

# CIM Knowledge Transfer

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SMART  
GRID  
FORUMS

Common Information  
Model 2020

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# Topic

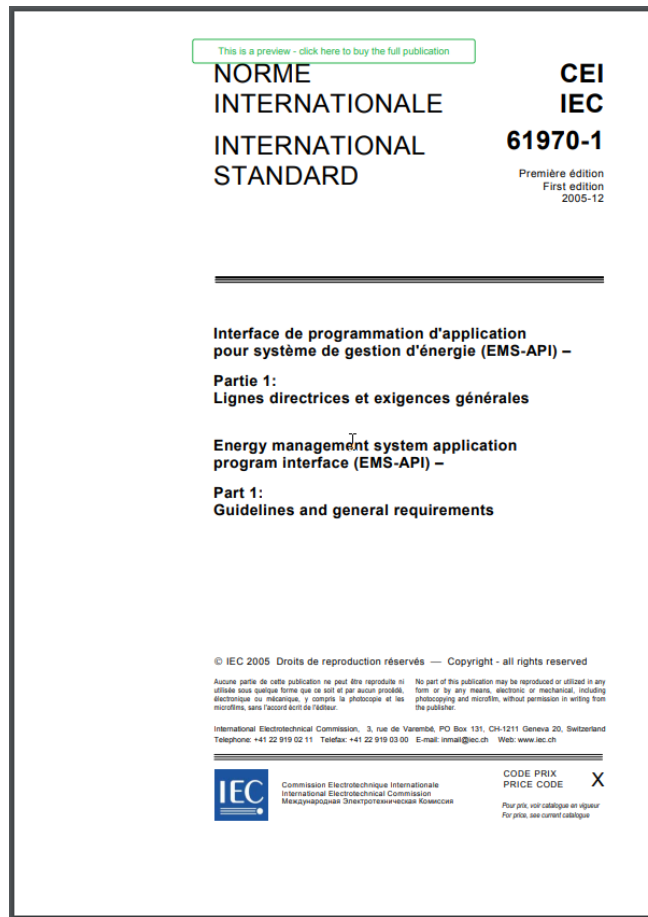
- Developing a CIM training framework
- Defining a strategy for engaging external consultants
- Investing in CIM education
- Education IT teams <-> Power System teams
- Leveraging expertise
- Measuring the impact of CIM knowledge transfer

# CIM Knowledge Transfer Framework

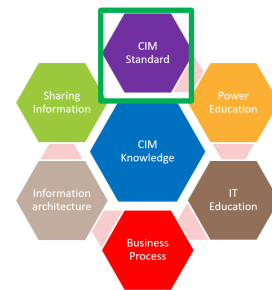


# CIM Standard

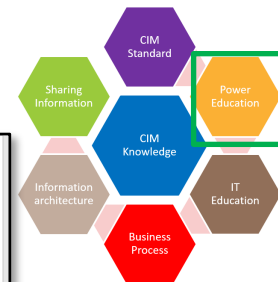
- Everything starts with the standard document!
- CIM Standard document needs to be:
  - Complete
  - Accurate
  - Current
  - Understandable
  - Clear normative requirement
- IEC 61970-1 will be updated



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# Power Education

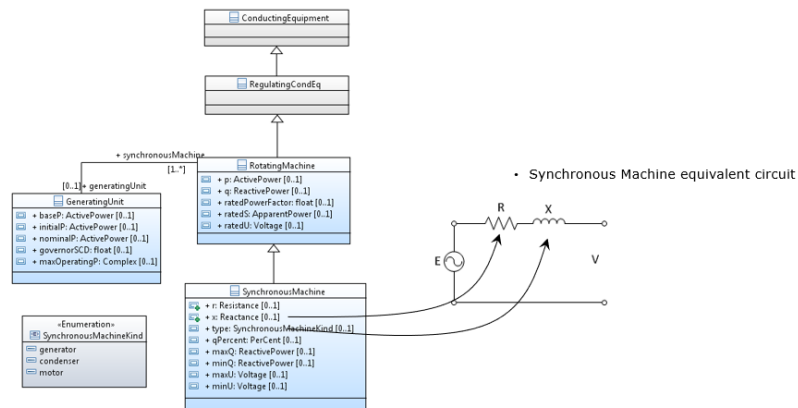


## CIM Definition

Class definition for st

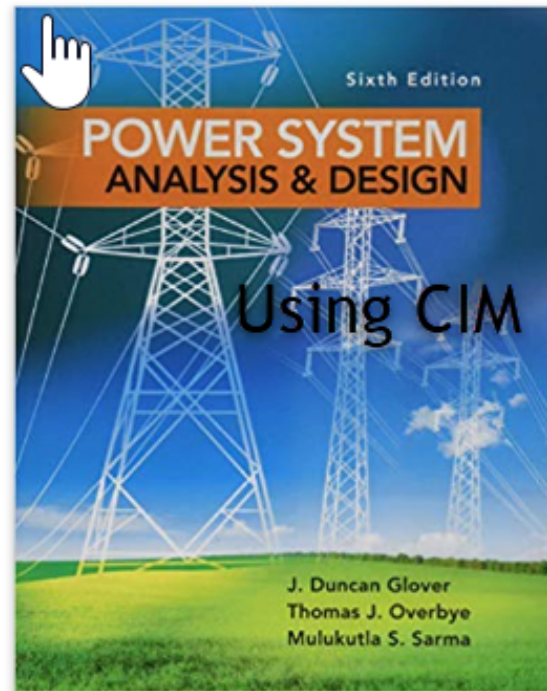
Smart  
Smart Transmiss

## Synchronous Machine Model

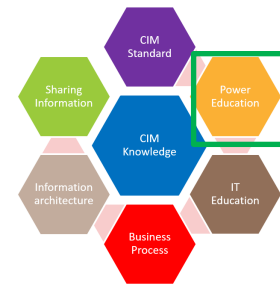


# Power Education

- Power Engineering is highly dependent on IT application
- The Power Engineer needs to understand what the IT application understands:
  - Input data
  - Algorithm
  - Output data
  - Uncertainty
- IEEE and CIM are both relevant for the teaching of Power Engineers



