

# The Cybersecurity Policy Landscape in Europe: Legislation and Research

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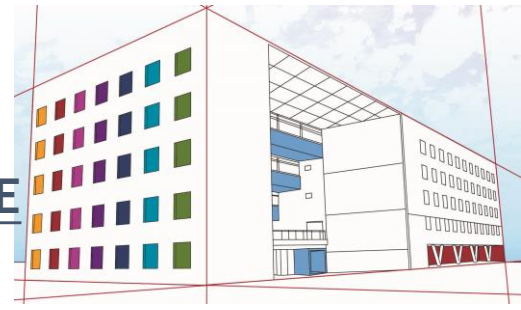
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# Quick background

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- Researcher in Algorithms, Optimisation, Networks, Cybersecurity, Insurance, CPS
- Policy maker in Future and Emerging Technologies, Cybersecurity, Privacy at the European Commission (until end March 2017)
- Foresight designer and practitioner, mainly on the impact of the Digital Revolution and Digital Transformation
- Adviser to Institutions and to EU Projects



**More than 700 researchers**

7 main areas of research

- Information analysis and synthesis
- Indexing, and information search
- Interaction, Cooperation, self-Adaptation through Experimental Studies
- Reasoning and decision
- Modelling, Algorithms and High Performance Computing
- Architecture, systems and networks
- Safe software development

Four strategic axes of impact:

- Information systems for health and ageing well
- Big data
- Ambient socio-technical systems
- Critical embedded systems

Several application areas

- Aeronautics and space industry, telecommunication, multimedia, health, transport, engineering, semantic web, security, handicap



# The EU Cybersecurity Strategy

## A Play in Two Acts



A background of red, vertically pleated curtains, typical of a theater stage. The lighting is slightly brighter in the center, creating a subtle gradient.

