

ERIGrid Overview

Thomas Strasser 

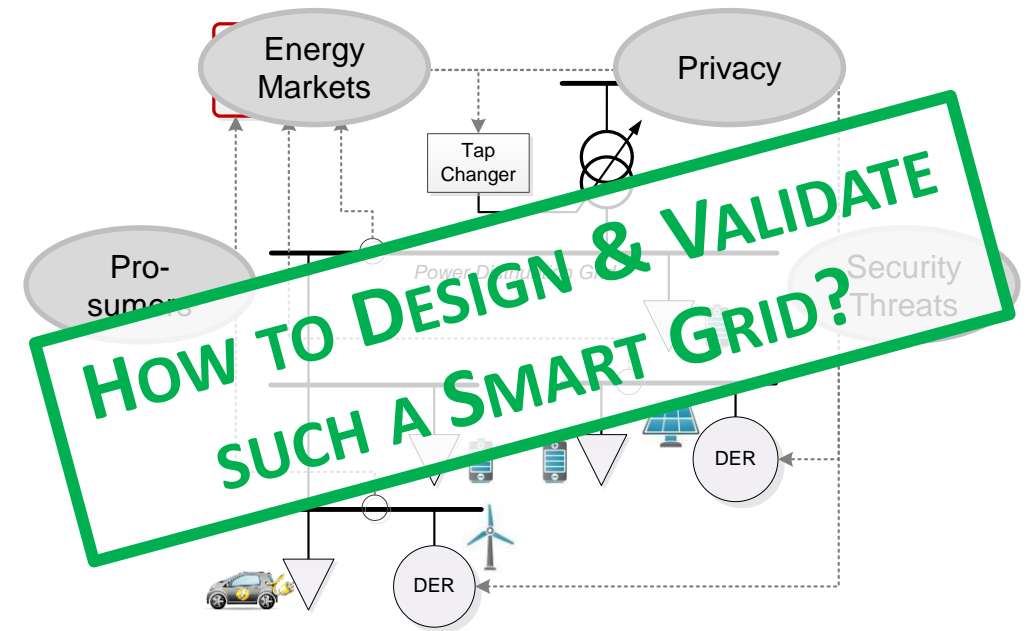
(AIT Energy/Coordinator ERIGrid)

Virtual ERIGrid Final Conference
April 1, 2020



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 grids
 - Deeper involvement of consumers and market interaction
 - Linking electricity, gas, and heat grids for higher flexibility and resilience



Needs and Research Directions

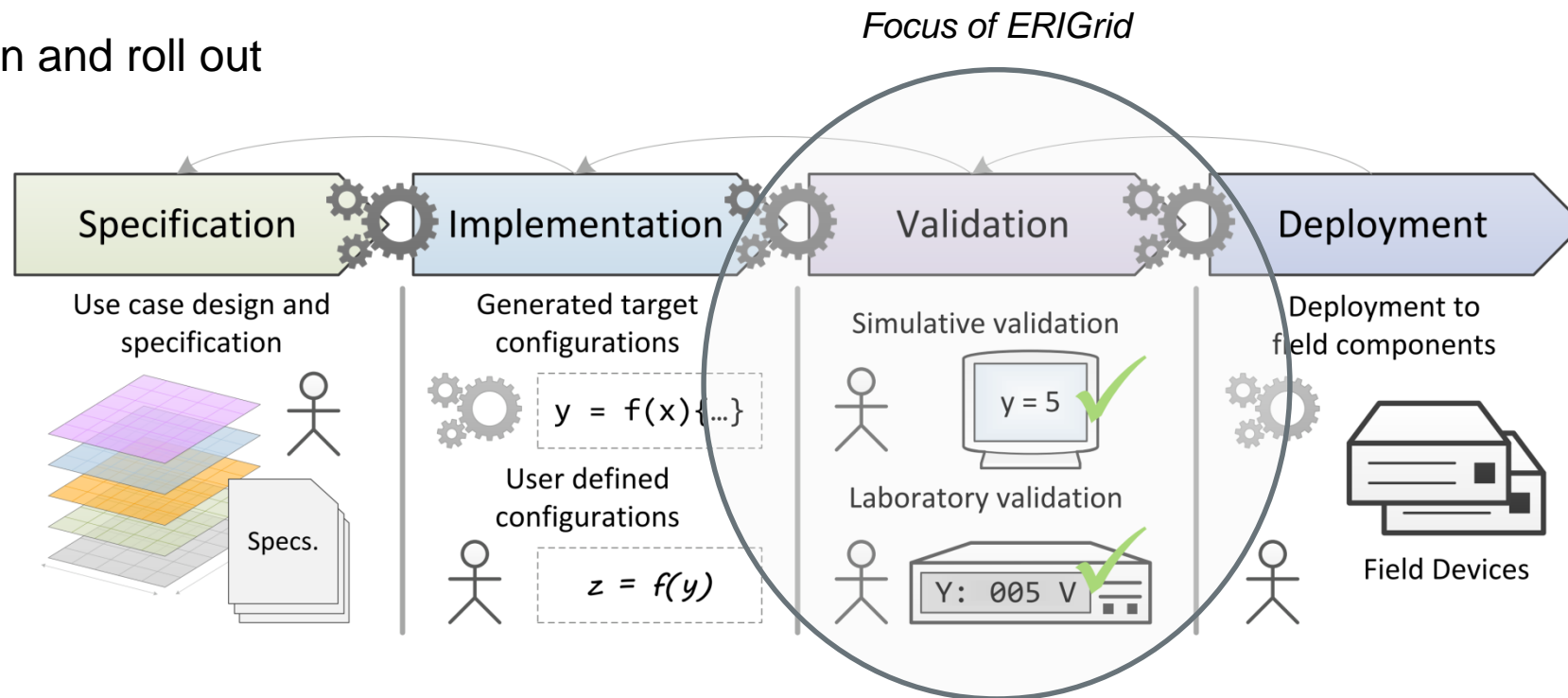
- Separate design and validation of individual domains (power, ICT)
- Integrated cyber-physical/multi-domain design and validation missing
- Reduction of manual steps necessary to handle complex system configurations
- Reduction of error sources due to manual steps required
- Improvement of application/software quality required
- Faster application development needed due to market behaviour and trends

