EU policies for cybersecurity in inland navigation

Dr Nineta Polemi

Programme Manager- E.U. Policies
DG CNECT/H1: Cybersecurity
Technology & Capability Building

Maritime: Backbone for economy

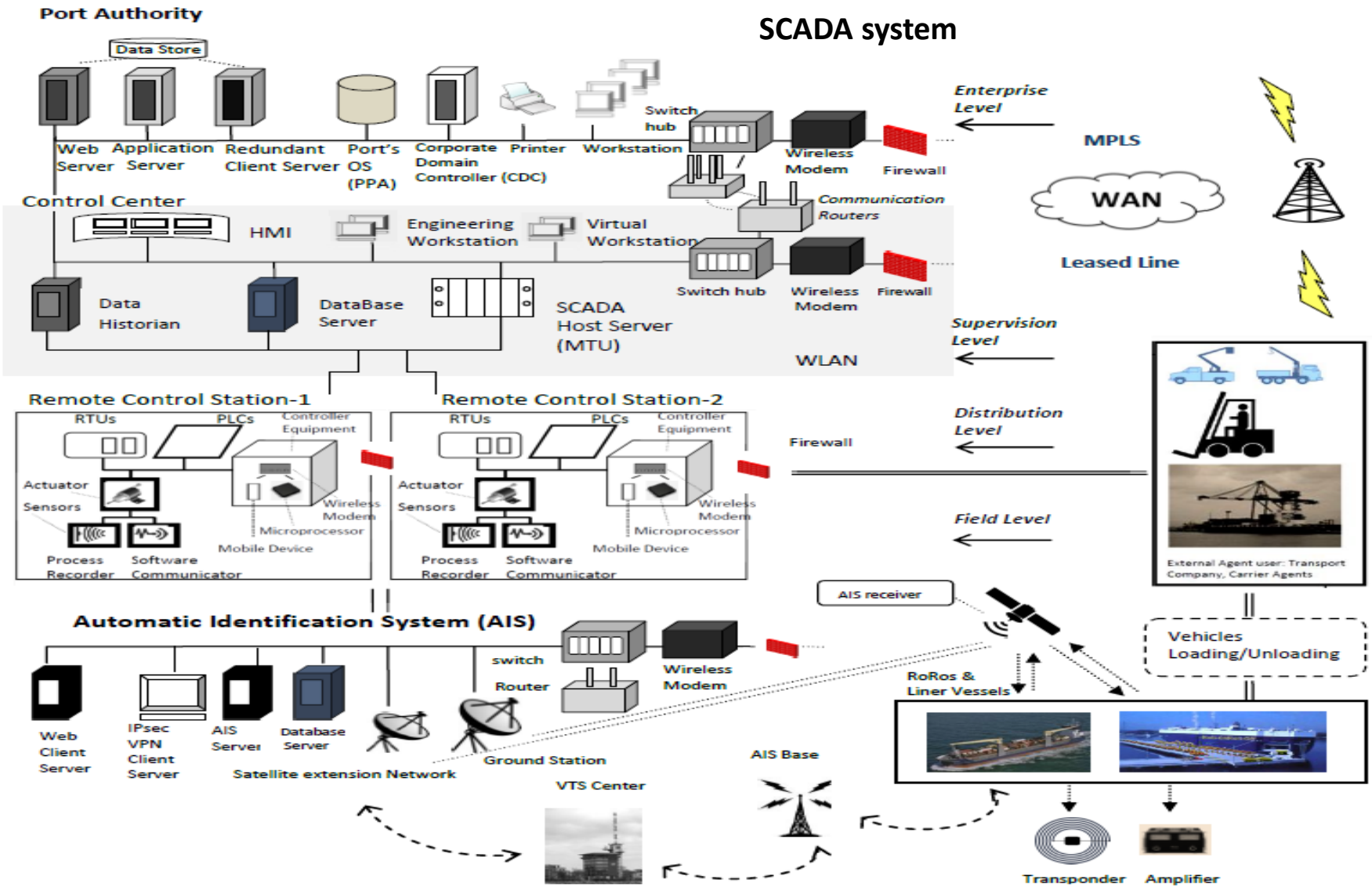
Maritime transport is . . .

