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Event: Traceability & eBusiness webinar
Date: 22 10 2020
Location: Virtual Meeting

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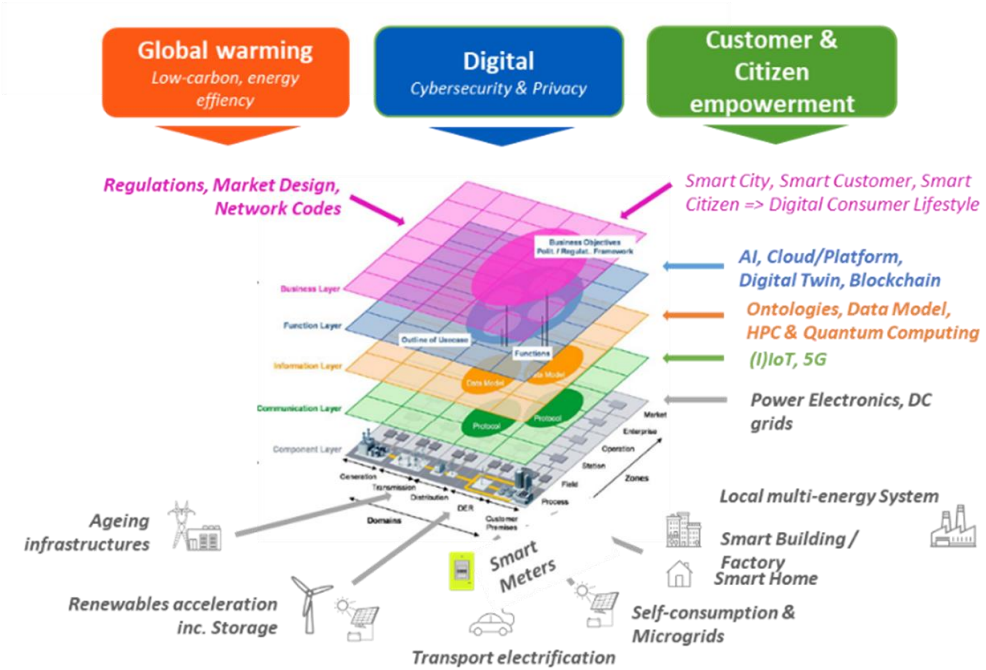
International Electrotechnical Commission

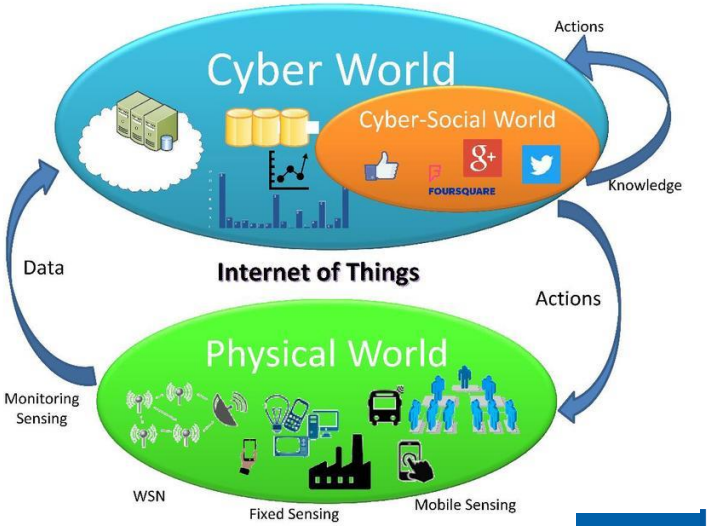
Traceability in power industry

The International Electrotechnical Committee (IEC) will present how the power industry is evolving and using IEC standards leveraging traceability standards for concrete purpose such as Asset Management, Metering and Cybersecurity.

Evolution of power industry

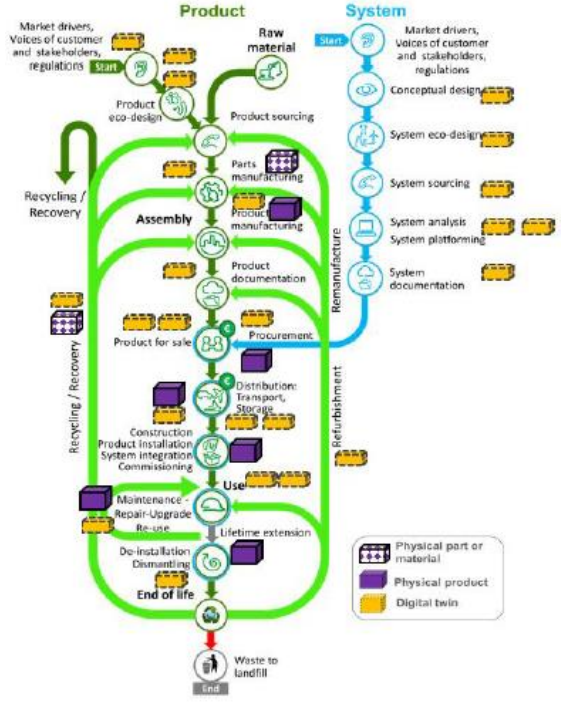
Power industry is entering in a very complex world with a ‘phygital paradigm’





