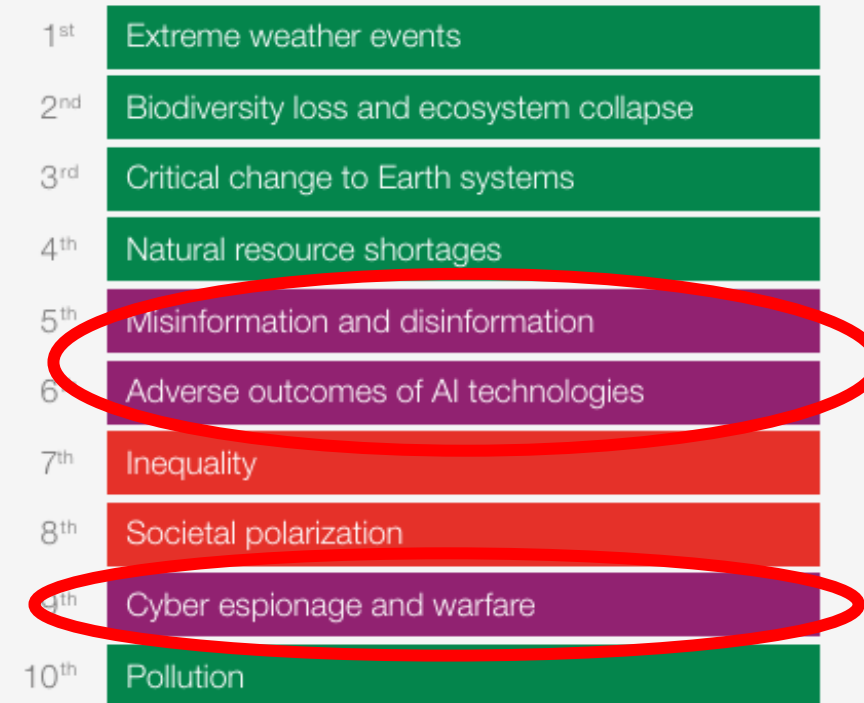
Risk categories

- Economic
- Environmental
- Geopolitical
- Societal
- Technological

2 years



10 years



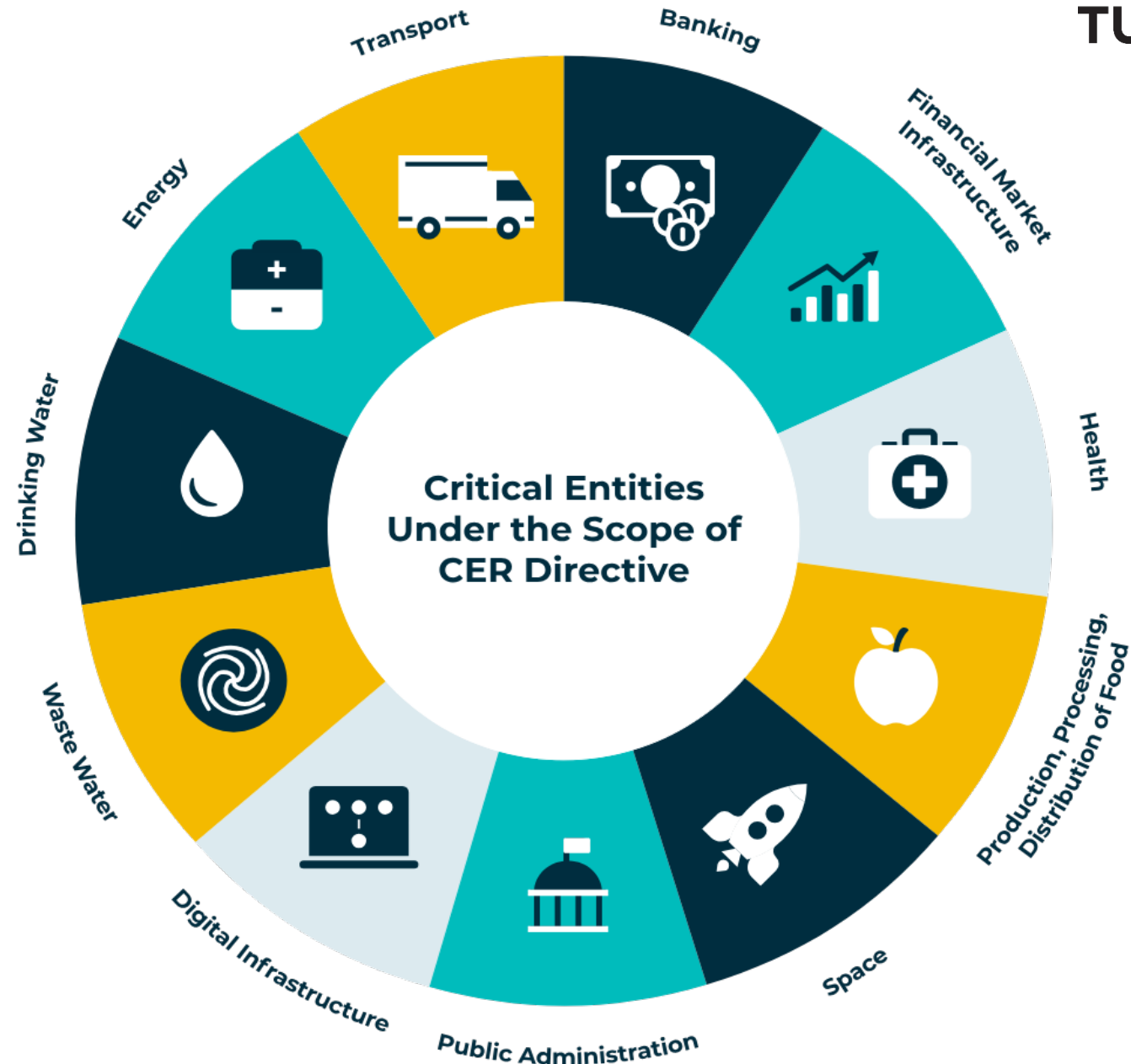
