EUNITY Project Workshop [Cybersecurity and Privacy Dialogue between Europe and Japan]

Session 9: Research and Innovation

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FORTH

What is EUNITY

- ## H2020 CSA Project
  - H2020: current European Framework Program for research and innovation
  - CSA: Coordination and Support Action
  - Objective: supporting European research and innovation Policy Development
- ## EUNITY Focus: support cyber-security dialogue between Europe and Japan

Contents

- Roadmaps and collaboration actions/projects

- Research problems and EU agenda on cybersecurity and privacy

- Mechanisms for realization

- Education

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Prior work: FORWARD

- Research Challenges
  - The FORWARD initiative aims at identifying, networking, and coordinating the multiple research efforts that are underway in the area of Cyber-threats defenses, and leveraging these efforts with other activities to build secure and trusted ICT systems and infrastructures
- Research Roadmap
  - The **FORWARD Whitebook** is the main result of the project. It contains detailed and concrete scenarios of how adversaries can leverage the emerging threats identified by the FORWARD project working groups to carry out their malicious actions. These scenarios illustrate future dangers and provide arguments to policy makers that are needed to support research in critical areas

Prior work: SYSSEC

- Research Challenges for Europe and India
  - a **Network of Excellence** in the field of Systems Security for Europe to play a leading role in changing the rules of the game.
- Research Roadmap
  - The **SysSec Red Book** is a Roadmap in the area of Systems Security, as prepared by the SysSec consortium and its constituency. For preparing this roadmap a Task Force of young researchers with proven track of record in the area was assembled and collaborated with the senior researchers of SysSec
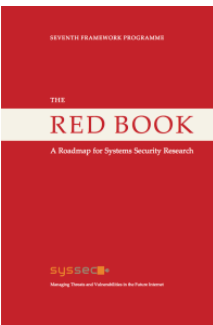
Prior work: EUINCOOP

- ## Research Challenges for Europe and India
  - describes the computing systems research challenges that are shared by Europe and India, along with the trends, strategies and opportunities in each region that are behind the research challenges.

- ## Research Roadmap
  - summarizes the initial research report based on analysis, experts opinion and first brokerage event with further review and feedback from the community of experts

Prior work: CONNECT2SEA

- Report on horizontal pilot actions, with assessment and feedback to the policy recommendations toward SEA-EU cooperation in Cybersecurity.

Prior work: NECOMA

NECOMA

- NECOMA was a EU-JP collaboration project. It addressed the aspect of
  - **data collection,**
  - **threat data analysis and**
  - **develop and demonstrate new cyberdefense mechanisms**.

The goals were achieved by leveraging past and current work on the topic with the goal to expand these existing mechanisms and orient them towards threat data analysis.

Ongoing work: CYBERSURE

- **CyberSure** is a programme of collaborations and exchanges between researchers aimed at developing a framework for creating and managing cyber insurance policy for cyber systems. The purpose of creating such policies will be to enhance the trustworthiness of cyber systems and provide a sound basis for liability in cases of security and privacy breaches in them.

Ongoing work: PROTASIS
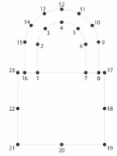
PROTASIS: Connecting the dots....

- PROTASIS aims to expand the reach of SysSec to the international community via a joint research program in the area of **Systems Security** spearheaded by the need to develop a computing infrastructure that will be trusted by the citizens and the organizations they use it.

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Horizon 2020: Work Programme 2018-2020 (draft) (1/2)

- Indicative calls addressing directly the Security&Privacy aspect (pre-analysis results)

  - ICT-08-2019: Security and resilience for collaborative manufacturing environments

  - SU-ICT-01-2018: Dynamic countering of cyber-attacks

  - SU-ICT-02-2020: Building blocks for resilience in evolving ICT systems

  - SU-ICT-03-2020: Advanced cybersecurity and digital privacy technologies

  - SU-ICT-04-2019: Quantum Key Distribution testbed

  - EUJ-01-2018: Advanced technologies (Security/Cloud/IoT/BigData) for a hyper-connected society in the context of Smart City

Horizon 2020: Work Programme 2018-2020 (draft) (2/2)

- Indicative calls including the Security&Privacy (S&P) aspect (pre-analysis results)

  - ICT-01-2019: Computing technologies and engineering methods for cyber-physical systems of systems (S)
  - ICT-02-2018: Flexible and Wearable Electronics (S&P)
  - ICT-07-2018: Electronic Smart Systems (ESS) (S&P)
  - ICT-09-2019-2020: Robotics in Application Areas (S&P)
  - ICT-10-2019-2020: Robotics Core Technology (S)
  - ICT-15-2019-2020: Cloud Computing (S&P)
  - ICT-18-2018: 5G for cooperative, connected and automated mobility (CCAM) (S)
  - ICT-20-2019-2020: 5G Long Term Evolution (S)
  - ICT-27-2018-2020: Internet of Things (S&P)

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Means

- Structured workshops – networking events (like this one) ☺

- Strategic research agenda analysis from roadmapping projects

- European Commission open calls and directives (e.g H2020, GDPR etc)

Workshops

- Participants
  - Representatives of EUNITY

  +

  - Cybersecurity experts from industry, academia and CERTs seeking cooperation between EU and JP

