Fabio Martinelli

National Research Council of Italy

aegis accelerating EU-US Dialogue in Cybersecurity and Privacy

Istituto di Informatica e Telematica del CNR

This project has received funding from the European
Union's Horizon 2020 research and innovation programme
under grant agreement No 740647

Partners

inmark europa

Foirfe chun fónaimh

Waterford Institute *of* Technology

Hewlett Packard Enterprise

1766 RUTGERS

european american chamber of commerce new jersey

THE PROVIDENCE GROUP

Index

- **Objectives (focus on R&D priorities)**
- **Activities**
- **Main current results**
- **Conclusion**

Objectives

The objective is to identify and analyse the current technological, market, policy and regulatory landscape for cybersecurity and privacy in Europe and the US. In particular,:

- Define a taxonomy and approach for performing the mapping of cyber security landscape;
- Map the EU and US cybersecurity landscapes in a separate although coordinated manner;
- Benchmarking analysis of the results and identification of potential gaps and synergies.

Activities

- **Mapping of the cybersecurity landscape in EU**
  - This task is devoted to performing the **cybersecurity landscape analysis** within the European scenario. Following a common approach, the mapping will include in particular, technological aspects; EU cybersecurity strategies, policies and legislations; the European cybersecurity and privacy market; research and innovation programs (e.g., H2020)
- **Mapping of the cybersecurity landscape in US**
  - This task is devoted to performing the **cybersecurity landscape analysis** in the US. Following a common approach, the mapping will include in particular*: technological aspects*; *US cybersecurity strategies* (e.g., DoD Cyber Strategy, US International Strategy for Cyberspace), *policies and legislations* (e.g., Cybersecurity Act of 2015, US Privacy and Data Protection acts); *the European cybersecurity and privacy market; research and innovation programs (*e.g., NSF cybersecurity R&D investments)
- **Cross analysis and benchmarking between EU/US cybersecurity landscapes**
  - This task entails a **preliminary analysis of the two landscapes** defined by adding a specific *cross analysis section* that will identify commonalities, divergences, overlaps and possible gaps. Particular attention will be given to the comparison of EU/US technological and regularity aspects towards *privacy.*

Methodology

- **Phase 1. Desktop analysis and surveys**
  - Analysis of the previous cyber security and privacy roadmaps.
  - Analysis of governmental policies and laws in the field of cyber security and privacy.
  - Surveys with experts.
- **Phase 2. Systematisation.** The results of the desktop analysis are to be processed and the main ingredients identified and analyzed in cyber security and privacy.
- **Phase 3. Finalisation.** The inputs are collected and a document is prepared

Taxonomy

- An initial taxonomy has been developed after analysis of main cybersecurity standards/guidelines (including, NIST CSF, ISO 27002, ECSO cPPP, NIS WG3 landscape/SRA, COBIT 5, …)
- The initial taxonomy is broken in three domains:
  - Cybersecurity Processes
  - ICT Technologies
  - Applications
- However, since JRC promoted in parallel a Taxonomy, we decided to use that one to foster a unique approach in Europe.
  - We discuss both the approaches.

CyberSecurity Processes

Govern	Security policies
	Organization of information security
	Compliance
Identify	Asset management
	Business environment
	Risk Assessment
	Risk Management Strategy
Develop	Define requirements
	Secure development and support
	Maintenance and assurance
	Testing
Protect	Access control
	Awareness and training
	Data Security
	Privacy-Enhancing Technology
	Protective Technology
Detect	Anomalies and Events
	Security Continuous Monitoring
	Detection Processes
Respond	Response Planning
	Communications and incident sharing
	Analysis
	Mitigation
	Improvements
Recover	Recovery Planning
	Improvements
	Communications

ICT Technologies

- Web Services
- Cloud
- Big Data
- IoT
- Operating Systems
- High-Confidence Software and systems
- Network and mobile
- ….

Applications

- E-Government
- Industrial Control Systems
- Smart transport/automotive
- Banking and finance
- Smart Environments
- Telecommunications/ICT services
- Water treatment systems
- Agriculture
- E-education
- Robotics
- eHealth
- Energy (smartGrid)
- …

Cybersecurity Domain (JRC)

Assurance, Audit, and Certification
Cryptology
Data Security and Privacy
Education and Training
Operational Incident Handling and Digital Forensics
Human Aspects
Identity and Access Management
Security Management and Governance
Network and distributed Systems
Software and Hardware Security engineering
Security Measurements
Legal Aspects
Theoretical Foundations
Trust Management, Assurance, and Accountability

Applications and technologies(JRC)

Information Systems
Mobile Devices
Operating Systems
Big Data
Vehicular Systems
Critical Infrastructures
Industrial Control Systems
Supply Chain
Internet of Things
Hardware
Cloud and Virtualization
Pervasive Systems
Embedded Systems

Sector (JRC)

Defense
Energy
Financial Services
Health
Industry 4.0
Nuclear
Public Safety
Supply Chain
Telecom
Transportation
Water

Cyber security technologies	U.S. priorities	EU priorities
Assurance, Audit, and Certification	LOW	HIGH
Cryptology (Cryptography and Cryptanalysis)	MEDIUM	LOW
Data Security and Privacy	MEDIUM	HIGH
Education and Training	MEDIUM	HIGH
Operational Incident Handling and Digital Forensics	HIGH	MEDIUM
Human Aspects	HIGH	MEDIUM
Identity and Access Management	HIGH	MEDIUM
Security Management and Governance	HIGH	HIGH
Network and Distributed Systems	HIGH	HIGH
Software and Hardware Security Engineering	HIGH	LOW
Security Measurements	MEDIUM	LOW
Legal Aspects	LOW	LOW
Theoretical Foundations	LOW	LOW
Trust Management, Assurance, and Accountability	MEDIUM	HIGH

Sectors	U.S. priorities	EU priorities
Energy	HIGH	HIGH
Financial Services	MEDIUM	HIGH
Health	LOW	HIGH
Industry 4.0	LOW	HIGH
Nuclear	MEDIUM	HIGH
Public Safety	MEDIUM	HIGH
Supply Chain	HIGH	LOW
Telecom	MEDIUM	HIGH
Transportation	MEDIUM	HIGH
Water	MEDIUM	HIGH

ICT Techonologies	U.S. priorities	EU priorities
Information Systems	MEDIUM	MEDIUM
Mobile Devices	MEDIUM	HIGH
Operating Systems	LOW	HIGH
Big Data	LOW	HIGH
Vehicular Systems	MEDIUM	LOW
Critical Infrastructures	HIGH	MEDIUM
Industrial Control Systems	MEDIUM	MEDIUM
Supply Chain	LOW	LOW
Internet of Things	HIGH	HIGH
Hardware	LOW	LOW
Cloud and Virtualization	MEDIUM	HIGH
Pervasive Systems	LOW	LOW
Embedded Systems	HIGH	MEDIUM

Top areas of potential interest for cooperation

Sectors
Health
Financial Services
Maritime

Applications and Technologies
Internet of Things
Mobile Devices
Big Data
Cloud and Virtualization

Cyber security Domains
Data Security and Privacy
Trust and Privacy
Fight Against Cybercrime
Cybersecurity Education
Compliance with Information Security, Privacy Policies and Regulations

Conclusion

- We presented the current status of the analysis
- We will soon validate it and transfer on the deliverables
    - Also new topics as cyber insurance and cyber diplomacy are under evaluation
- We are looking forward to discuss with fellow researchers and projects

Thank you

Fabio Martinelli

www.aegis-project.org