Source

World Economic Forum Global Risks
Perception Survey 2024-2025.

Critical infrastructure

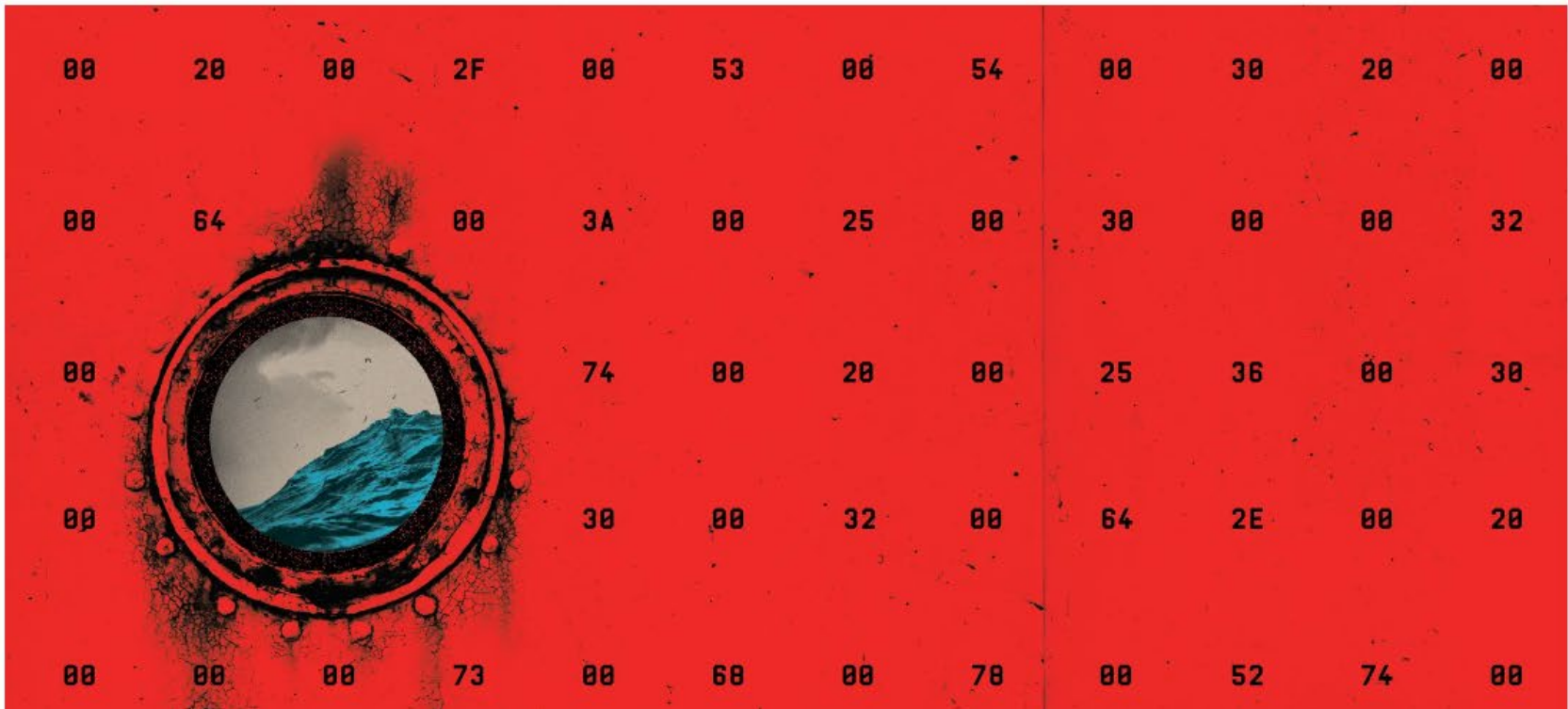
Critical Entities Resilience
Directive (CER)

