
# Cybersecurity and privacy dialogue between Europe and Japan

## D3.1: Preliminary version of the Cybersecurity Research Analysis Report for the two regions

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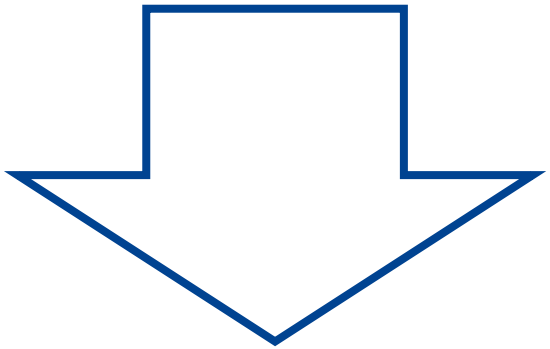
# Objectives

- Establishing a clear picture on the cybersecurity and privacy domain in both regions by analysing existing regulations, standards, projects, programs, roadmaps, etc.
- Analysing the cybersecurity priorities in both EU and Japan



in order to produce a **background document** on the status and **priorities** of cybersecurity and privacy **research and innovation** activities in Europe and Japan

# The scope

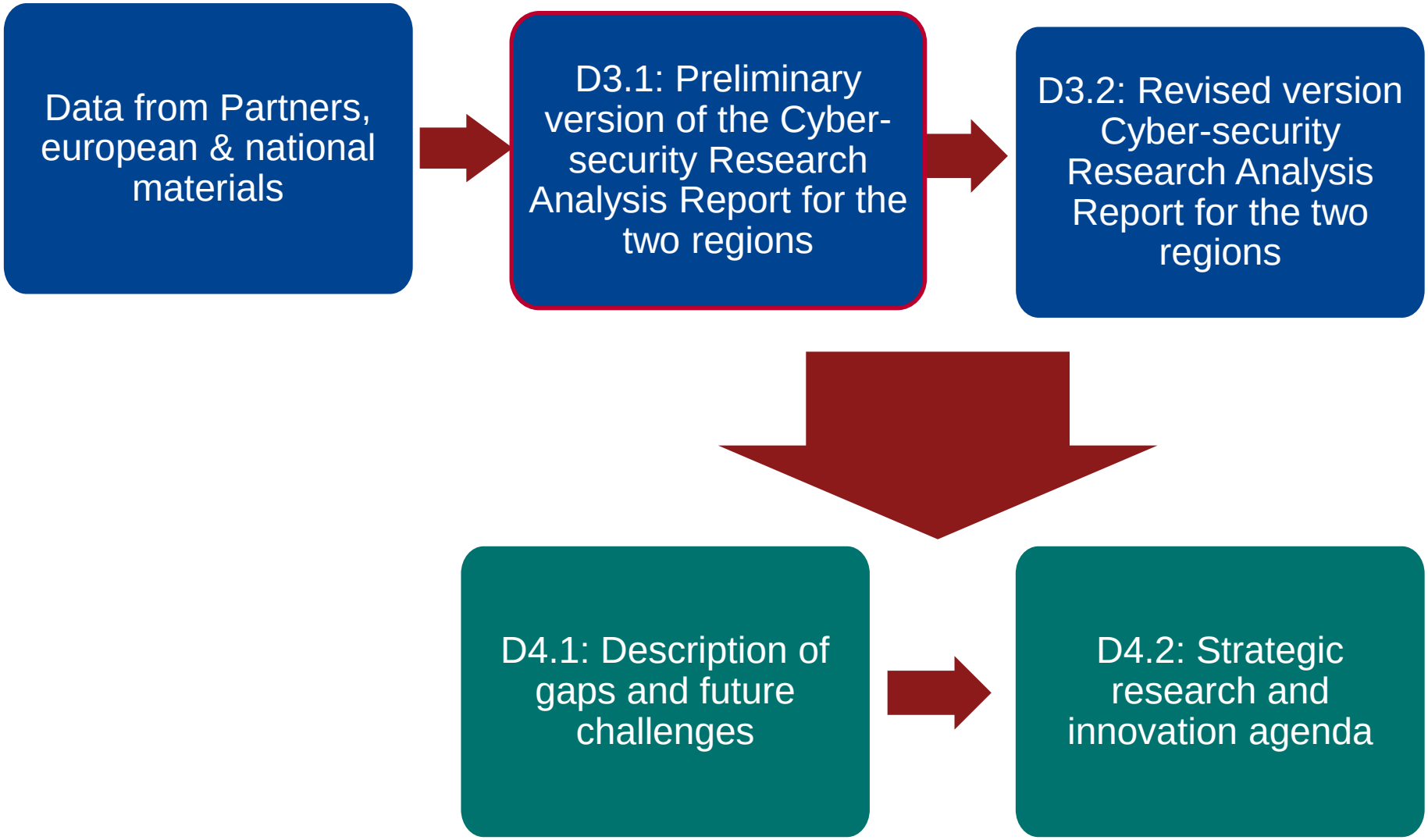
- Identification and description of the mechanisms used to finance research and innovation
- An overview of the main research directions in the field, identification of the strong and weak points in the both regions to indicate:
  - topics of common interest, where cooperation opportunity is clear
  - topics where some aspects are covered asymmetrically, allowing greater synergy
- Analysis of the current role and activity of different units (SMEs, research institutions, CSIRTs, etc.) in research and innovation in Europe and Japan to find:
  - possible asymmetries increasing the value of possible cooperation
- Analysis of long-term research programs at the national and international level
  - to find thematic parallels between the EU and Japan which may create opportunities for either co-financing of joint EU-Japan projects or at least synchronization of efforts enabling cooperation

