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Move securely within the cyberworld

New Trends in InfoSec, Cybersecurity and Supply Chain Attacks

Cloud Cybersecurity Fortress of Open Resources and Tools for Resilience (CyFORT)

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- **itrust**: acronym of
  'Information: Techniques and Research for Ubiquitous Security and Trust'
- An SME from Luxembourg specializing in Information Security Systems
  - CISOaaS, DPOaaS, Internal Audits (Technical, Compliance, hacking)
- High-turnover from co-funded R&D over past years (28%, 10%, 13%, 17%…)
- Start-up of the year 2008
- Current staff: ~18 persons
- Turnover ~1,5 M€ since 2013
- Customer:
  - Public sector
  - Energy sector
  - SME and industries

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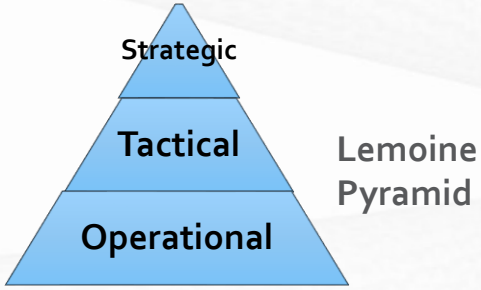
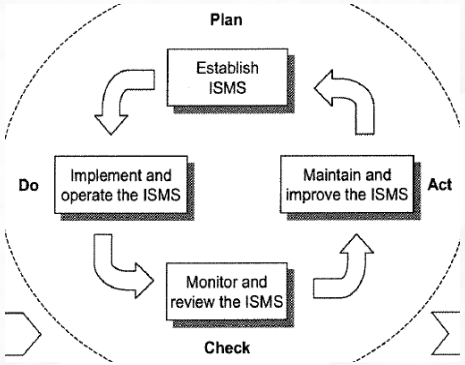
- **Norms related to the management of Information Security**

Terminology	ISO 27000				
Requirements	ISMS Requirements IS **27001:2013**	Certification Requirements IS 27006		TISAX RESULT AVAILABLE	Règle technique d'exigences et de mesures pour certification des PSDC
Guidance (for all domains)	Code of Practice IS 27002:2022	Implementation Guidance IS 27003:2017	Management Measurements IS 27004:2016	Risk Management IS 27005:2018	
Domain-specific guides	Telecom. IS 27011:2016	Health IS 27799:2016	Process control systems – Energy TR 27019:2017	TISAX RESULT AVAILABLE	
Toolbox of techniques	Storage security 27040	Incident Management TR 27035-x	Intrusion Detection IS 17039	IT Network Security IS 17033-x	

- Common structure for all management system (ISO 9000, 14000…)
- But RISK driven!



Lemoine Pyramid



InfoSec: ISO 27002:2022 (NEW!)

- **Old themes**
  - 5 Information security policies
  - 6 Organization of information security
  - 7 Human resource security
  - 8 Asset management
  - 9 Access control
  - 10 Cryptography
  - 11 Physical and environmental security
  - 12 Operations security
  - 13 Communications security
  - 14 System acquisition, development and maintenance
  - 15 Supplier relationships
  - 16 Information security incident management
  - 17 Info.Sec. aspects of business continuity mgt
  - 18 Compliance

- **New**
  - 5 Organizational controls (37)
  - 6 People controls (8)
  - 7 Physical controls (14)
  - 8 Technological controls (44)
  - **Total of 93 controls/safeguards**