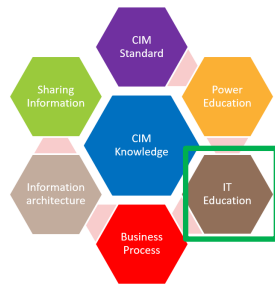
NOTE: Manipulated image



# IT Education

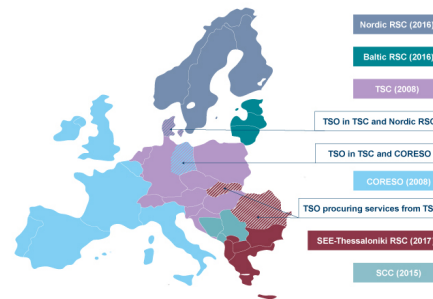
- IT Engineering need to understand the importance of Modelling Languages as:
  - Unified Modeling Language (UML)
  - Open Group ArchiMate
- Current technology:
  - Extensible Markup Language (XML)
  - XSD (XML Schema Definition)
  - Resource Description Framework (RDF)
  - RDF Schema (RDFS)
- Emerging technology:
  - JSON (JavaScript Object Notation)
  - JSON-LD (Linked Data)
  - GraphDB and TripleStore
  - Shapes Constraint Language (SHACL)
- CIM standard becomes a common language between IT Engineer and Power Engineer

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# Business Process Training

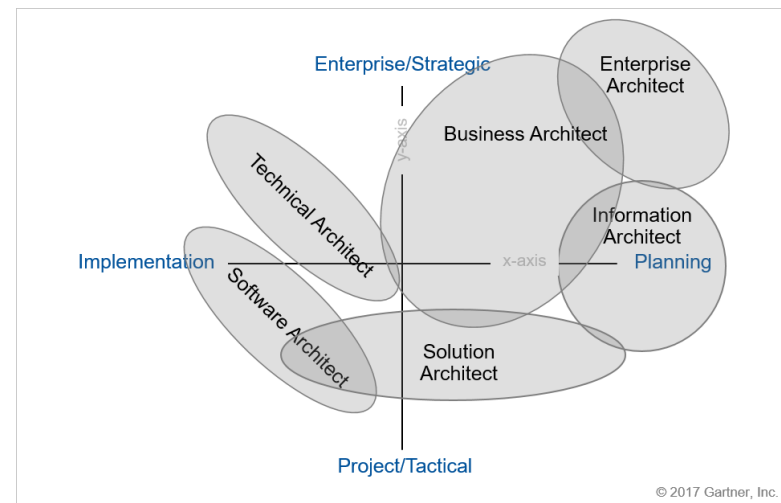
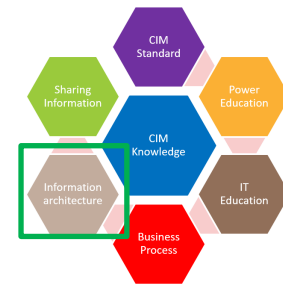
- The focus here is to understand how CIM is used to solve a given problem.
- Different Business Process owners need to find adequate training related to implementing the relevant business process.
- CIM has its primary benefit for cross-organisation business process. But external processes do impact internal ones.
- Example of business process:
  - Common Grid Model (CGM) process
  - Ten-year network development plan (TYNDP)
  - ENTSO-E Transparency Platform
  - Meter data hub
  - Fault reporting
- Relevant training:
  - ENTSO-E CGMES Training
- Utilizing common consultant, vendor, training and practices
- CIM standards support communication between Power Experts across business processes





# Information architecture

- The use of CIM in the organisation – independent of the type of organisation
- CIM provides the Information Architecture with tools for semantic interoperability and context understanding
- Support the different role in the organisation with CIM knowledge:
  - In-house training
  - Best practice document
  - Consultant
  - Vendor
- CIM standard support communication among IT architects governed by process owners



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# Statnett CIM Training Program

- CIM for Management
- CIM for System Architect
- CIM for Developer
- CIM for Power Analytic
- CIM for Asset Management
- CIM for Market
- CIMdesk training
- Hands-on training



# Sharing Information

Sharing of material

Sharing of implementation / Open Source

Video training

Consultant

CIM User Group

- WebSite (member area and open area)
- CIMug Meeting
- CIM University
- CIM Project presentations
- Next European Meeting in Amsterdam, June 2-4 2020

EPRI

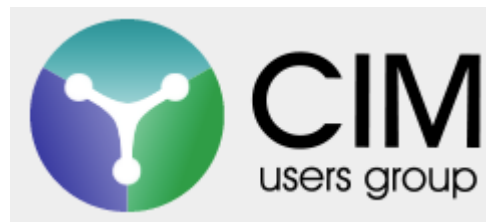
- EPRI CIM Primer (free download)

ENTSO-E

CIMTool

- Open Source Tool

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# Summary

- Developing a CIM training framework
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Thanks

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