THE EU CYBERSECURITY AGENCY

TELECOM SECURITY SUPERVISION AND 5G

Dr. M.A.C. Dekker, ENISA

12 | 12 | 2019 Prague cybersecurity meeting

TIMELINE EU CYBERSECURITY LEGISLATION

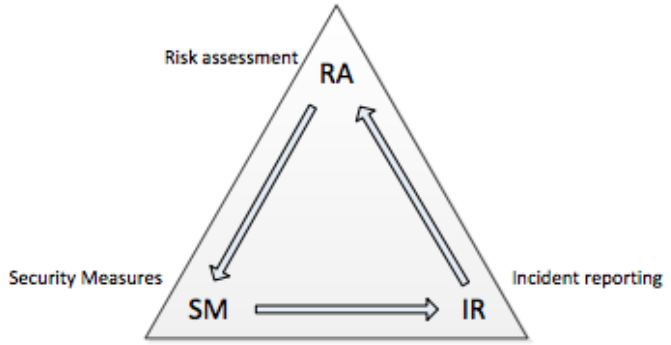
Review NISD
Scheduled for 2020

Electronic Communications Code
EECC, Article 40
Rules to come into effect end of 2020

NIS Directive
Security for OESs and DSPs, NISD Article 14, 16
Rules came into effect in 2018

eIDAS regulation (2014)
Security for trust services, eIDAS Article 19
Rules came into effect in 2016

EU Telecoms package (2009)
Article 13a, Framework directive
Rules came into effect in 2011



TELECOM SECURITY (ARTICLE 13A)

1. Providers have to assess the security risks
2. Providers have to take “appropriate” security measures
3. Providers have to notify incidents with “significant” impact

- EU member states determine the precise requirements
  - Different requirements, different level of detail,
  - Different reporting thresholds, timing, etc
- Article 13a security framework
  - Harmonization of the security requirements
  - Agreed by experts from EU telecom regulators
  - Standards neutral, but mapping to industry standards
  - Maturity levels (one size does not fit all)
  - https://resilience.enisa.europa.eu/article-13

Article 13a Security framework

D1: Governance and risk management
- SO 1: Information security policy
- SO 2: Governance and risk management
- SO 3: Security roles and responsibilities
- SO 4: Security of third party assets

D2: Human resources security
- SO 5: Background checks
- SO 6:Security knowledge and training
- SO 7:Personnel changes
- SO 8:Handling violations

D3: Security of systems and facilities
- SO 9:Physical and environmental security
- SO 10: Security of supplies
- SO 11: Access control to network and information systems
- SO 12: Integrity of network and information systems

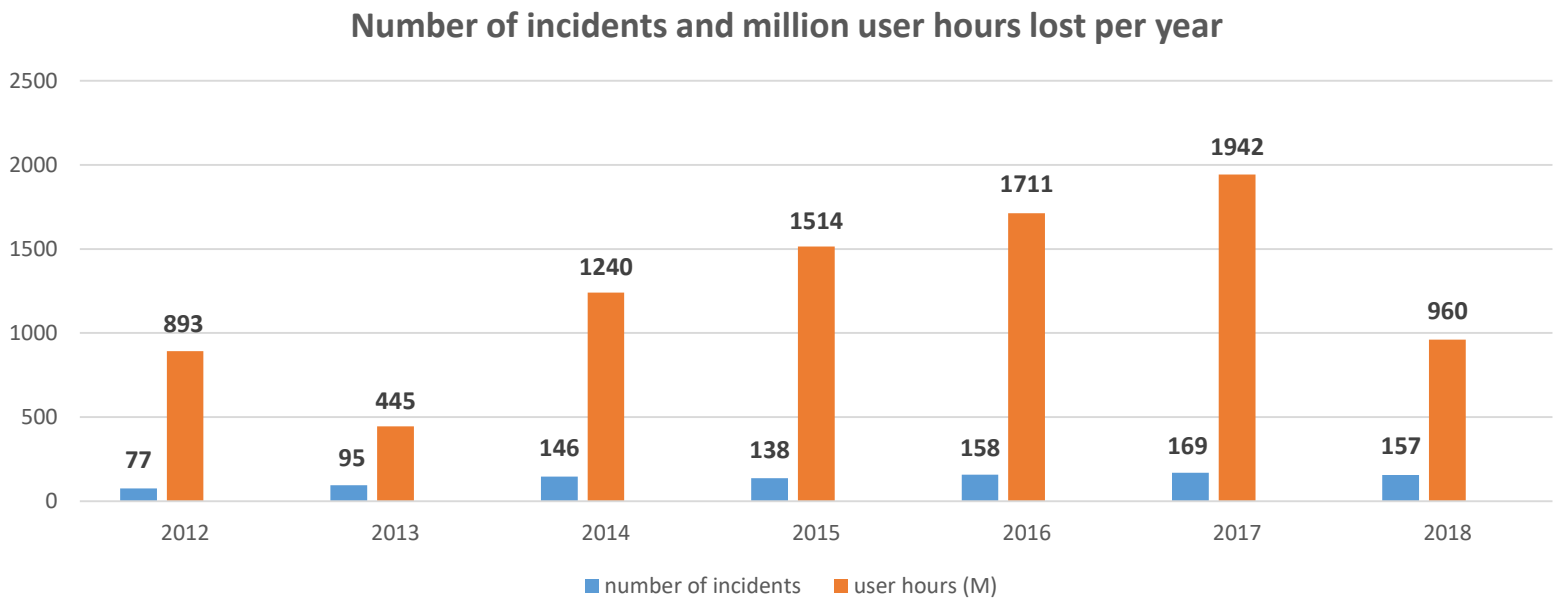
D4: Operations management
- SO 13: Operational procedures
- SO 14: Change management
- SO 15: Asset management