NIS2 (EU Directive on Security
of Network and Information
Systems)



The Untold Story of NotPetya, the Most Devastating Cyberattack in History

Crippled ports. Paralyzed corporations. Frozen government agencies. How a single piece of code crashed the world.





Departments ▾

Experts

CSIS

CENTER FOR STRATEGIC &
INTERNATIONAL STUDIES

Regions ▾

Topics ▾

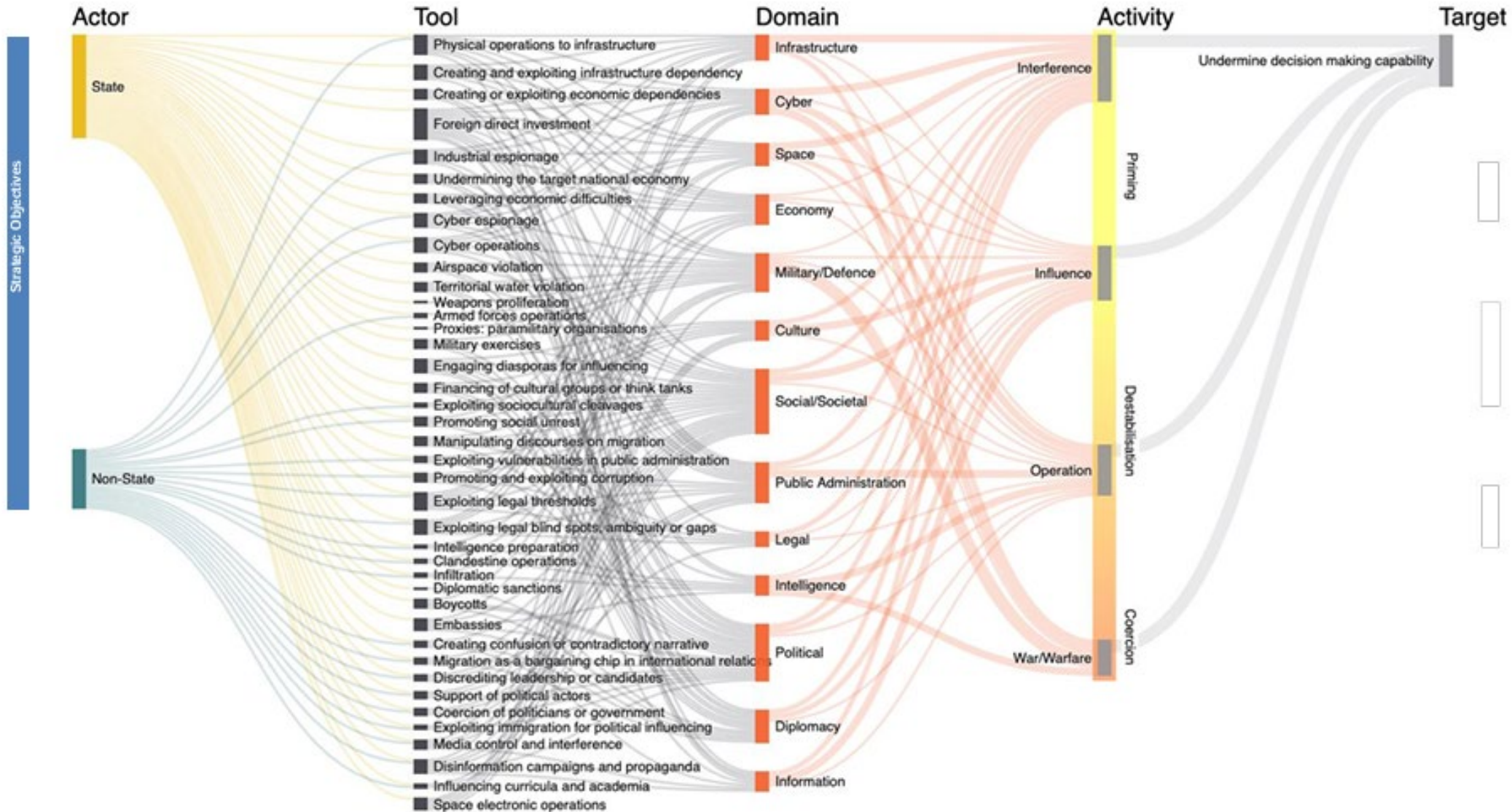


Brief by **Seth G. Jones**
Published March 18, 2025

Russia's Shadow War Against the West



Hybrid threats – Conceptual model



RDI Focus on Maritime Cluster

TURKU AMK



- **Finland is practically an island. Over 96% of our trade relies on maritime transportation**
 - No alternatives
- **Part of Critical Infrastructure according to NIS2 and CER directives**
 - Transport
 - Ports
 - Off-shore infrastructure
 - Sub-sea energy and telecommunications

Turku is the Finnish maritime hub

- Meyer Turku ship yard and extensive supply chain
- Companies such as Kongsberg Maritime, Wärtsilä
- Port of Turku
- Finnish Navy HQ
- West Finland Coast Guard District
- Fintraffic VTS
- World's first autonomous and remotely operated ferry pilot by Rolls-Royce in cooperation with Finferries in 2018

Selected Turku University of Applied Sciences RDI Activities for Critical Infrastructure Protection

- Uncrewed surface vessels
- Cybersecurity
- Protection against hybrid threats



Maritime cluster OT Cybersecurity Governance model

- The goal is to create a cybersecurity governance model for OT environments
- Managing cybersecurity in the OT environment needs to be aligned with business operations
- The governance model can be implemented on multiple levels, for example:
 - Leadership
 - Practical controls and environment management

The governance model uses the PDCA cycle

- Plan: Planning of security controls
- Do: Implementation of controls
- Check: Evaluation of the effectiveness of controls
- Act: Taking corrective actions if necessary

ISO 27001-based practical cybersecurity management handbook for OT environments in the maritime cluster in cooperation with Fintraffic VTS.

Available on-line: <https://urn.fi/URN:ISBN:978-952-216-880-1>

Pia Satopää,
Olli Soininen &
Jarkko Paavola



Information Security and Cybersecurity Governance model for Operational Technology Environments of the Finnish Maritime Cluster Actors



