Generic methodology for a systems-approach to conformity assessment for cybersecurity as the basis for a UN CRO guidelines

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

Cybersecurity environment

All at risk

- Data theft
- Corporate hacking
- Critical infrastructure
- Smart grid
- Smart manufacturing
- Smart cities
- Smart homes
- Internet of things
- Railway systems
- Air transport systems

  and so on

IEC Cybersecurity activities

ACSEC

- A standards development (SD) initiative to understand the current global situation concerning standards with cybersecurity elements.
- >650 standards found
- >50 standards development organizations

IEC Cybersecurity activities

IECEE

- Full global CA services for cybersecurity based on IEC 62443 series
- CA services for cybersecurity launched at a workshop held in Chicago in November
- Cybersecurity CA services for…
  - Industry automation
  - Critical infrastructure
  - Railways
  - Information services

    etc

IEC Cybersecurity activities

CAB WG17

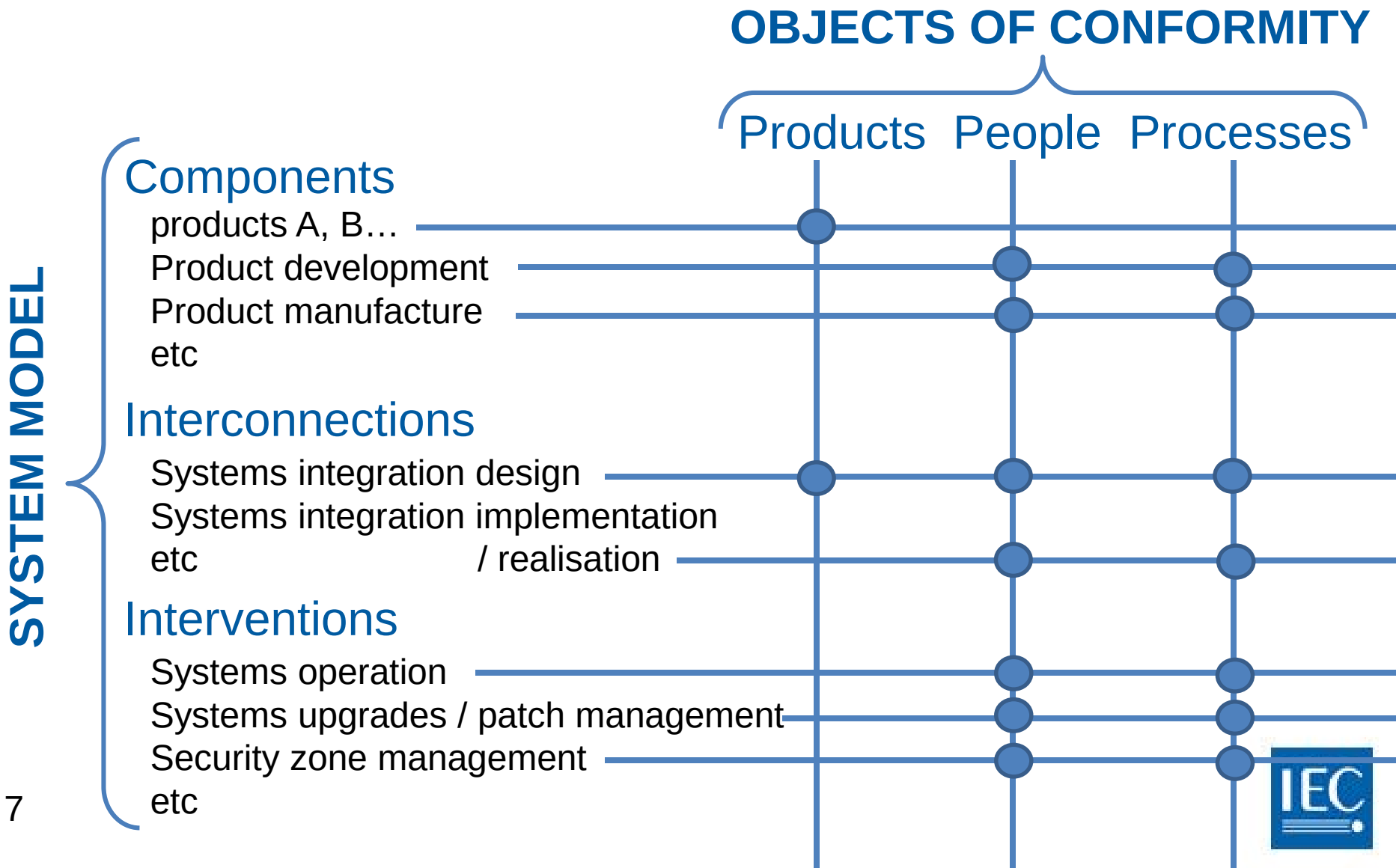
- To investigate market needs and timeframes for global CA services in cybersecurity
- To investigate national regulatory responses to the market needs for cybersecurity.
- To propose a systems-approach to CA for cybersecurity.

UNECE & IEC

Collaboration

- To develop a proposal for a sectorial initiative on cybersecurity
- To propose a tool for use by governments, regulators, asset-owners and industry
- A systematic methodology of systems modelling, risk & requirements gap analysis, determination of system-wide CA needs and then implementation and review.

Systems-approach to CA



Generic Matrix Model (GMM)

		Objects of conformity					
Activities	**Who**	**Products**		**People**	**Processes**		
Components							
Systems components development	Component producers Asset Owners	IEC 62443-4-2	Technical security requirments for IACS components		IEC 62443-4-1	Product Development Requirements
Systems components manufacture	Component producers Asset Owners (?)	??			??	
Interconnections							
System intergration design	Systems designers Asset Owners				IEC 62443-2-4	Requirments for IACS solution suppliers
System intergration implementation / realisation	Systems builders Asset Owners				??	
Interventions							
Systems operation	Asset Owner Service provider				IEC 62443-2-1 IEC 62443-2-2	IACS security management system - Requirments IACS security managemnt system - Implementation
Patch management	Asset Owner Service provider				IEC 62443-2-3	Patch management in the IACS environment
Security solutions implementation/realisation	Asset Owner Service provider				IEC 62443-3-1	Security technologies for IACS
Zones	Asset Owner Service provider				IEC 62443-3-2	Security assurance levels for zones and controls
Security auditing	Asset Owner Service provider				IEC 62443-3-3	Systemsecurity requirements & security assurance levels

Systematic Methodology

periodic

1) Map sector application to generic matrix model
2) Risk analysis of sector application map
   - o Identify and rate risk points
3) Determine appropriate level of CA for each risk point according to risk level rating
4) Identify requirements documents (standards)
   - o Determine what is available/appropriate
     → standards gap analysis
   - o Determine how to fill the gaps – SD
5) Apply appropriate CA to appropriate standards at each risk point

Revue, revise, renew (R3)

Next Steps

1) Validate the Generic Matrix Model (GMM) approach

2) Obtain sector-specific GMM
   - Critical infrastructure (Oil/gas, Nuclear, Electric grids, etc)
   - Railways
   - Cloud computing
   - Smart energy
   - Smart factory
   - Smart buildings

3) Develop risk analysis and ranking methods

4) TBD

Thank you

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