# Remarks

- The document is mainly a set of data, whereas a detailed analysis and drawing conclusions will be implemented in other deliverables
- The purpose of the analysis is only to indicate the most visible similarities and differences

- The document will be updated, upgraded and published as **D.3.2 - Cybersecurity Research Analysis Report for the two regions** (final version)

# Data flow


Data from Partners, european & national materials
D3.1: Preliminary version of the Cyber-security Research Analysis Report for the two regions
D3.2: Revised version Cyber-security Research Analysis Report for the two regions
D4.1: Description of gaps and future challenges
D4.2: Strategic research and innovation agenda

# Cybersecurity Research Analysis Report

1. Introduction

2. Legal and Policy Aspects

3. Research and Innovation Aspects

4. Industry and Standardization Aspects

# Legal and Policy Aspects

# Legal and Policy Aspects

## 2.1 Executive summary

## 2.2 The European landscape

- Privacy and data protection
- Cybersecurity

## 2.3 The Japanese landscape

- Privacy and data protection
- Cybersecurity
- Japan and the European Union: comparative aspects on privacy and data protection

## 2.4 Conclusions

- Summary of challenges and gaps

# Legal and Privacy - conclusions

## Fundamental regulation acts in the area

| | EU | Japan |
|---|---|---|
| Privacy | GDPR | Japanese Privacy Law |
| Cybersecurity | NIS | Japanese Basic Act on Cybersecurity |

## Similiarities and differences

- Privacy: the two frameworks are not perfectly matching
  - the concepts of sensitive personal data and some practical implications might become a critical point for both Japanese and European businesses and organizations wanting to enter each other's digital markets
- Cybersecurity:
  - **differences** might be spotted in the laws of the two
  - **similarities**: there is room left by both policy and legal frameworks allowing EU, Member States and Japanese Government to engage in international cooperation

# Research and Innovation Aspects

# Research and Innovation Aspect

3.1 Mechanisms to finance cybersecurity research

3.2 The main research directions in the field

3.3 The strong and weak points

3.4 Common interests between the EU and Japan

# Mechanisms to finance cybersecurity research

## 3.1.1 In the European Union

- European Programmes (e.g. H2020, CEF, etc.)
- National financing mechanisms - analysis using project partner's countries (France, Greece, Spain, Poland, Belgium) as a sample
  - National programmes
  - Mixed (national and international funds)
  - Own commercial activities (patents, services)

## 3.1.2 In Japan

- Various funds provided by the government

# The main research directions in the field

- Strategies and Research and Innovation Agendas
- Programs and project calls
- Projects
- Other activities

