

Introduction on the ERIGrid project

Thomas Strasser

Center for Energy – Electric Energy Systems
AIT Austrian Institute of Technology, Vienna, Austria

*Workshop “Holistic System Validation, Methods
and Tools, Free Access to Best Smart Grid Laboratories”*

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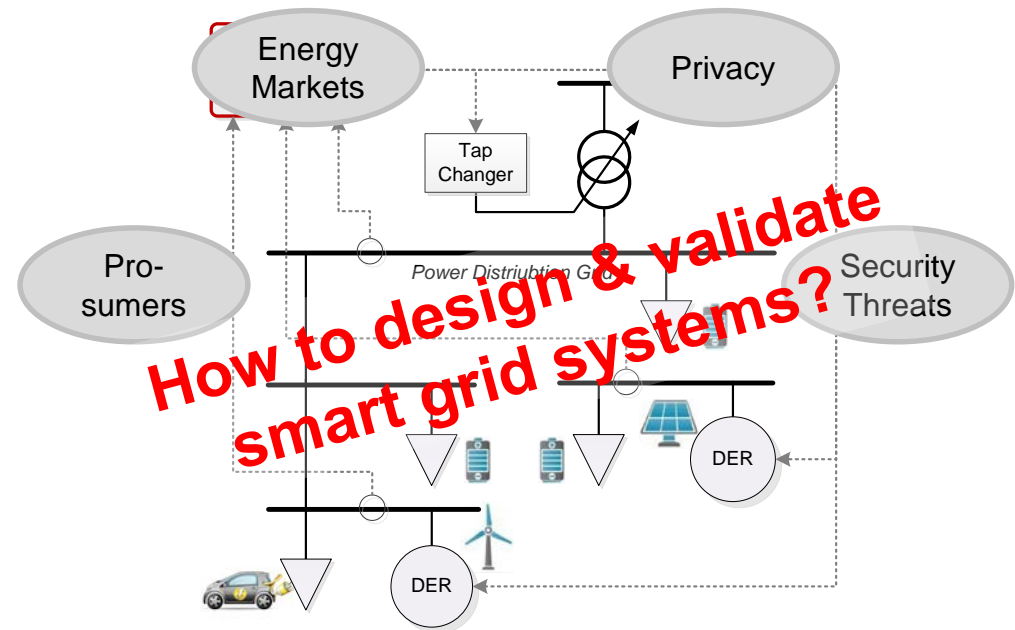


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Higher Complexity in Smart Grids

- Planning and operation of the energy infrastructure becomes more complex
 - Large-scale integration of renewable sources (PV, wind, etc.)
 - Controllable loads (batteries, electric vehicles, heat pumps, etc.)
- Trends and future directions
 - Digitalisation of power systems
 - Deeper consumer/prosumer market interaction
 - Linking electricity, gas, and heat networks for higher flexibility and resilience



Smart Grid / Cyber-Physical Energy System (CPES)

Open Issues and Research Needs

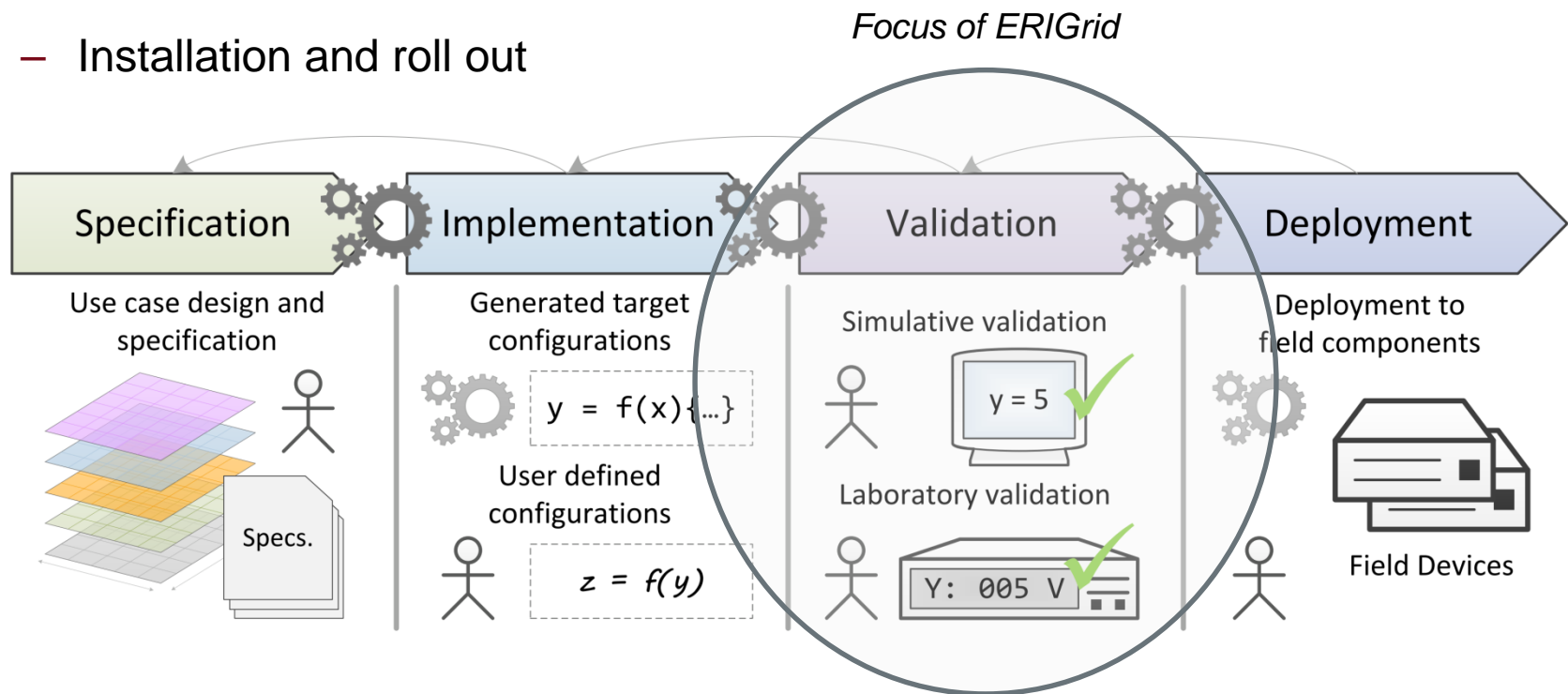
- Past approach
 - Separate design and validation of individual domains (power, ICT)
- Present/future needs
 - Cyber-physical (multi-domain) approach for design and validation
 - Existing methods mainly component oriented
 - System integration topics are not addressed in a holistic manner
 - Further education and training of researchers/engineers needed