- **To be done:**
  - **Adapt**
    - Policies,
    - Risk treatment
    - Audit

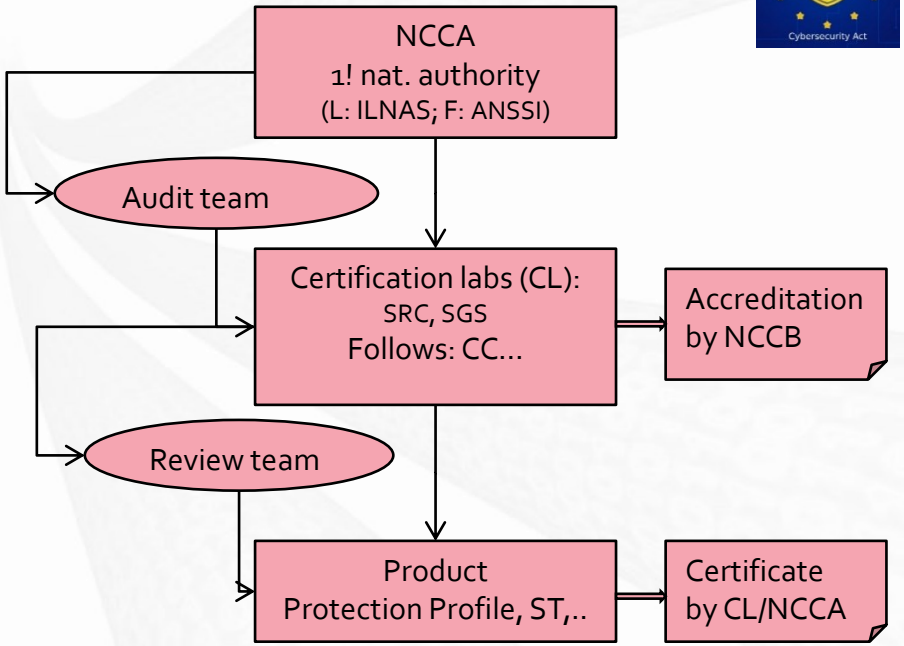
- **Legal context**
  - **2016: GDPR,** focused on data privacy for both individuals and legal entities.
    - obligation to proof compliance to principles, for incident reporting,
    - high penalties by CNPD possible.
  - **2016: eIDAS,** establishing guidelines for electronic identification and transactions.
  - **2017: NIS Directive,** proposing measures aimed at ensuring a high common level of security of the European Union **networks and information systems**.
    (NIS 2.0 in work, to expand the scope, add supply chain security…)
    - Obligation to report incidents and risks, to implements measure on request by ILR/CSSF
  - **2020:** a new **European cybersecurity strategy** setting **certification as a priority**
  - **Next: DORA (Digital Operational Resilience Act)** creates a regulatory framework on digital operational resilience whereby all firms need to make sure they can withstand, respond to and recover from all types of ICT-related disruptions and threats.
    - Exists as Project; similar penalties than for GDPR.

- **Cybersecurity act (CSA)**
  - **REGULATION (EU) 2019/881 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 April 2019 on**
    - ENISA (the European Union Agency for Cybersecurity) and
    - on information and communications technology cybersecurity certification and repealing Regulation (EU) No 526/2013 (Cybersecurity Act) (Text with EEA relevance)

- **Article 1 Subject matter and scope**
  1. **ENISA**
  2. **a framework for the establishment of European cybersecurity certification schemes for the purpose of ensuring an adequate level of cybersecurity for ICT products, ICT services and ICT processes** in the Union, as well as for the purpose of avoiding the fragmentation of the internal market with regard to cybersecurity certification schemes in the Union.

- **Cybersecurity act (CSA)**
  - certification schemes in the Union.

Level	What is tested?	Objective	Minimum assesstment
High	Compliance and robustness	Preserving sovereignty, protecting the citizen and industry from criminal organizations	Pentesting State-of-the-Art attacks
Substantial	Compliance and robustness	Prevent scalable attacks on medium/high cost devices	Absence of public vulnerabilities Compliance testing
Basic	Compliance	Prevent massive attacks on low-cost devices	Technical documentation review Self-assessment



- **Trend:**
  - New ISO 15408... to be published v.soon
  - Focus here: Product certification

More compliance/certification needed to access EU markets

Supply chain attacks

- **Definition**
  - a (cyber-)attack that seeks to damage an organization by targeting less secure elements in the supply chain.
  - Cybercriminals typically tamper with the manufacturing or distribution of a product by installing malware or hardware-based spying components
- **Growth**
  - Symantec's 2019 Internet Security Threat Report states that supply chain attacks increased by 78 percent in 2018…
  - Supply chain cyberattacks jumped 51% in 2021 (Source: TechRepublic)
  - See Enisa monthly reports (not public, but green)

enisa

OSINT REPORT

Covering: 1 June – 7 June 2022 | TLP GREEN | Publication: June 7, 2022

Annual statistics:

DOMAIN	
FAR	59
GLOBAL	66
MID	47
NEAR	266

CATEGORY	
APT	45
Cyber-attack	191
Cybercrime	138
Cybersecurity	38
Cyberwarfare	14
Espionage	31
Geopolitics	61
Hacktivism	16
Poor security measures	7
Possible cyber-attack	14

