

Smart Storage

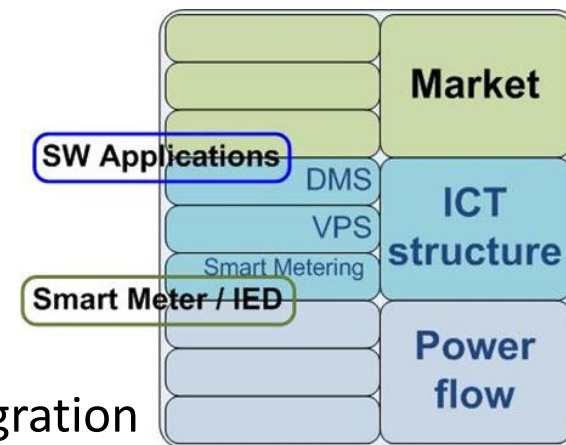
ICT as a key technology

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ICT role, trends and technologies



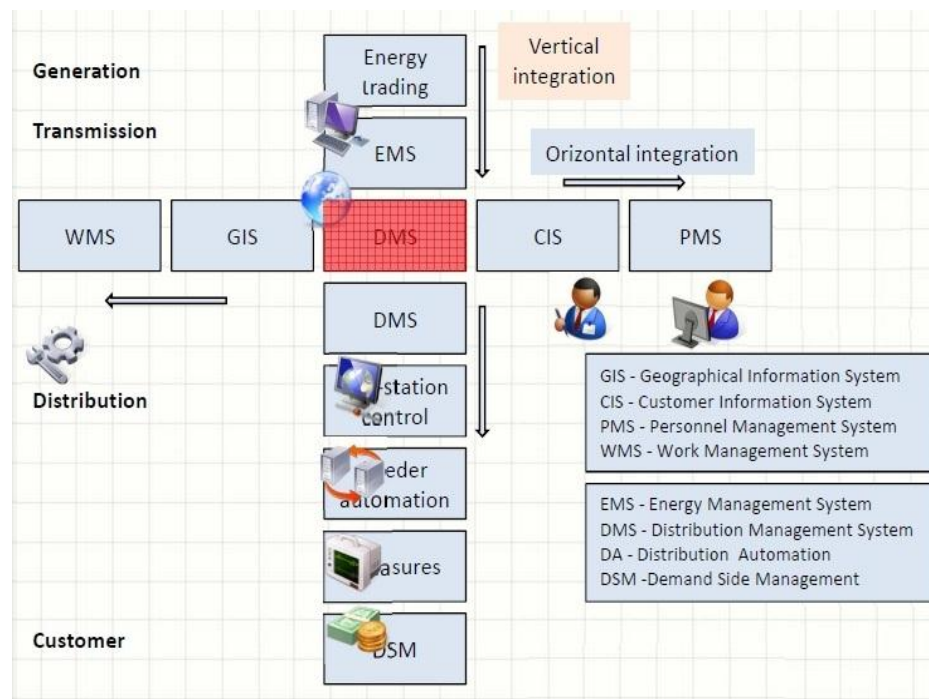
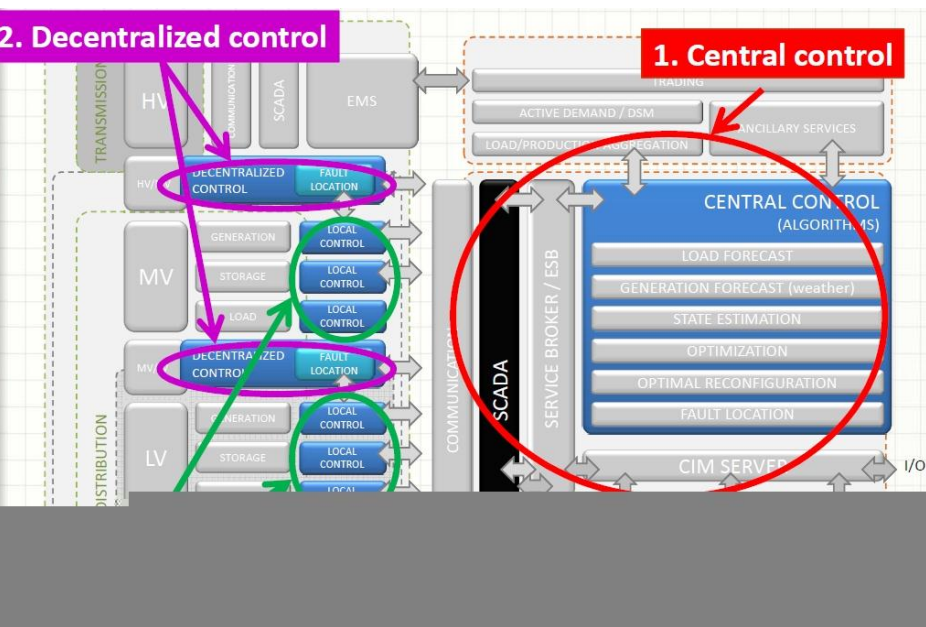
- ICT general trends – technology convergence and integration
- Energy, mechanical and thermal systems getting correlated
- New ICT based concepts such as SmartGrid, SmartCity ...
- Advanced monitoring, optimization and control needed!
- New business models are not possible without ICT solutions (such as Internet, SmartMeters, billing, CIS, DSM etc.)
- We must build an optimal ICT structure that optimizes in the most efficient way requirements of all stakeholders
- Key challenge: how to build an ICT structure to enable – **Smart Storage** – balancing demand-supply, tech-market ? Interacting with other SmartX!

