

# **Big Data Technology , Applications in Electric Power System Operation**

**EPCC14, Session 4; Wiesloch, Germany**

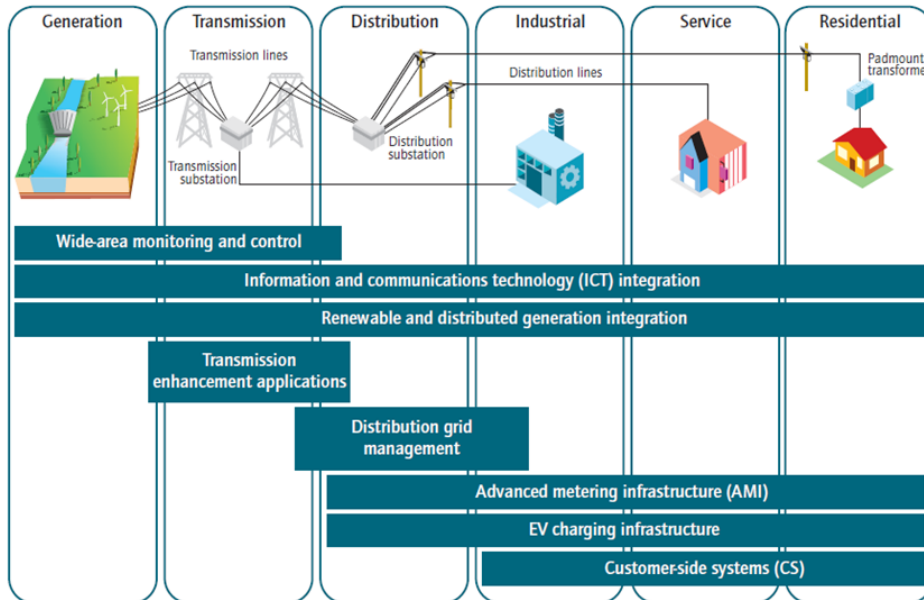
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## **Take Aways from this session**

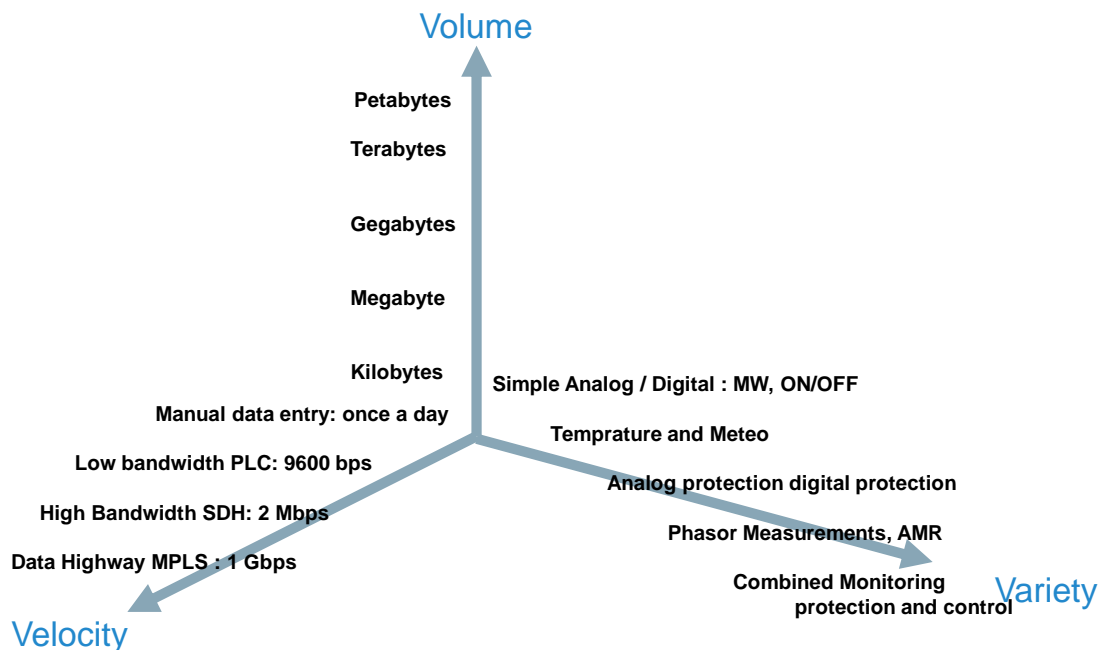
- To understand what is big data in context of power system
- Get idea of technologies in Big Data
- Practical applications / business cases for System Operations
- Ideas for Application in own field