SECTOR	
All Sectors	41
Arts sector	1
Construction industry	7
Critical Infrastructure	6
Education/Academic	15
Energy sector	21
Facility services	7
Finance sector / Banking	44
Food industry	11
General public	52
Healthcare/Medical	45
Industrial	19
Insurance	1
ISP	4
Legal	4
Mail/ Shipping services	4
Maritime sector	5
Media sector/ Entertainment industry	28
Military	14
Non-Government Organisations	7
Not enough information	3
Political organizations	5
Private sector	20
Public administration/Government	123
Religious organizations	2
Research	5
Retail/Commerce	14
Software supply chain	1
Space sector	3
Sports sector	1
Targeted individuals	23
Technological	34
Telecommunications	11
Transportation sector	17

TYPE	
Backdoor	13
Banking trojan	2
BGP hijack	2
Blackmail	1
Breach/Intrusion	75
Credential harvesting	2
Credential stuffing attack	1
Defacement	4
Domain hijacking	1
DoS/DDoS/RDoS	55
Exfiltration/ Data leakage/Breach	60
Exploitation	14
Fraud/Impersonation/Counterfeit	34
IoT botnet	6
Malware	71
Miner/Crypto	6
Misinformation/Disinformation	4
Multiple	7
Not enough information	45
Ransomware	113
RAT	6
Skimmers/Magecart	4
SMShing/Vishing	11
Social Engineering	7
Software supply chain	1
Spear phishing/Phishing	76
Spoofing	1
Spyware	8
Stealer	2
Trojan	4
Warning	35
Watering hole	2
Zero Day	6

Supply chain attacks

- **Examples**
  - **Compiler attack (2019): Corrupted Apple's XCode and Microsoft Visual Studio**
  - **Target (US retailor) (2013,$61 Mio loss, hacker entered through third-party access**
  - **STUXNET**
    - malicious computer worm entering over USB and modifying PLC to give unexpected command
    - believed to disturb the uranium enrichment programs in Iran.
  - **NotPetya (2017) targeted financial package in Ukraine via a provider**
  - **SolarWinds (2020):**
    - infiltrating the security and monitoring software ORION,
    - Victimes: Microsoft, National Nuclear Security Administration (NNSA), Department of Homeland Security, and ~30k customers worldwide
  - **Ransomware attacks combined to supply chain**
    - **on** Colonial pipeline (May 2021): Urgent US Act to ensure fuel transports, Biden warning Putin
    - thousands other companies targeted (1 July 2021)

Current solutions

- A set of Policy, Procedures, Excel tables to document compliance
  - To copy/paste, then tailor
- A risk assessment and treatment tool (TRICK service)
- A structured approach for audits and reviews
- Services:
  - Pentests…
  - Technical advice (crypto…)

New: IPCEI-CIS CyFORT

- CyFORT = Cloud Cybersecurity Fortress of Open Resources and Tools for Resilience
  - An new integrated 3-year EU project, similar to Gaia-X,
  - started with 6 people involved at itrust consulting
- Each of our Work packages creates an open-source or free-to-use tool:
  1. IDPS-ESCAPE: Tackling Supply Chain Attacks (on intrusion detection capabilities)
  2. SATRAP-DL: Enhancing threat intelligence
  3. C5-DEC: Common Criteria for Cybersecurity, Crypto, Clouds – Design Evaluation and Certification (on Requirement engineering and testing)
  4. DLT-PSaaS: Distributed Ledger Technology: Pseudonymization as a Service
  5. CS-GRAM: Cloud services – Governance, Risk management, Audit, and Monitoring
  6. PQC-MAT: Paving the way to a quantum-secure cloud-edge infrastructure
- During the project,
  1. integrate specific needs (TISAX, cloud regulation…)
  2. coach partners and interested parties (Focus on Energy and Industry) to use these tools.

Conclusion – Hints

1. **Be prepared to be attacked**
   - Not only your IT, but now also
   - your operation technology (OT).
2. **Invest in documentation/justification to demonstrate compliance (see penalties),**
3. **Follow technical vulnerabilities and patch (listen to your technical managers).**
4. **Get your (IT-OT-related) product certifiable/certified.**
5. **Prepare for more resilience in your supply chain contracts.**

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