# Strategies and Research and Innovation Agendas

## European top-level strategic documents

- Digital Single Market (DSM) Strategy
- Cybersecurity strategy of the EU

## Strategic Research and Innovation Agenda

## National cybersecurity strategies in the EU member states

## National strategy in Japan

# The strong and weak points

| Strengths | Weaknesses |
| --- | --- |
| **Establishment of the cybersecurity strategy**<br>• Review of the strategies<br><br>**Declared focus on cybersecurity and privacy**<br>• Review of the strategies<br>• Questionnaires<br>• Own observations | **Opposition between industry and research**<br>• Questionnaires<br>• Own observations<br>**High-level cybersecurity's personel shortage**<br>• Questionnaires<br>• Own observations<br>**Lack of coordination of research actions on various levels**<br>• Questionnaires<br>• Review of projects and programs<br>• Review of financing mechanisms<br>• Own observations<br>**Lack of strong global cybersecurity enterprises and solutions originating in the EU and Japan**<br>• Questionnaires<br>• Own observations |

# Common interests between the EU and Japan

| | |
|---|---|
| Main strategic directions in institutions | • Questionnaires |
| R&I cybersecurity priorities and current directions | • Review of strategies<br>• Own observations |
| Identification of threats | • Questionnaires<br>• Own observations |
| Examples of current collaborations | • Questionnaires<br>• Review of projects and programs<br>• Own observations |
| ICT areas which need collaboration between EU and Japan | • Questionnaires<br>• Review of strategies;<br>• Review of projects and programs<br>• Review of financing mechanisms;<br>• Own observations |
| Areas which need the most collaboration | • Questionnaires<br>• Own observations |

# Main strategic directions in institutions 1/3

## cyber threat intelligence

- high performance data analytics for cybersecurity
- operational security including tools for CSIRTs
- information sharing
- cyber attack visualization
- threat analysis

## education, awareness and cyber range

- cybersecurity education and training
- security awareness training
- security testbed (cyber range)

## data processing and privacy

- privacy and identity
- big data

# Main strategic directions in institutions 2/3

## methods to enhance cybersecurity

- Artificial Intelligence for cybersecurity
- High Performance Computing for cybersecurity

## security services

- authentication/authorization
- digital certificate-based authentication infrastructure

## network security

- routing security
- file sharing methods

# Main strategic directions in institutions 3/3

## cybersecurity in various domains

- IoT and cybersecurity in IoT
- Cloud Computing and cybersecurity in the cloud,
- cybersecurity in critical infrastructures
- legal/policy on IT, IP, privacy, cybersecurity and cybercrime
- hardware security
- cloud computing
- social networks

## other

- cybersecurity technologies usable for the 2020 Tokyo Olympics

# R&I cybersecurity priorities and current directions

- risk management and critical infrastructure protection
- cybersecurity in various technologies
- threat detection and threat intelligence
- cryptology design, techniques and protocols
- network security
- hardware and systems security
- cybersecurity measures at the Tokyo Olympic Games in 2020

# Identification of threats

- malware
- APT
- cyber terrorism
- network threats
- lack of integration/cooperation between CERTs,
- poor cyber literacy,
- cyber attacks for critical infrastructure,
- quantum cryptanalysis
- specific threats against various technologies
- data theft
- social engineering

# Areas which need the most collaboration

## education and awareness

- education on various levels
- enhancing security awareness
- development of human resources
- promoting the exchange of personnel

## standards and regulations

- harmonization on standards and regulations among government and industrial associations
- guidelines by industry sector
- sharing best practices regarding cybersecurity

## information sharing

- sharing environments to monitor attacks
- sharing security intelligence among security vendors/organizations
- continuous information feeds on web sites, e.g., blogs or whitepapers
- continuous exposure in conferences/exhibitions
- continuous workforce activities

# Industry and Standardization Aspects

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## 4.1 Industry activity around research

- Methodology
- Associations and clusters at EU level
- Associations and clusters in Japan
- Associations and initiatives at member states level

## 4.2 Common topics of interest

- Indicated on next slides

# Industry landscape

- Study based on:
  - EU-wide industry associations

| Area | EU | Japan |
|---|---|---|
| **Industrial policy** | ECSO, EOS, others | Keidanren |
| **Big Data** | BDVA | VLED |
| **Communications** | 5GPPP | 5GMF |
| **Network** | NESSI, ECSO | JNSA |

  - Stated priorities/interests
    - Long term trusted ICT infrastructure
    - Computer intelligence in Security management
    - Privacy in big data
    - Cybersecurity in safety
    - Security as a Service

# Summary of common industry aspects

- Two key areas of industry-led research around cybersecurity in EU & Japan
  - Big Data
  - 5G

- Common industrial research interests:
  - privacy of big data
  - availability and reliability of open data
  - security of 5G communication networks and protocols

# Thank you for your attention

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