- ✓ the backbone of international trade around 80% of global trade by volume and over 70% by value is carried by sea and is handled by ports worldwide
- ✓ 74% of goods entering or leaving Europe go by sea
- ✓ More than 37,000 kilometres of waterways connect hundreds of EU cities
- ✓ 13 Member States have an interconnected waterway network of cities and industrial regions.
- ✓ Attractive target: 50% of all shipping companies word-wide were victims of cyber-attacks in 2018 (NATO-NMIOTC 2019)

Maritime Cyber Activities depend upon:

- Critical Infrastructures –CIs- (Information and Space CIs)
- Common cyber assets e.g. networks, ICT components, technical capabilities
- EU & international policies and agreements
- Supply Chains

Ports' complex ICT



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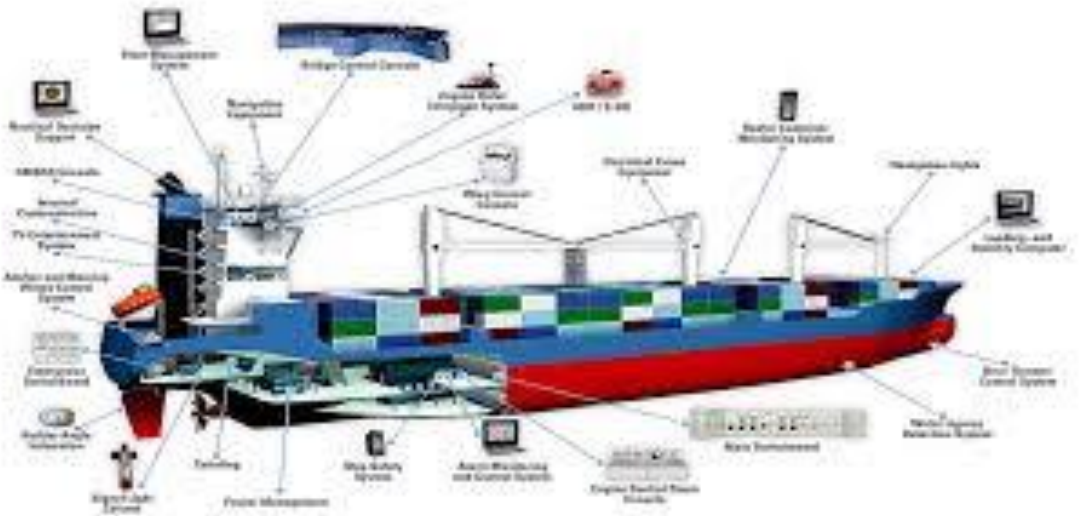
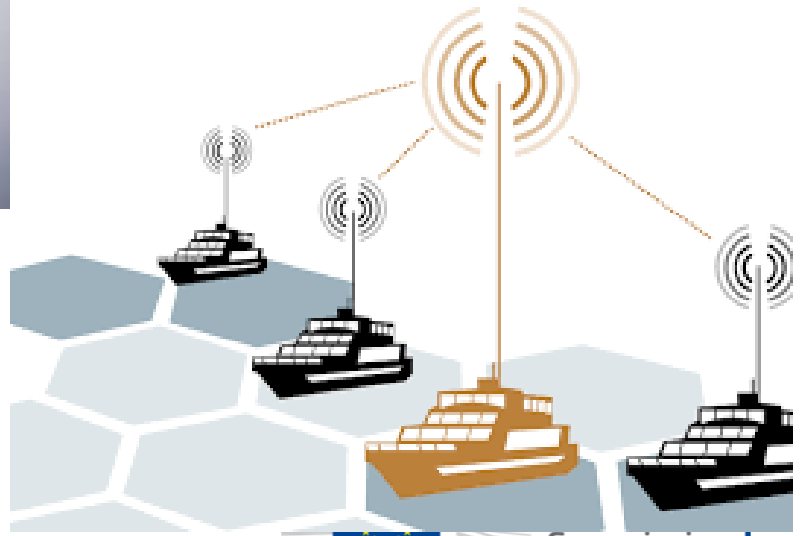
Digitalization