	<i>Req. & Basic Design Phase</i>	<i>Detailed Design Phase</i>	<i>Implementa- tion and 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

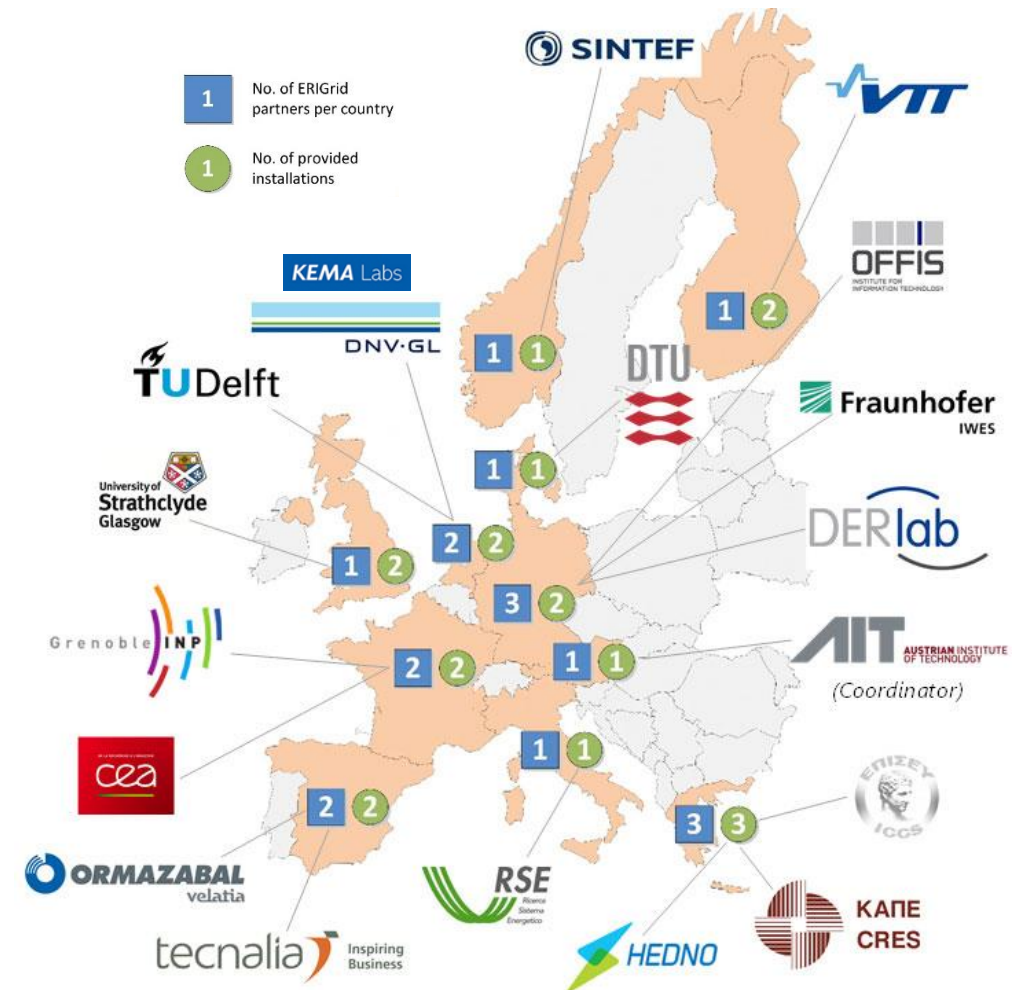
Open Issues and Future Research Needs

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



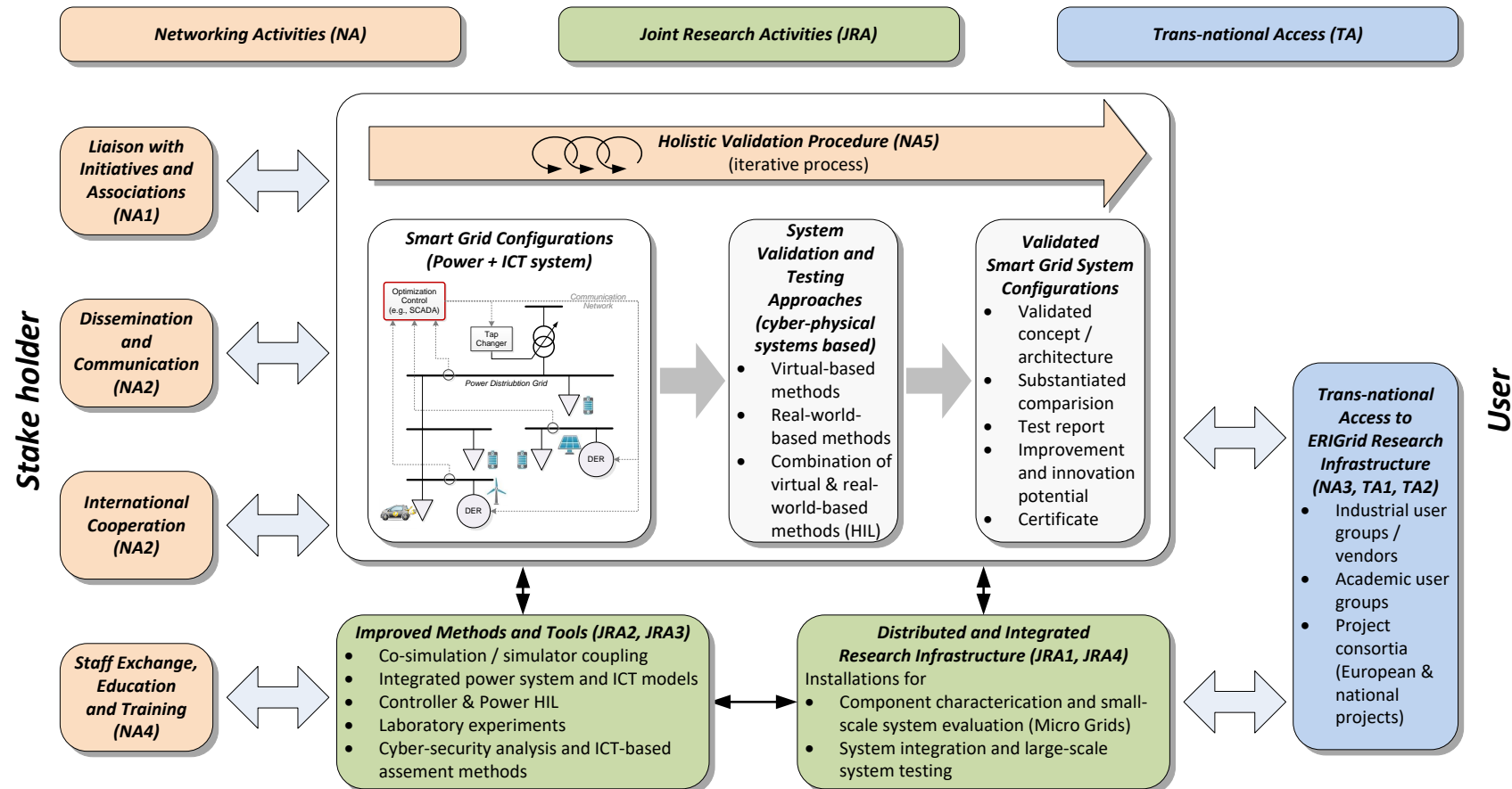
European Smart Grid Research Infrastructure

- Integrated Research Infrastructure (RI) for validating smart grid systems
- Funding information
 - H2020 Call “INFRAIA-1-2014/2015” Integrating and opening existing national and regional RIs of European interest
 - Research and Innovation Actions (RIA)
 - Integrating Activity (IA)
- 18 partners from 11 European countries
- Provision of 19 first class smart grid RIs
- 10 Mio Euro funding from the European Commission (~1000 person month)



European Smart Grid Research Infrastructure

■ Overview and approach



European Smart Grid Research Infrastructure

■ Major achievements

- System-level validation method and test chain concept
- Integrated pan-European RI
- Set of open access/... source tools (co-/real-time/HIL simulation)
- Education material (450 impacted students, 450 workshops, 290 webinar participants)
- 73 out of 97 TA user projects supported (>150 persons)
- Various reports and over 100 publications





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