  +

  - Representatives of policy makers

Roadmap: Methodology/Sources

- Identification of data
  - EU and JP Cybersecurity Work Programmes/priorities/initiatives
- Preliminary analysis of data
- Creation of a "cybersecurity matrix" for EU and JP priorities

- Sources
  - Horizon 2020 Work Programme
  - Project roadmaps and research directions
  - Major research centers priorities
  - Activities of SMEs, CSIRTs, LEAs
  - Long-term research programmes on national and international levels

Research Roadmap Elements

Motivations

- Context
- Challenges or needs
- Targets or planned achievements

Technologies

- Structure
- Definition or descriptions
- Desired Advances

Actions

- Stakeholders
- Policies
- Programmes
- Initiatives

Consensus Process

- Committees
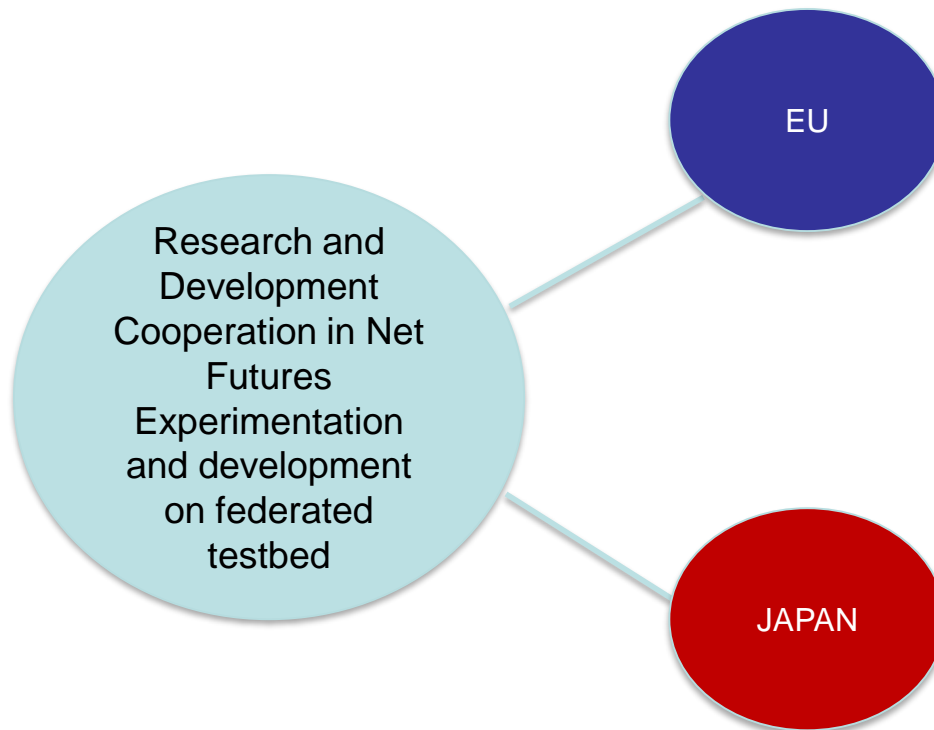- Collaborative Projects
- Networks of Excellence

JP-EU priorities comparison

- EU cybersecurity priorities/calls/initiatives that seem to match with some of the JP priorities

- JP Priorities **not** Matched with EU Priorities

- JP priorities that do not clearly fit with EU ones

Comparison example

Research and Development Cooperation in Net Futures Experimentation and development on federated testbed

EU

JAPAN

Comparison: Cybersecurity priorities (1/2)

EU	JAPAN
• European Research Infrastructures, and e-Infrastructures • Information and Communication Technologies • EU-Brasil/Japan • Nanotechnologies, Advanced Materials, Advanced Manufacturing and Processing, and Biotechnology • Innovation in SMEs • Societal Challenges - Secure, Clean and Efficient Energy • Smart, Green and Integrated Transport • Secure societies – Protecting freedom and security of Europe and its citizens • Call – Digital Security: Cybersecurity, Privacy and Truste	• Priority 1 • Priority 2 • Priority N

Comparison: Cybersecurity priorities (2/2)

EU	JAPAN
• European Research Infrastructures, and e-Infrastructures • Information and Communication Technologies •Smart Cyber-Physical Systems •Smart System Integration •Customised and low power computing •Smart Networks and novel Internet Architectures •Advanced Cloud Infrastructures and Services •Boosting public sector productivity and innovation through cloud computing services •Advanced 5G Network Infrastructure for the Future Internet •Internet of Things and Platforms for Connected Smart Objects •Cybersecurity, Trustworthy ICT •Research & Innovation Actions •Security-by-design for end-to-end security •Cryptography •Activities supporting the Cryptography Community	• Given the cyberspace crime is mostly cross-country, therefore the government should actively cooperate with foreign parties and focus to protect national interests. • Protect national critical infrastructure and improve the security of cyberspace individually and collectively • Applying risk management approach for assessing, prioritising and providing resources for cybersecurity activities. Early warning systems and rapid recovery • Protect national critical infrastructure and improve the security of cyberspace • Gov-CSIRTs

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Education

- Promote cybersecurity training via:
  - University courses
  - Exchanges of students and personnel
    - Marie Curie actions (RISE)
    - INEA/CEF (exchanges in CERTs)
    - Other projects that support exchanges
  - Organization of workshops, conferences, panels, BoF sessions

Thank you for your attention

Questions ?