Ships are expensive assets (more than 20 million euros is the value of a cargo ship)

Common maritime attacks

- ✓ GPS spoofing
- ✓ Unauthorized access to on-board mobile devices
- ✓ manipulation of Bill of lading
- ✓ signals jamming, monitoring
- ✓ targeted access on automated terminal infrastructures (e.g. electronic gates, RFIDs in containers, cameras, surveillance systems)
- ✓ spear phishing, DoS,…….

2018 attacks: Maersk, Port of Barcelona
US Ports (Long Beach, San Diego),
Austal, Royal Navy of Oman

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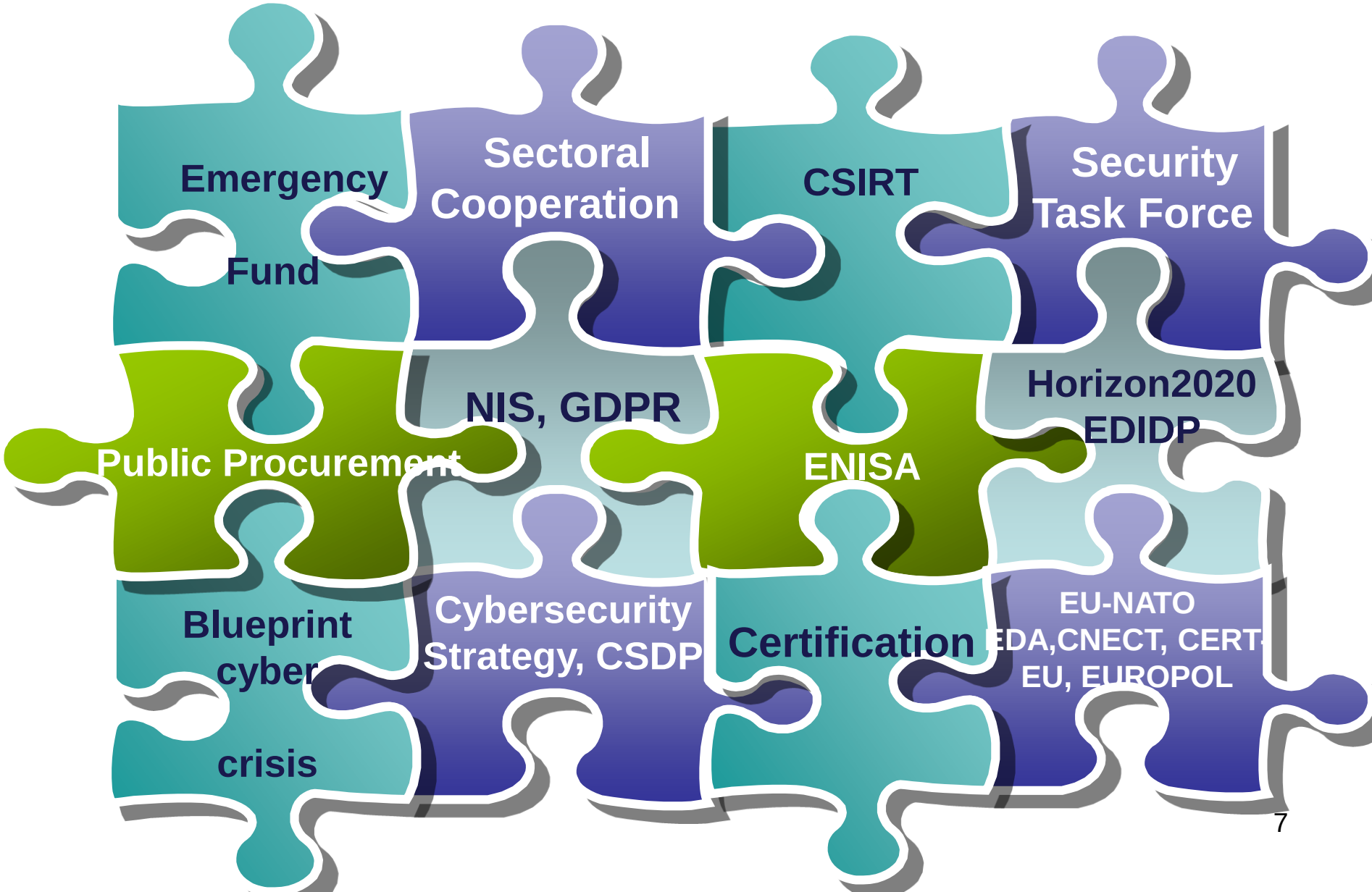
E.U. in Action