	<i>Req. & Basic Design Phase</i>	<i>Detailed Design Phase</i>	<i>Implementation & Prototyping</i>	<i>Deployment / Roll Out</i>
Software Simulation	+	++	o	-
Lab Experiments and Tests	-	-	++	+
Hardware-in-the-Loop (HIL)	-	-	++	++
Demonstrations / field tests, pilots	-	-	-	++

- ... less suitable, o ... suitable with limitations, + ... suitable, ++ ... best choice

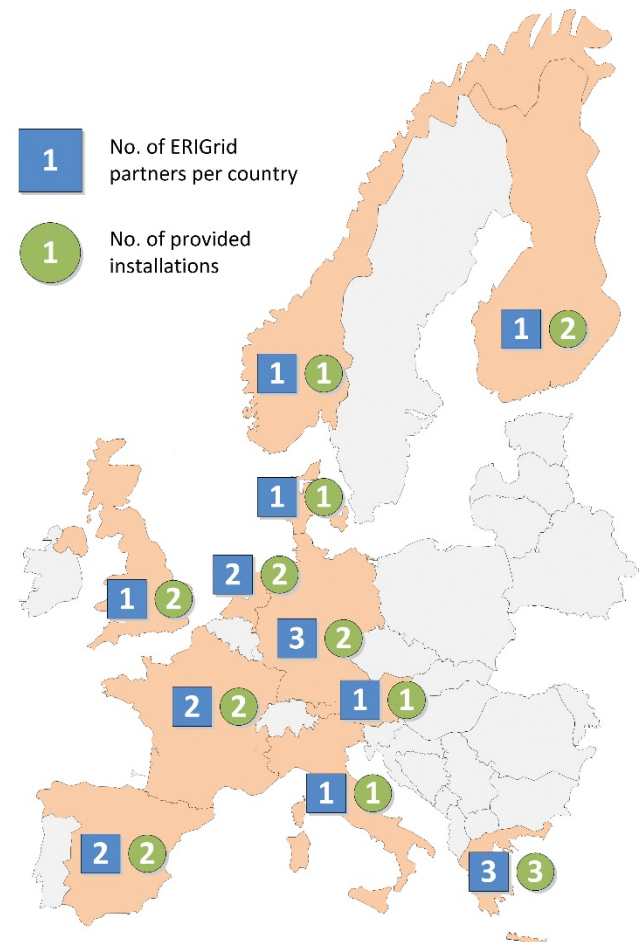
Open Issues and Research Needs

- Vision: *“Providing support from design to implementation & installation”*
 - Integrated system design
 - Validation and testing
 - Installation and roll out



ERIGrid Integrated Smart Grid Research Infrastructure

- H2020 INFRAIA-1-2014/2015 call
 - Integrating and opening existing national and regional research infrastructures of European interest
- Funding instrument
 - Research and Innovation Actions (RIA)
 - Integrating Activity (IA)
- 18 Partners from 11 European Countries
- Involvement of 19 first class smart grid labs
- 10 Mio Euro Funding from the EC (~1000 Person Month)



ERIGrid Integrated Smart Grid Research Infrastructure

Overview and approach