How to build an optimal ICT structure!?

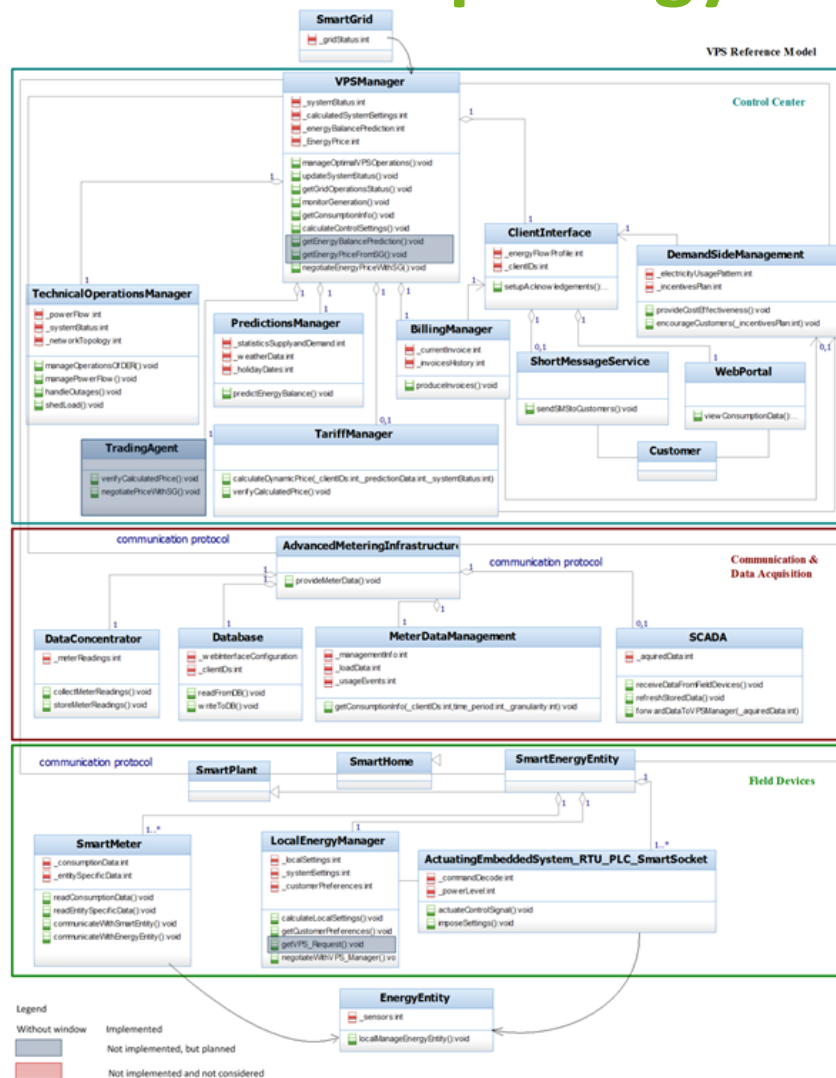
- Common communication model/platform
- An instrument to efficiently collect requirements (avoid early stage conflicts; see differences in various regions etc.)
- System requirements must reflect user requirements – technical, social and commercial! State of the art solutions considered
- We focus on commercial aspects as a show case
- We need inputs from various stakeholders to build methodology that should result in an reference architecture
- System engineering will help us correlate, extract and transfer best practices - getting common sense of the project as a whole!
- Efficient modeling instruments such as SysML and BPMN
- Results: scalable and portable ICT architecture to optimally satisfy needs from both sides clients and market

Modern power systems and storage integrations

- Local control -> Decentralized control -> Central control
- Distributed Management Systems (DMS)
- New applications - modules and improved existing ones



Reference architecture – AlpEnergy example



Use case – EV – mobile storage aggregation

- Aggregate storages to achieve better position at the market (i.e. ancillary services such as secondary reserve)
- External and internal negotiation/contracting – GeoGreen cell!

Contacts and more info

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Thank you for your attention!