Emergency
Fund
Sectoral
Cooperation
CSIRT
Security
Task Force
Public Procurement
NIS, GDPR
ENISA
Horizon2020
EDIDP
Blueprint
cyber
crisis
Cybersecurity
Strategy, CSDP
Certification
EU-NATO
EDA,CNECT, CERT-
EU, EUROPOL

EU Maritime Cybersecurity Regulation/Policies

- *Regulation **No 725/2004** on enhancing ship/port facility security*
- *Directive **2005/65** on enhancing port security*
- *Regulation **324/2008**: inspections in the field of maritime security.*
- *Directive (EU) 2016/1148 sets cybersecurity obligations –**NIS**-*
- *2016 **EU-NATO Joined Declaration** (…enhance coordination, complementarity and cooperation in the maritime domain)*
- *eIDAS Regulation (2014) on electronic identification*
- *2016 Directive **85/374**/EEC on **product liability***
- *Regulation 2016/679 on protection of privacy –**GDPR**-*
- Space Strategy for Europe 2016/2325(INI)
- *Regulation COM(2017)477 **Cybersecurity Act***
- *2018 Revised EU Maritime Security Strategy (emphasizes the need for improving the integration of cybersecurity)*

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MARITIME CYBERSECURITY GUIDELINES

- SOLAS XI-2 and the ISPS Code
- Guidelines on maritime cyber risk management (IMO)
- ETSI TR 103 456 CYBER; Implementation of the NIS COM(2017) 476 final "Making the most of NIS"
- C(2017)6100 final Recommendation on Coordinated Response to Large Scale Cybersecurity Incidents and Crises (**blueprint**)
- Cyber Diplomacy Toolbox
- The Tanker Management/ Self Assessment - TMSA (OCIMF)
- The Guidelines on Cyber Security Onboard Ships (supported by: BIMCO, CLIA, ICS, INTERCARGO, INTERTANKO, OCIMF and IUMI)
- Cyber Security Awareness -AMMITEC
- IACS Cyber Panel Systems (2015)

E.U. Initiatives

- ✓ cPPP-**ECSO** (2016)
- ✓ Digital European **Industry** Initiative (2016)
- ✓ Electronic Components and Systems (**ECSEL JU**)
- ✓ Supercomputers (**EuroHPC JU**)
- ✓ **5G** Action Plan (2016)
- ✓ Framework for screening foreign investment
- ✓ Strategic Forum for Important Projects of common European Interest (**IPCEI**)
- ✓ Digital Skills and Jobs Coalition
- ✓ Space Programme (2018)
- ✓ **AI** Declaration/ AI Communication (2018)
- ✓ Communication on **online disinformation** (April 2018)