# ICT -- influencing business of our industry IT and OT

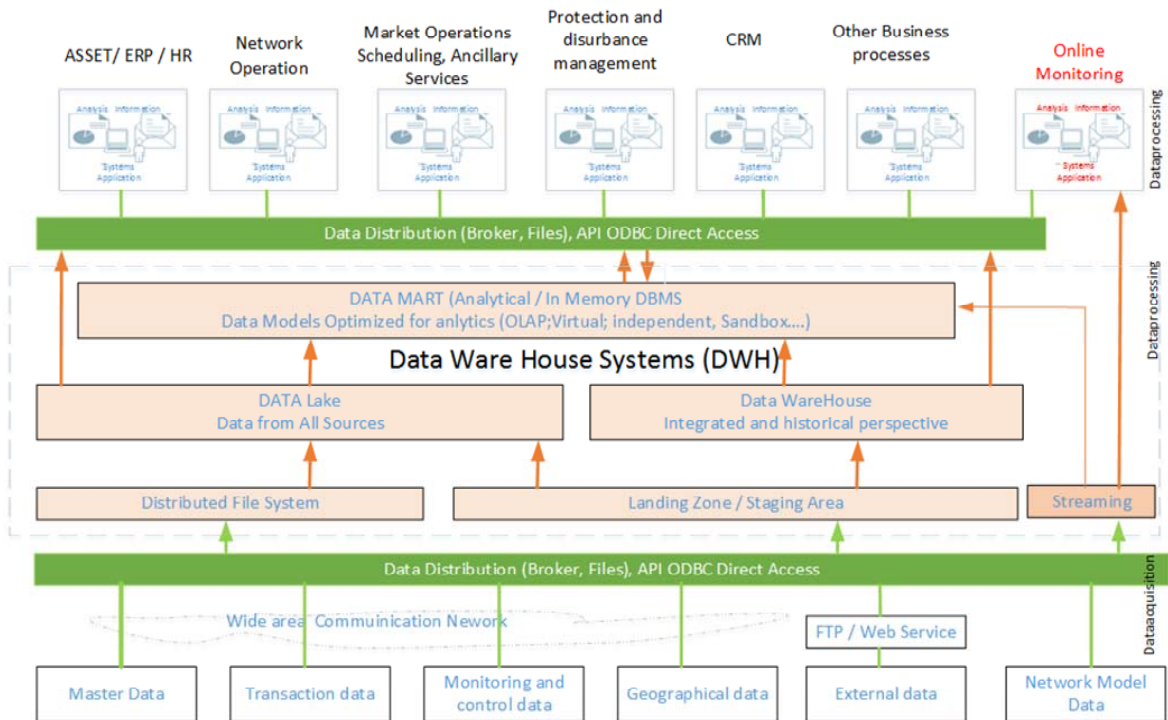


Source: Technology categories and descriptions adapted from NETL, 2010 and NIST, 2010.

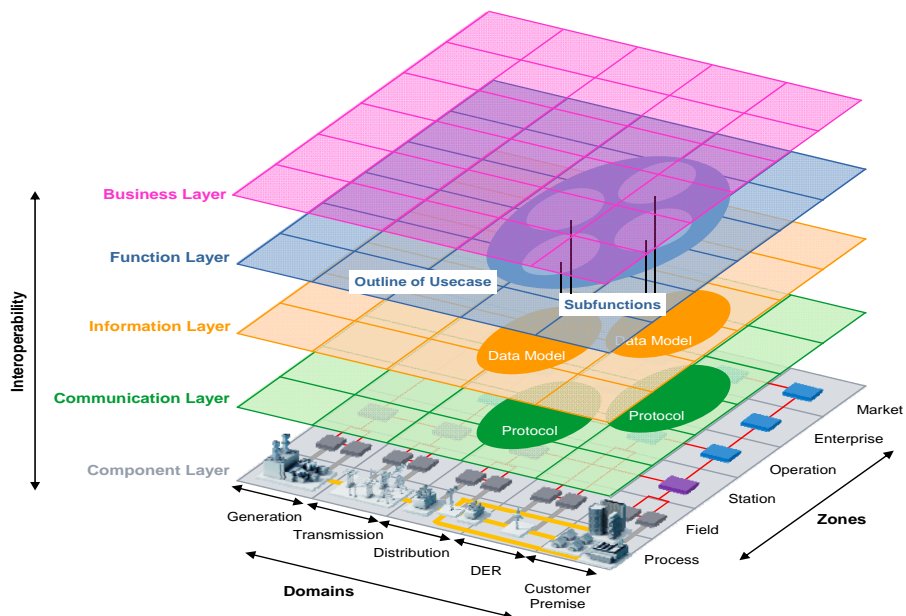
# 3V: Velocity, Volume, Variety Trends in Power System