# Act I

# EU Cybersecurity Strategy February 2013

## Strategic priorities

**Achieve cyber  
resilience**

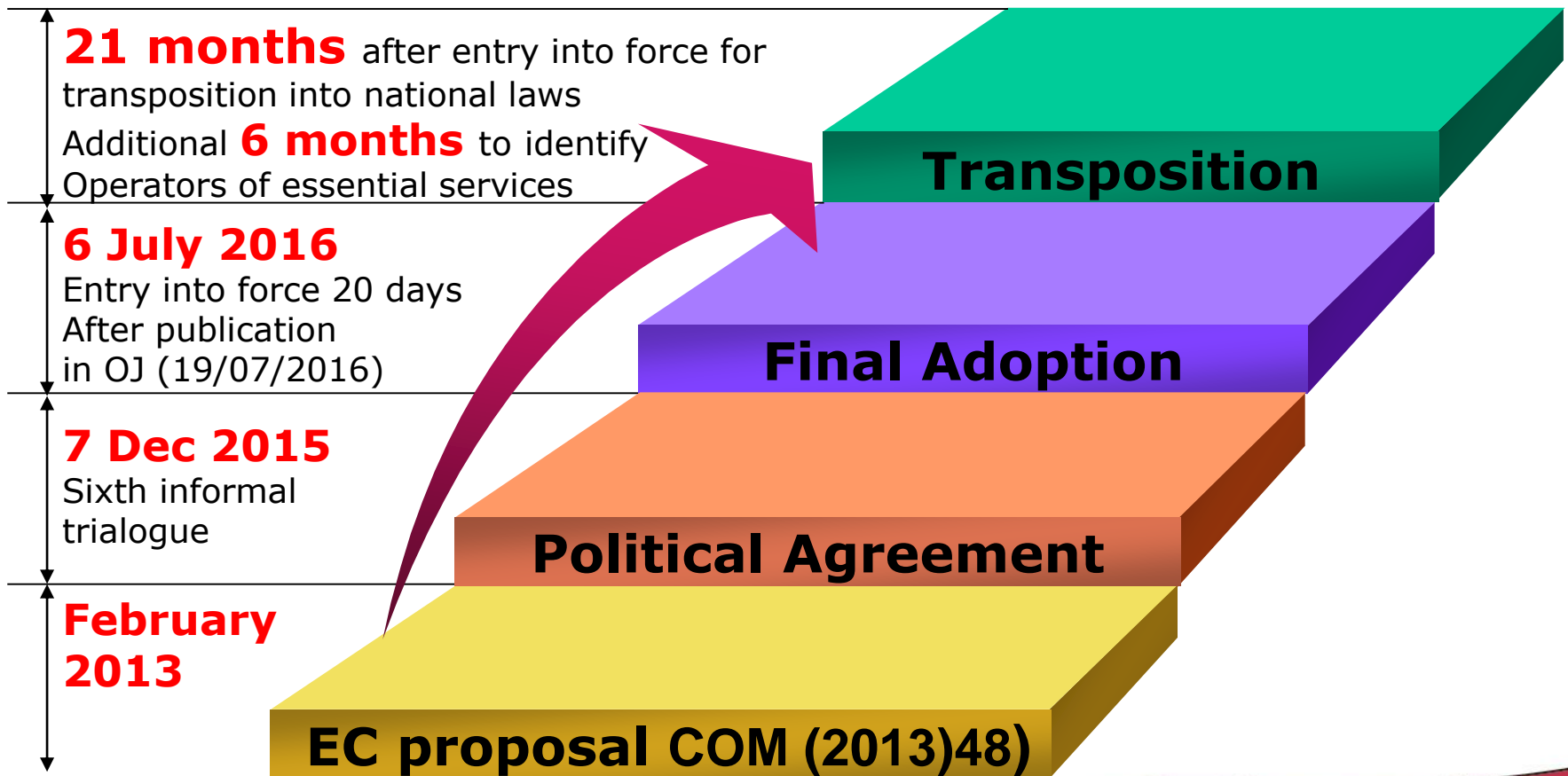
**Drastically reduce  
cybercrime**

**Develop cyber  
defence policy**

**Develop industrial and  
technological  
resources**

**Establish  
international  
cyberspace policy**

# The NIS Directive: from proposal to transposition



**July 2016**

**First comprehensive EU  
cybersecurity legislation:  
The NIS Directive**

**Increased national  
cybersecurity capabilities**

**EU level  
cooperation**

**Risk management &  
reporting**

**Boosting the  
overall online  
security in  
Europe**



## Capabilities

All Member States to have in place

**NIS  
National  
strategy**

**NIS competent  
national  
authority**

**Computer  
Security  
Incident  
Response Team  
(CSIRT)**

## Cooperation

### Cooperation Group

**what: strategic cooperation**

**who: MSs, EC, ENISA**

### CSIRT network

**what: operational cooperation**

**who: national CSIRTs, CERT-EU, ENISA**

## Security and notification requirements

### Operators of essential services

**Energy: electricity, gas and oil**

**Transport: air, rail, water and road**

**Banking: credit institutions**

**Financial market infrastructure**

**Health: healthcare providers**

**Water: drinking water supply and distribution**

**Digital infrastructure: internet exchange points,  
domain name system service providers,  
top level domain name registers**

## Security and notification requirements

**Digital Services Providers (DSPs)**

**Online market places**

**Cloud computing services**

**Search engines**

# Develop Industrial and Technological Resources: Research Policy



©  
Dreamstime

## The Working Group 3 on Secure ICT Research and Innovation

(Launched September 2013)

# WG3 Main deliverables

- **Secure ICT Research landscape**

<https://resilience.enisa.europa.eu/nis-platform/shared-documents/wg3-documents>

- **Business cases and innovation paths**

<https://resilience.enisa.europa.eu/nis-platform/wg3-secure-ict-research-and-innovation/shared-spaces/business-cases-and-innovation-paths/business-cases-and-innovation-paths-intel-ict-version/view>

- **Snapshot of education & training**

<https://resilience.enisa.europa.eu/nis-platform/wg3-secure-ict-research-and-innovation/shared-spaces/snapshot-of-education-training-landscape-for-workforce-development/education-training.pdf/view>