E.U. Maritime Cyber Security R&D

CYSM, MEDUSA: Static SC RM' methodology and tools

MITIGATE: Dynamic evidence-driven Maritime SC RM environment (simulation, crowd-sourcing, open data) (ISO27001, 27005, ISPS, CIIP, ISO28000)

SAURON: Situational Awareness platform

TRITON Trusted Vessel Information from Trusted On-board Instrumentation SEABILLA Sea Border Surveillance)

MARINE-EO Bridging Innovative Downstream Earth Observation and Copernicus enabled Services for Integrated maritime environment, surveillance and security

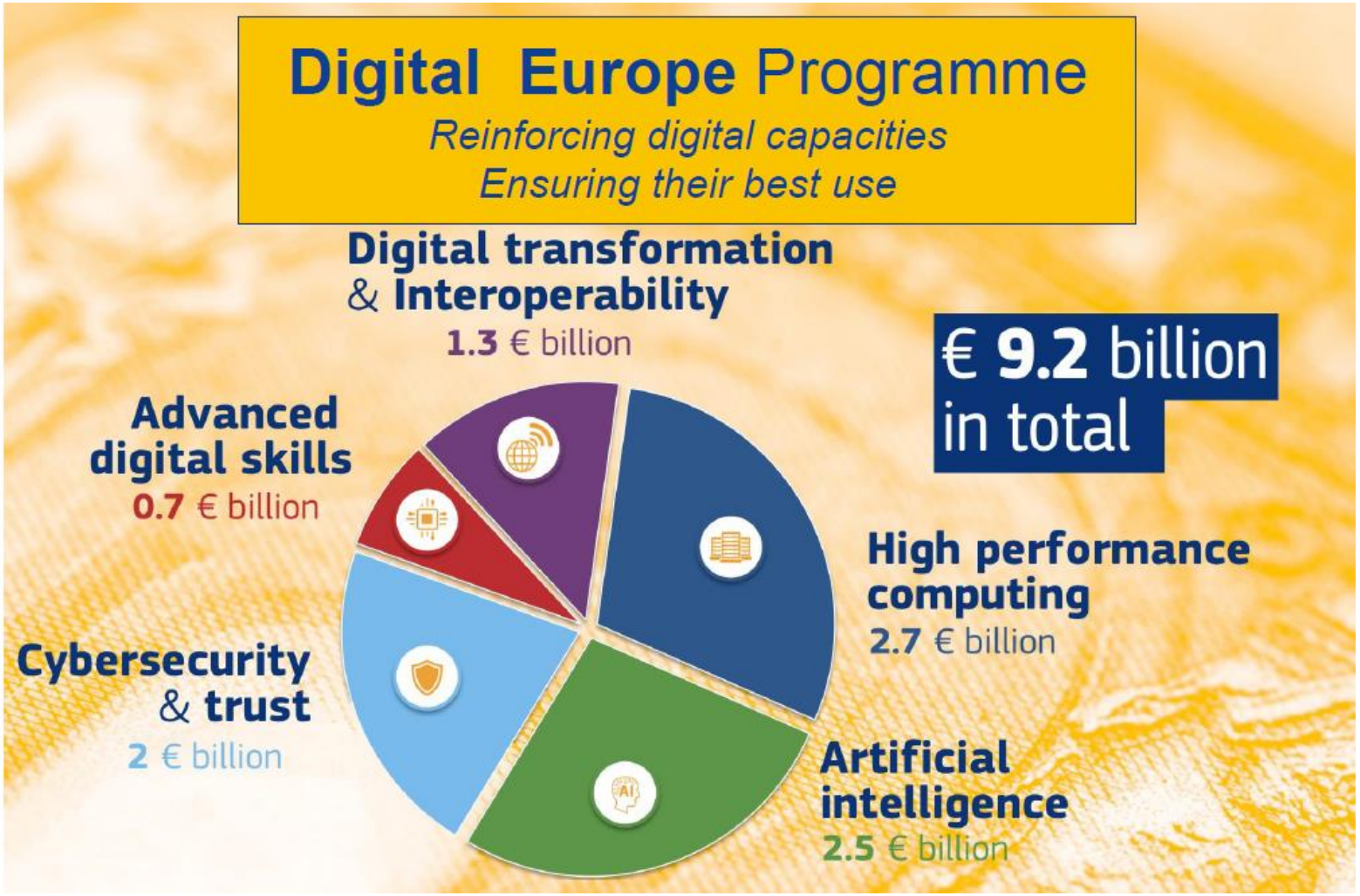
CEF Maritime Transport Projects 2014-2019