# Architecture Big Data



# Smart Grid Architecture Model: Big Data context for Power System Operation



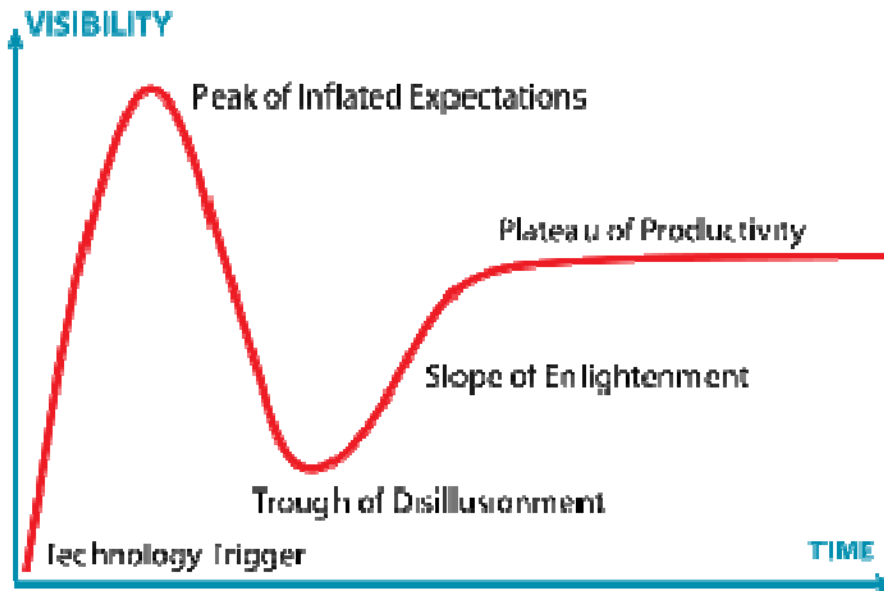
## SGAM LAYERS

- Business Layer
  - Represents business applications and regulatory requirements
- Service/Function Layer
  - Represents logical software functions or application independent from business specific implementations
- Information Layer (OSI 6-7)
  - Represents information objects or data models required to fulfill functions and to be exchanged and appropriately protected
- Communication Layer (OSI 1 – 5)
  - Represents protocols and mechanisms for the exchange of information between components
- Component Layer
  - Represents physical devices which host functions, information and communication means

## Session papers

	Presenter	Titel	
4.1	Louis Wehenkel Uni of Liege	Artificial Intelligence and Big Data are watching Power System	Overview
4.2	Theo Borst DNV-GL	A holistic Approach to digitization of utility system operation through effective data management	Concept
4.3	Christian Rehtanz Uni of Dortmund	Self-Organization and Autonomous functions in distribution substations with DER	Technology
4.4	Qian Feng NREC	The Application of Big Data Technology in the Power Dispatch Data Center of China South Grid	Practical case
4.5	Lars Nordström KTH ; Sweden	A Power Flow Description Language for Production Grade Power Flow Solvers	Technology
4.6	Per Andersson GoalArt, Sweden	GoalArt Root Cause Analysis at HOPS, Croatia	Practical use
4.7	Lars-Ola Österlund Brolunda Consulting	CIM Profiling With OWL	Technology
4.8	Jean-Marc Moulin GE, France	Solving the challenge of Big Data Analytics on multi source data in the OT/IT systems of utilities	Technology

## Big data and Power System Operations: Question : Where do we stand on Hype cycle



## Questions and Discussions.