D5: Incident management
- SO 16: Incident management procedures
- SO 17:Incident detection capability
- SO 18:Incident reporting and communication

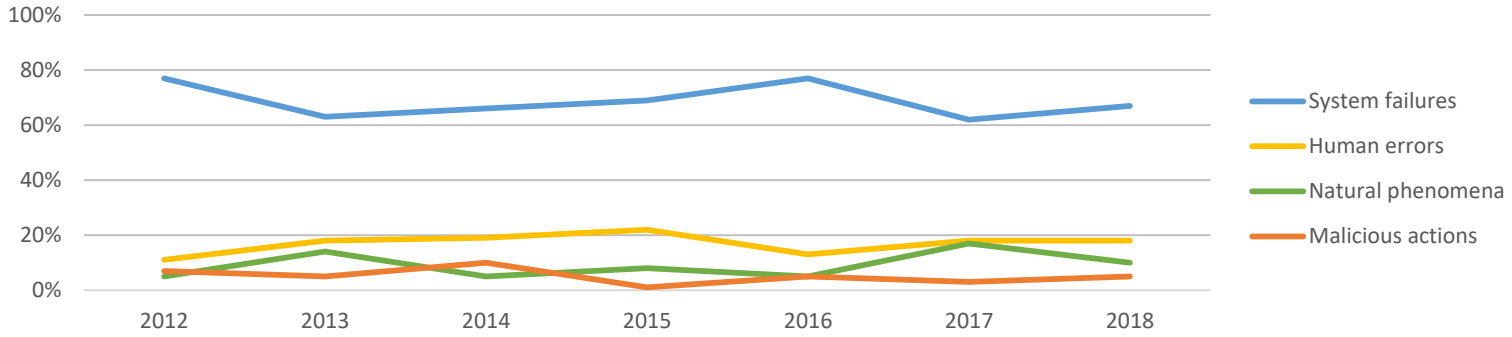
D6: Business continuity management
- SO 19: Service continuity strategy and contingency plans
- SO 20: Disaster recovery capabilities

D7: Monitoring, auditing and testing
- SO 21: Monitoring and logging policies
- SO 22: Exercise contingency plans
- SO 23: Network and information systems testing
- SO 24: Security assessments
- SO 25: Compliance monitoring

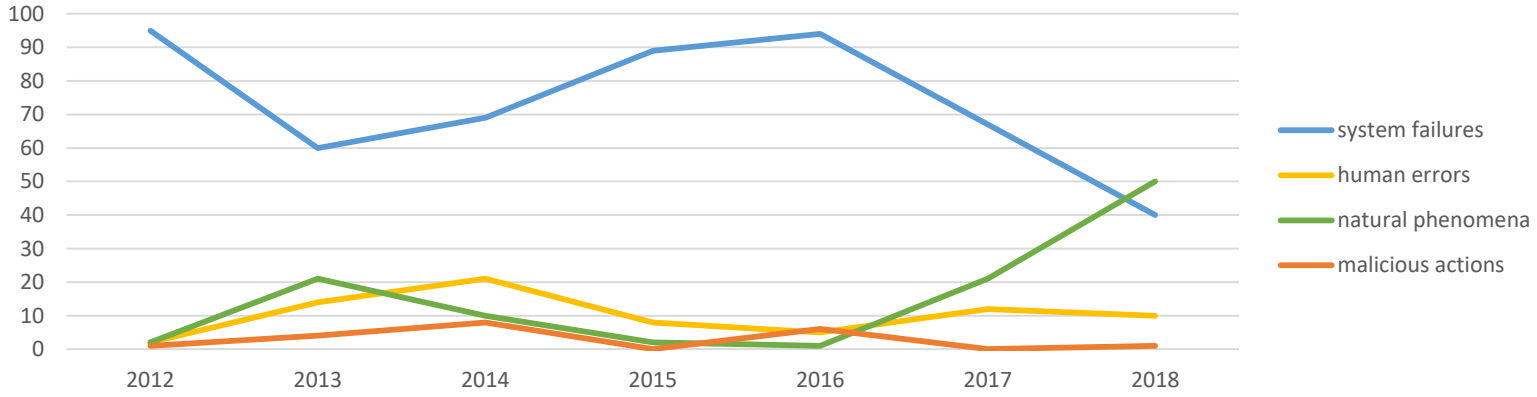
EU TELECOM SECURITY BREACH REPORTING OVER THE YEARS



Root cause categories Telecom security incidents in the EU - reported over 2012-2018