The future

Future Threats

- ✓ International **Supply chains, AI** and **5G** will bring severe attacks causing tremendous damages from making vessels invisible to destroying their fire-alarm systems to disrupting their cargo management systems.
- ✓ The on-board connected IT systems (e.g. cargo management, bridge systems, passengers servicing, communication systems etc.) more and more are provided by international suppliers with **non EU security certifications**, more vulnerable to attacks.
- ✓ The vessels are controlled by their inland shipping company, but operated by the on-board technical departments with no necessary **cyber skills.**

The Digital Europe Programme 2021-2027



The Cybersecurity Competence Centre and Network (CCCN)

Brussels, ***12.9.2018*** *COM(2018) 630 final*

2018/0328 (COD) REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL **establishing the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres**

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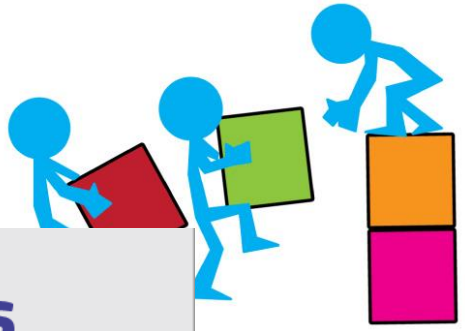
Preparing for CCCN



More than €63.5 million invested in 4 projects

CONCORDIA
Cyber security cOmpeteNCe fOr Research anD InnovAtion

Partners: **46**

EU Member States involved: **14**

Key words
- SME & startup ecosystem
- Ecosystem for education
- Socio-economic aspects of security
- Virtual labs and services
- Threat Intelligence for Europe
- DDoS Clearing House for Europe
- AI for cybersecurity
- Post-Quantum cryptography

Cyber Security for Europe

Partners: **43**

EU Member States involved: **20**

Key words
- Cybersecurity for citizens
- Application cases
- Research Governance
- Cyber Range
- Cybersecurity certification
- Training in security

ECHO

Partners: **30**

EU Member States involved: **15**

Key words
- Network of Cybersecurity centres
- Cyber Range
- Cybersecurity demonstration cases
- Cyber-skills Framework
- Cybersecurity certification
- Cybersecurity early warning

SPARTA

Partners: **44**

EU Member States involved: **14**

Key words
- Research Governance
- Cybersecurity skills
- Cybersecurity certification
- Community engagement
- International cooperation
- Strategic Autonomy

Last updated 26 February 2019

More than 160 partners from 26 EU Member States

More info at:

https://ec.europa.eu/digital-single-market/en/news/four-eu-pilot-projects-launched-prepare-european-cybersecurity-competence-network