Evolution of power industry

… with a need of digitalization along the whole product life-cycle



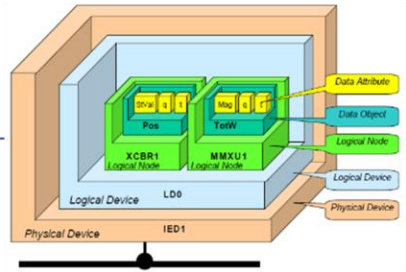
Segment vs language	Utilities	Oil & gas	Buildings	Other ?
Product design	IEC TC17 & TC38 & TC95 & TC57 & TC		BIM	TC99 10303 TC184 /SC4
Smart manufacturing	ISO/IEC/IEEE 24765 (Software providers)			
System design	ISO/TC184 & ISO/IEC TC65 & ISO/IEC JTC			
Procurement	CIM IEC 61850 BIM	ISO PIP	BIM	
Commissioning	IEC 61360-2 (CDD) & ISO 13584-42 (ecl@ss)			
Operate and maintain	CIM IEC 61850	15926		
Disposal	IEC 62474 (Substance declaration)			

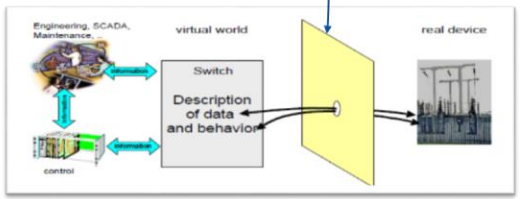
Evolution of power industry

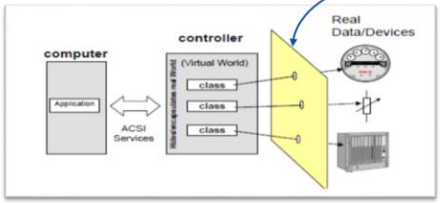
… and ‘digital twin’ standards

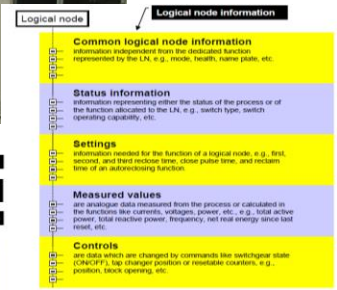
MAIN CONCEPTS OF THE DATA MODEL OF IEC 61850 – COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION

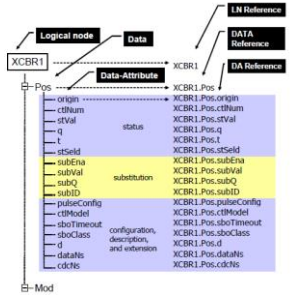
The logical nodes (LN) is the heart of the model, linking the physical device to the logical device and its data