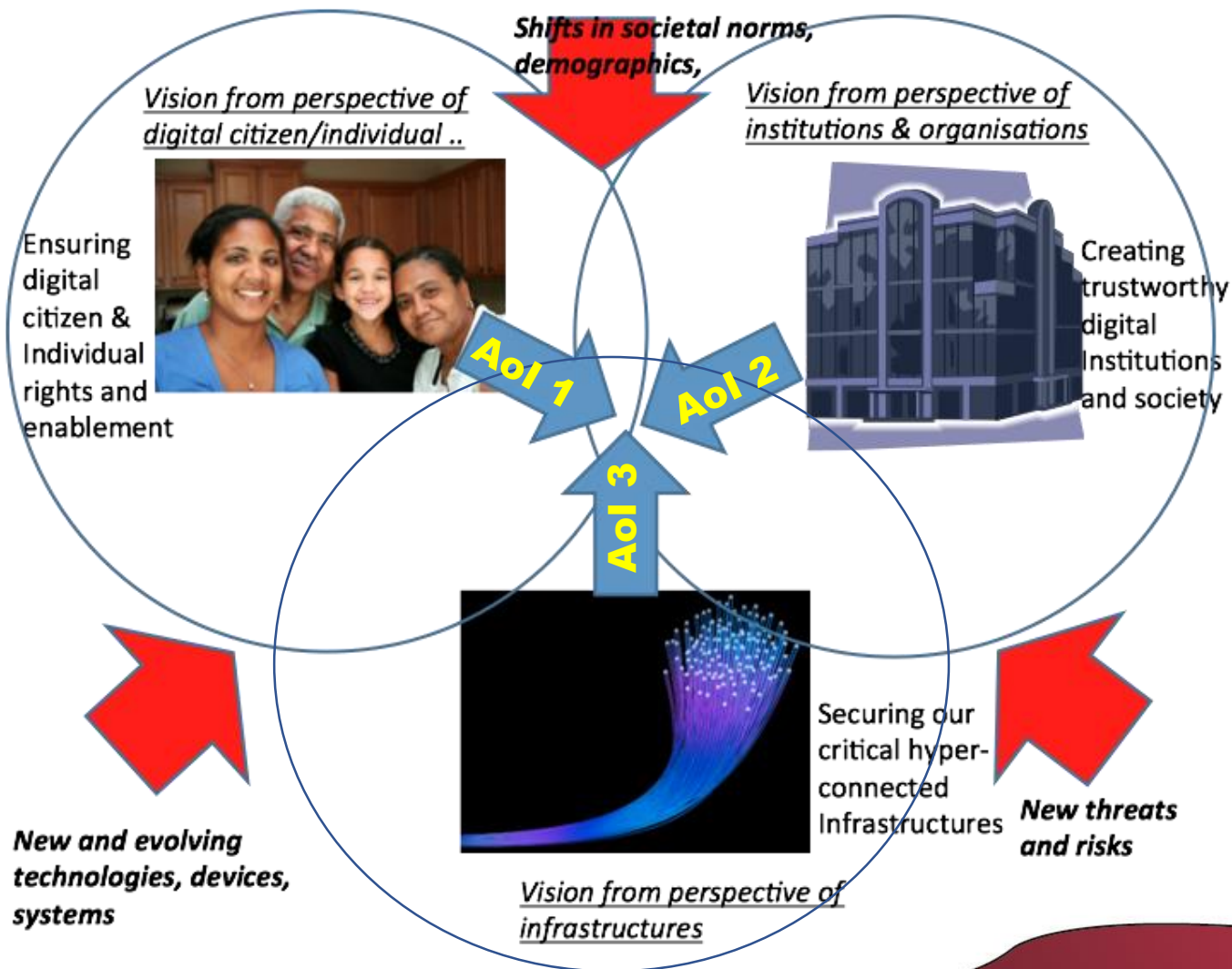
- **Strategic Research Agenda**

*Driven by the vision states (areas of interest)*

<https://resilience.enisa.europa.eu/nis-platform/wg3-secure-ict-research-and-innovation/shared-spaces/the-strategic-research-agenda-sra/>



# Methodology of the Strategic Research Agenda



## Fostering assurance

- Security Engineering
- Certification
- Cyber Insurance

## Focussing on data

- Data protection
- Data provenance
- Data-centric security policies
- Operations on encrypted data
- Economic value of personal data

## Preserving privacy

- Privacy Enhancing Technologies
- Privacy-aware security mechanisms
- ID management

## Protecting ICT Infrastructure

- Networks
- Cloud
- Mobile
- IoT, others

## Managing cyber risks

- Dynamic, composable risk assessment
- Integrated risk metrics and indicators
- Managing complexity and system evolution

## Education and awareness

- Multi-disciplinary focus
- Responsiveness to changes
- End-to-end skill development
- Continuous awareness

## Standardization and Interoperability

- Crypto ("everywhere")
- Certification, assurance, risk, security metrics/indicators
- Information sharing

## Enabling secure execution

- Secure platforms
- Intrusion Prevention/Detection
- Secure operating Systems

## Increasing trust

- Dynamic trust assessment
- Computational Trust Models
- Trust and big data

## Achieving user-centricity

- Focus on user centric design and engineering
- Usability of security mechanisms





## Contractual Public-Private Partnership



Mobilising  
public & private resources to  
boost cybersecurity industry

1.8 € billion  
for 4-years

The WG3 SRA:  
The cornerstone of  
ECSO

A theater stage with red curtains and a blue backdrop, with a white box containing the text "End of Act I".

End of Act I

A background of red, vertically pleated curtains, illuminated from the center, creating a spotlight effect. A white rectangular box is centered on the curtains.

# Act II

# September 2017: Renewed Cybersecurity Strategy for the EU

**Building EU resilience:  
A strong EU  
Cybersecurity Agency**

**Stepping up  
EU's cybersecurity  
capacity**

**Creating an effective  
criminal law response**

**Combatting  
Cyber-Attacks**

## A strong EU Cybersecurity Agency

Building up on ENISA's success

Pan-European  
cybersecurity exercises

Information Sharing  
and  
Analysis Centres

EU-wide  
certification framework

## Stepping up the EU's cybersecurity capacity

A European  
Cybersecurity  
Research and  
Competence  
Centre

A Blueprint  
For  
Response

Cybersecurity  
Emergency  
Response Fund

Stronger  
Cyber defence  
capabilities

Enhanced  
international  
cooperation

## Creating an effective criminal law response

Against cyber criminals

Detection

Traceability

Prosecution



A blue spotlight beam shines through the center of a pair of red, vertically pleated curtains. The beam is filled with small white specks, resembling stars or dust. The text "The End" is written in a white, elegant cursive font across the middle of the beam.

*The End*

*Or is this just the beginning...?*



# Thanks for your attention!

➤ Questions?

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