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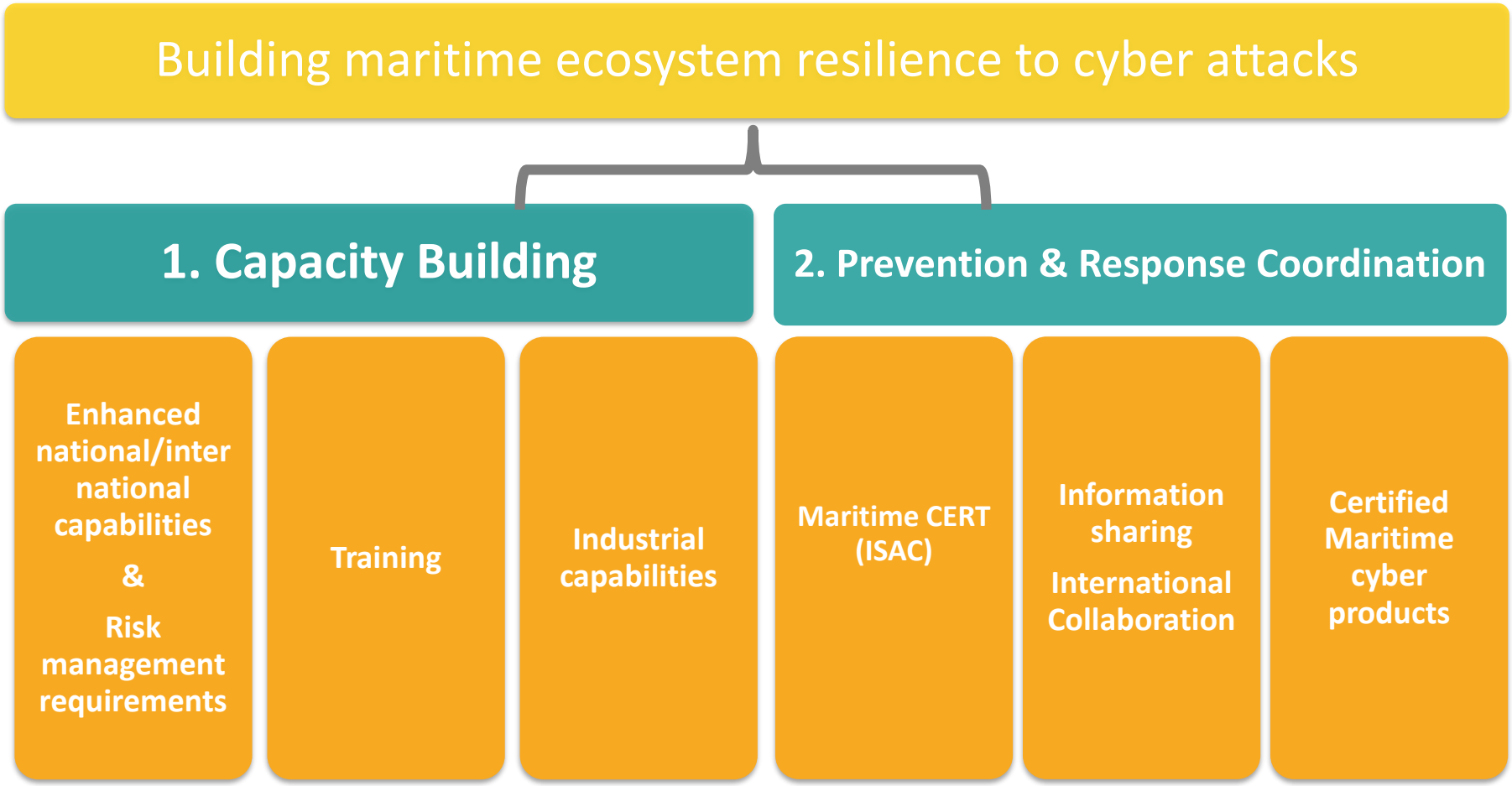
Maritime Cybersecurity: A strategic priority



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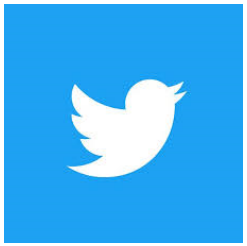
On  : *https://twitter.com/Cybersec_EU*

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Nineta.POLEMI@ec.europa.eu