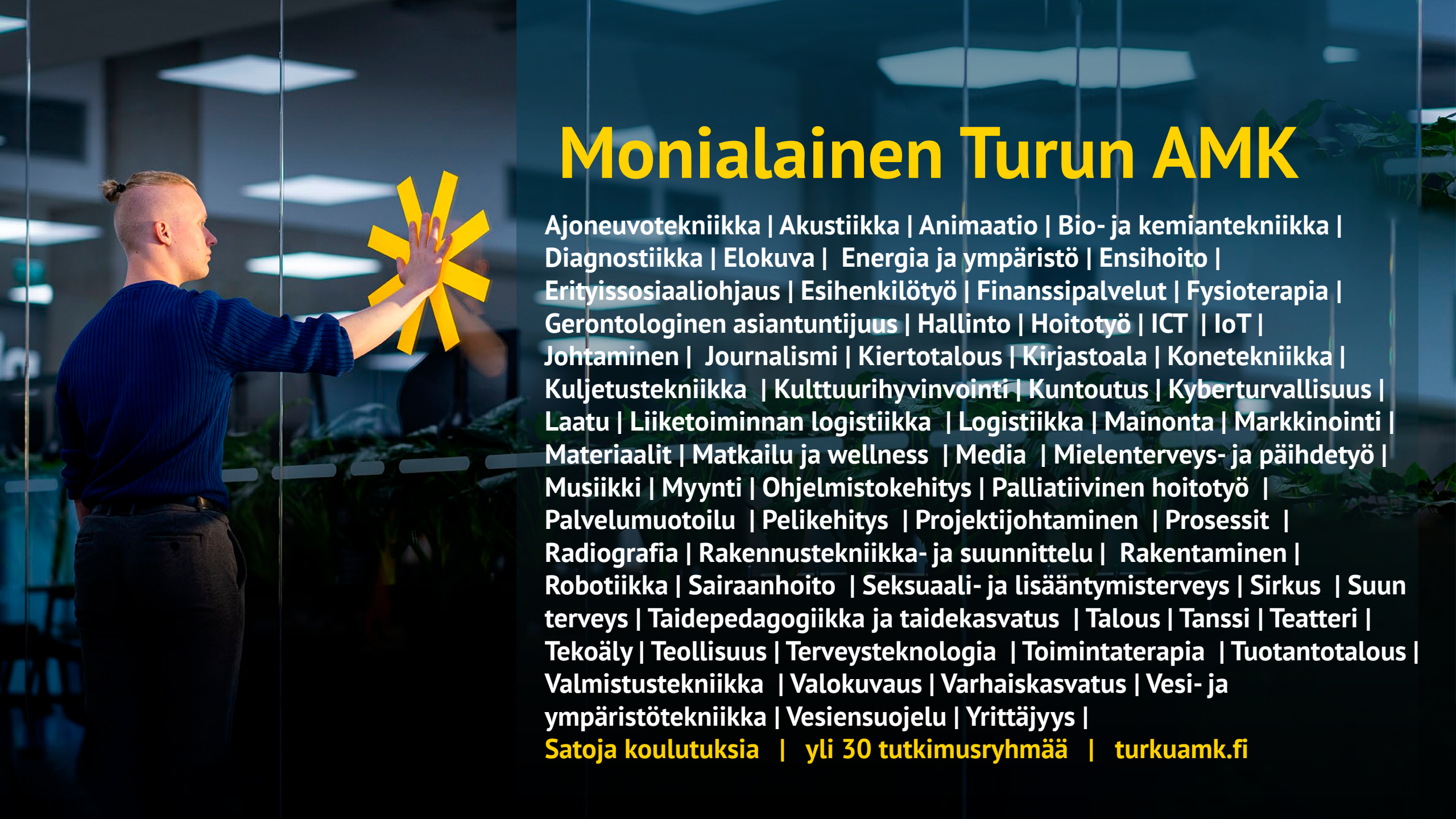
303
Reports

Resilience competences?

Rethinking education and training to counter AI-enhanced disinformation and information manipulations in Europe: a Delphi study

Cristina M. Arribas , Rubén Arcos  & Manuel Gertrudix 

Article: 2501759 | Received 19 Sep 2024, Accepted 30 Apr 2025, Published online: 12 May 2025



Monialainen Turun AMK

Ajoneuvotekniikka | Akustiikka | Animaatio | Bio- ja kemiantekniikka |
Diagnostiikka | Elokuva | Energia ja ympäristö | Ensihoito |
Erityissosiaaliohjaus | Esihenkilötyö | Finanssipalvelut | Fysioterapia |
Gerontologinen asiantuntijuus | Hallinto | Hoitotyö | ICT | IoT |
Johtaminen | Journalismi | Kiertotalous | Kirjastoala | Konetekniikka |
Kuljetustekniikka | Kulttuurihyvinvointi | Kuntoutus | Kyberturvallisuus |
Laatu | Liiketoiminnan logistiikka | Logistiikka | Mainonta | Markkinointi |
Materiaalit | Matkailu ja wellness | Media | Mielenterveys- ja päihdetyö |
Musiikki | Myynti | Ohjelmistokehitys | Palliatiivinen hoitotyö |
Palvelumuotoilu | Pelikehitys | Projektijohtaminen | Prosessit |
Radiografia | Rakennustekniikka- ja suunnittelu | Rakentaminen |
Robotiikka | Sairaanhoido | Seksuaali- ja lisääntymisterveys | Sirkus | Suun
terveys | Taidepedagogiikka ja taidekasvatus | Talous | Tanssi | Teatteri |
Tekoäly | Teollisuus | Terveysteknologia | Toimintaterapia | Tuotantotalous |
Valmistustekniikka | Valokuvaus | Varhaiskasvatus | Vesi- ja
ympäristötekniikka | Vesiensuojelu | Yrittäjyys |

Satoja koulutuksia | yli 30 tutkimusryhmää | turkuamk.fi

New learning methods: Turku AMK Cyber Protection Team

- Training program for selected students in Data Networks and Cybersecurity degree programme
- Coach-led “training camp”, whose goal is to train and prepare students for team-based cyber challenges and competitive events
 - E.g. NATO Locked Shields



New competence requirements

- Public and policy makers' understanding of AI-driven disinformation is fragmentary.
- Need for improved digital competences, updated educational frameworks, and continuous training through micro-credentials.
- Importance of integrating non-technological skills such as geopolitical awareness and historical analysis into the digital skills framework.
- Emphasis on a comprehensive, interdisciplinary approach to learning that incorporates both technical and critical thinking skills to counter disinformation.
- Recommendations for proactive measures including early detection systems for new technologies and flexible, modular learning opportunities.



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