User hours lost per root cause category - multiannual 2012-2018 (percentage of total user hours lost)



See also the online visual tool for analysing the incidents and diving into the ~1000 reports
https://www.enisa.europa.eu/topics/incident-reporting/for-telcos/visual-tool

OTHER ENISA TELECOM SECURITY WORK

- 2018 paper on the security issues with the SS7 interconnection protocol
- 2018 paper on the security exceptions to the EU net-neutrality rules
  - In collaboration with BEREC
- 2019 paper on BGP security (7 steps to shore up BGP)
- Ongoing work on security supervision under the EECC
  - ENISA paper on security supervision under the new EECC
  - Draft was reviewed by BEREC
  - to be published very soon
- Ongoing work on 5G security, within the NIS Cooperation Group
  - BEREC is part of the 5G work stream (the BEREC adhoc working group on 5G)

NIS DIRECTIVE IN A NUTSHELL

- **Chapter I: General provisions**
  - Boost overall level of cybersecurity
  - Minimum harmonization approach (go beyond)
- **Chapter II: National cybersecurity capabilities**
  - Designate national competent authorities and SPOC
  - Establish a national CSIRT
  - Adopt a national cybersecurity strategy
- **Chapter III: Cooperation**
  - EU-wide NIS Cooperation group
  - EU-wide CSIRT Network
- **Chapter IV: Security of essential services**
  - Includes IXPs, DNS, TLDs
  - National approach, ex-ante supervision
- **Chapter V: Security of digital services**
  - Includes cloud services, marketplaces, search engines
  - EU approach, light touch, ex-post supervision
- **Chapter VI: Standardisation and voluntary notification**

Policy	Sector	Subsectors
NISD OES – Article 14	**Energy**	Electricity
		Oil
		Gas
	Transport	Aviation
		Rail
		Maritime
		Road
	Finance	Financial market infra
		Banking
	Health	
	Drinking water	
	Digital infrastructure	IXP, TLDs, DNS providers
NISD DSP – Article 16	**Digital service providers**	Online marketplaces, online search engines, cloud computing providers
Article 19	**Electronic trust services**	Electronic trust service providers (TSPs) like certificate authorities
Article 13a	**Electronic communications**	Electronic communication providers, telcos and OTT service providers (EECC)

NIS Cooperation group

NIS Cooperation group
Chair: Rotating with EU presidency
Secretariat: European Commission

Biannual Work program
2018-2020

WS1: OES Identification criteria (led by DE)	WS2: OES Security measures (led by FR)	WS3: Incident reporting (led by RO) (previously NL/PL)	WS4: Cross-border dependencies (led by EE)	WS5: Digital service providers (NL previously IE)
WS6: Cybersecurity of EP elections (led by EE/CZ)	WS7: Large scale incidents (blueprint) (led by FR/ES)	WS8: Energy sector (led by AT)	WS9: National Cyber capabilities (led by AT/UK)	WS10: Digital infrastructure (led by PL)
				WS on 5G cybersecurity

ENISA supports all work streams with drafting, research, analysis, surveys, exercises, etc.

Article 13a group
eComms security
(chaired by NL)

Article 19 group
eTrust security
(chaired by AT)

5G CYBERSECURITY ACTIVITIES

NIS Cooperation group work stream on 5G

Part 1: National 5G risk assessments (NIS CG document)

Output: EU coordinated risk assessment of 5G networks security

Published 9 October https://europa.eu/rapid/press-release_IP-19-6049_en.htm

Part 2: ENISA Threat landscape (ENISA paper)

Detailed overview of technical assets and threats

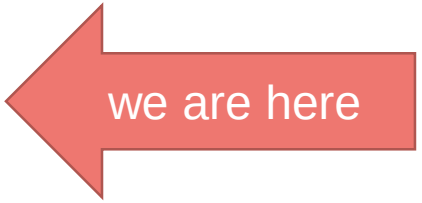
https://www.enisa.europa.eu/publications/enisa-threat-landscape-for-5g-networks

Published 21 November

Part 3: 5G Toolbox (NIS CG document)

Due end of 2020

Work almost done, final drafting stages



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