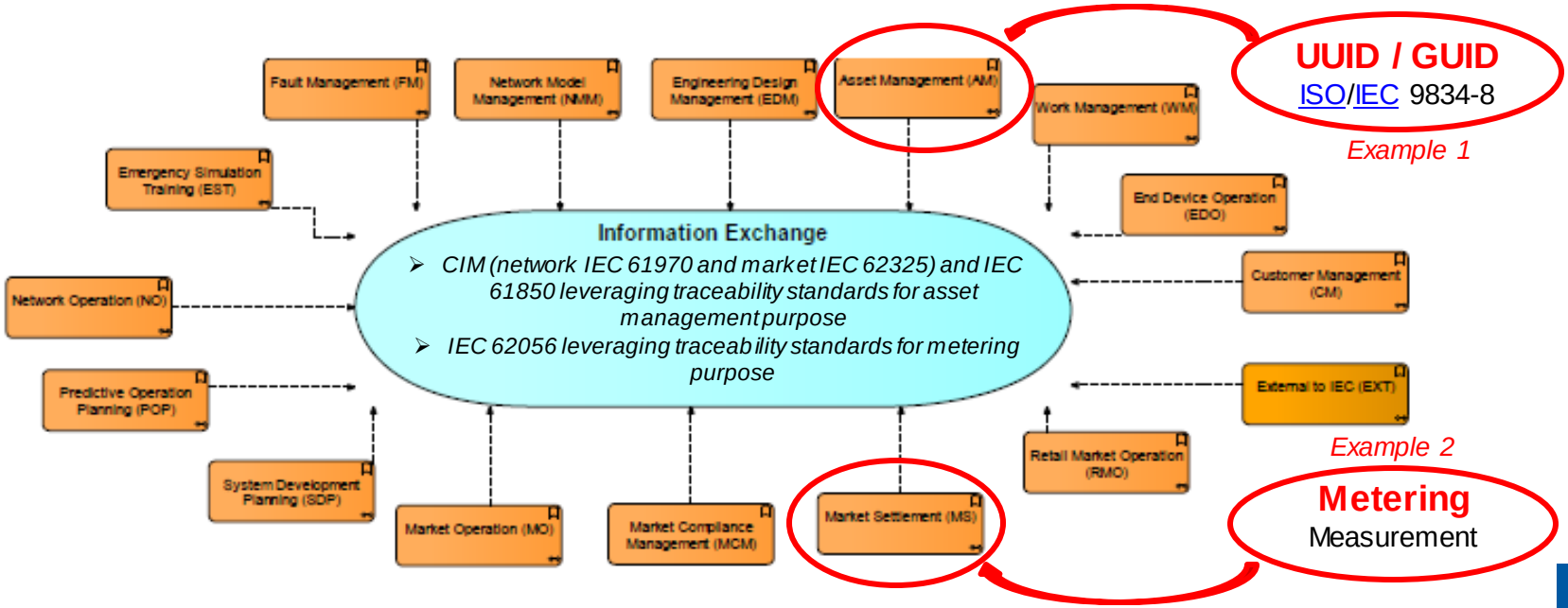






Traceability in power industry – concrete examples

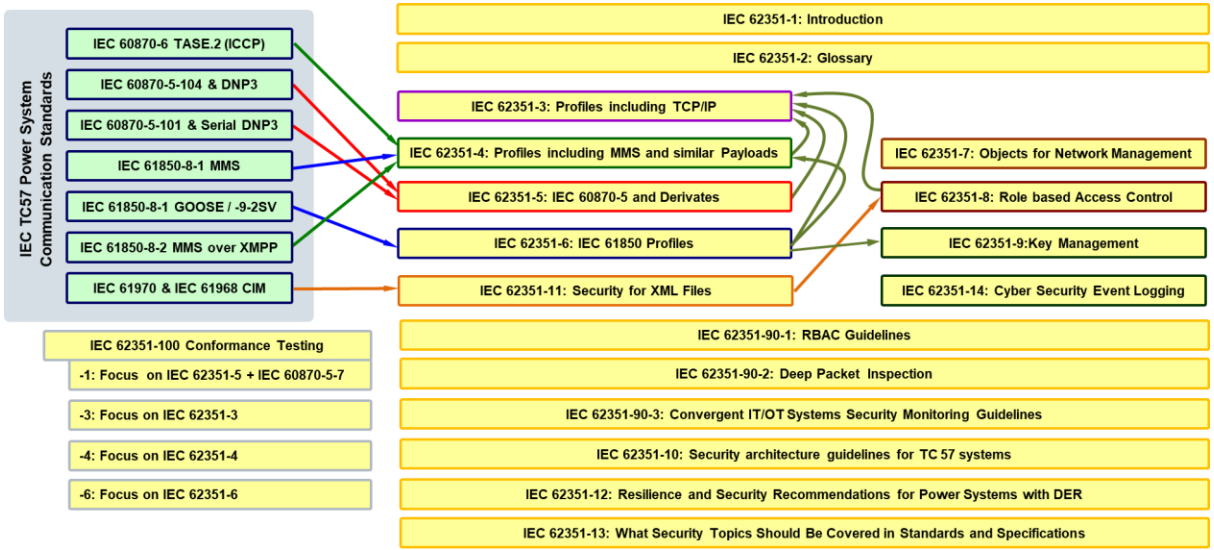
A comprehensive vision of the traceability needs based on IRM (Interface Reference Model)



→ *Traceability can include the operational tracking of an asset (merchandise, pallet, container), to know where it is on the supply chain*
→ *Traceability can include regulatory compliance of merchandise, to ensure that regulations (economic, social or other) have been respected, especially when crossing borders*

Traceability in power industry – concrete examples

Traceability to improve cybersecurity…



Security means defined for

- Authentication and authorization (RBAC – Role Based Access Control)
- Secure IP- based and serial communication
- Secure application level exchanges
- Security monitoring and event logging
- Test case definition
- Guidelines for applying specific security measures

by utilizing or profiling

- existing standards and recommendations

→ Traceability can also include technical visibility of all the data exchanges, to ensure that the information has not been compromised or changed

Traceability in power industry - Conclusion

- No gaps identified at this point in time

- Traceability standards should consider and be ‘resilient at scale’ due to the massive and increasing number of assets and information exchange
  - Unique at scale (massive number of assets and information exchange)
  - Energy efficient at scale

- Use of Blockchain at scale in power industry is an outstanding question

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