

# R&I activities on smart grids and energy storage co-financed by the European Commission

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# Outline

- BRIDGE introduction
- BRIDGE projects overview
- Stakeholders involved in BRIDGE projects
- Geographical distribution of BRIDGE projects
- Technologies tackled by BRIDGE projects



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- **BRIDGE introduction**
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# Which barriers to Innovation were identified ?

Data  
management

Business Models

Regulations

Customer  
engagement

## BRIDGE

- Is a European Commission initiative
- Gather Horizon 2020 Smart Grid and Energy Storage demonstration projects
- Creates a structured view of obstacles to innovation.
- Fosters continuous knowledge sharing amongst projects
- Deliver-conclusions and recommendations with a single voice



# BRIDGE Working Groups



## Data management

- **Communication Infrastructure**, embracing the technical and non-technical aspects of the communication infrastructure needed to exchange data and the related requirements
- **Cybersecurity and Data Privacy**, entailing data integrity, customer privacy and protection
- **Data Handling**, including the framework for data exchange and related roles and responsibilities, together with the technical issues supporting the exchange of data in a secure and interoperable manner, and the data analytics techniques for data processing



## Business Models

- Defining common language and frameworks around business model **description** and **valuation**
- Identifying and evaluating existing and **new or innovative business models** from the project demonstrations or use cases
- The development of a **simulation tool** allowing for the comparison of the **profitability of different business models** applicable to smart grids and energy storage solutions is being developed and tested by the Working Group members



# BRIDGE Working Groups



## Regulations

- As regards **energy storage**, the regulatory framework needs to provide clear rules and responsibilities concerning ownership, competition, technical modalities and financial conditions, for island and mainland cases
- In terms of **smart grids**, regulatory challenges arise regarding the incentives for demand-side response, commercial arrangements, smart meter data, etc.



## Customer Engagement

- Customer Segmentation, analysis of **cultural, geographical** and **social** dimensions,
- **Value** systems - Understanding Customers
- **Drivers** for Customer **Engagement**
- Effectiveness of Engagement Activities
- Identification of what triggers **behavioral changes** (e.g. via incentives)
- The **Regulatory** Innovation to Empower Consumers



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# BRIDGE projects overview








- **The BRIDGE initiative is growing each year**
  - 17 projects selected in 2014 for 132 M€ of EC funding
  - 6 projects selected in 2015 for 107 M€ of EC funding
  - 9 projects selected in 2016 for 98 M€ of EC funding

*32 projects involving in total 379 organisations are participating in BRIDGE in 2017 for a total EC funding of 337 M€*
- **Projects categorisation**
  - **Scale:** Distribution / Transmission
  - **Topic:** Grid / Storage / RES and H&C





# BRIDGE projects overview

Distribution grids	Distributed Storage	Transmission grids	Large-scale storage	RES and H&C
<p><b>2014:</b> 10 projects, 60 M€</p> 	<p><b>2014:</b> 7 projects, 72 M€</p> 	<p><b>2015:</b> 4 projects, 82 M€</p> 	<p><b>2015:</b> 2 projects, 25 M€</p> 	<p><b>2016:</b> 2 projects, 8 M€</p> 
<p><b>2016:</b> 7 projects, 90 M€</p> 				



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# Stakeholders involved in BRIDGE projects

Consumers 

**Regulated Operators**

Transmission System Operators (TSOs)  Distribution System Operators (DSOs) 




Regulators 

Local Energy Communities 

**Technology providers**

Power technology providers  Storage providers  ICT providers 

**Electricity Market Players**

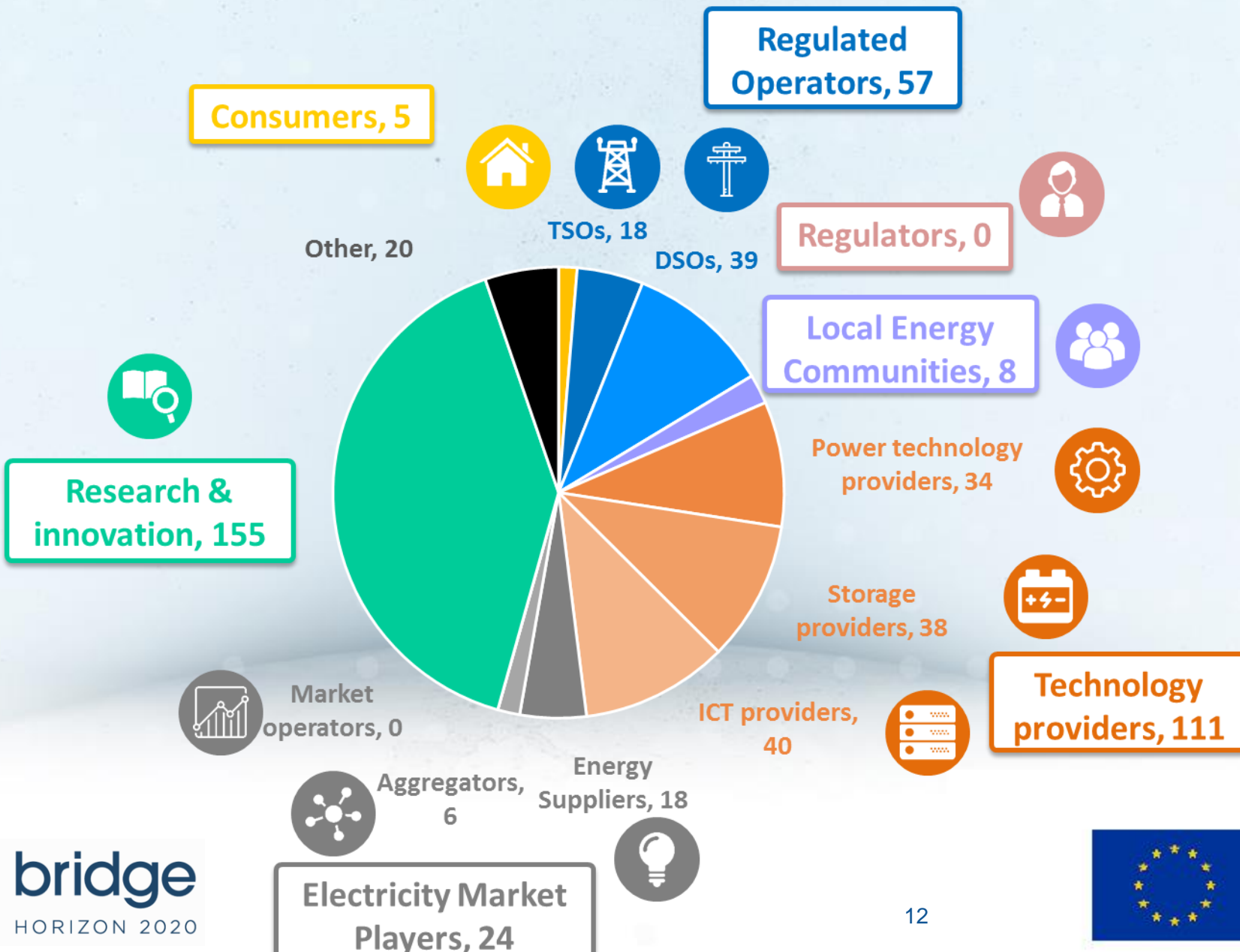
Energy Suppliers  Aggregators  Market operators 

Research & innovation 

*Others...*



# Stakeholders involved in BRIDGE projects



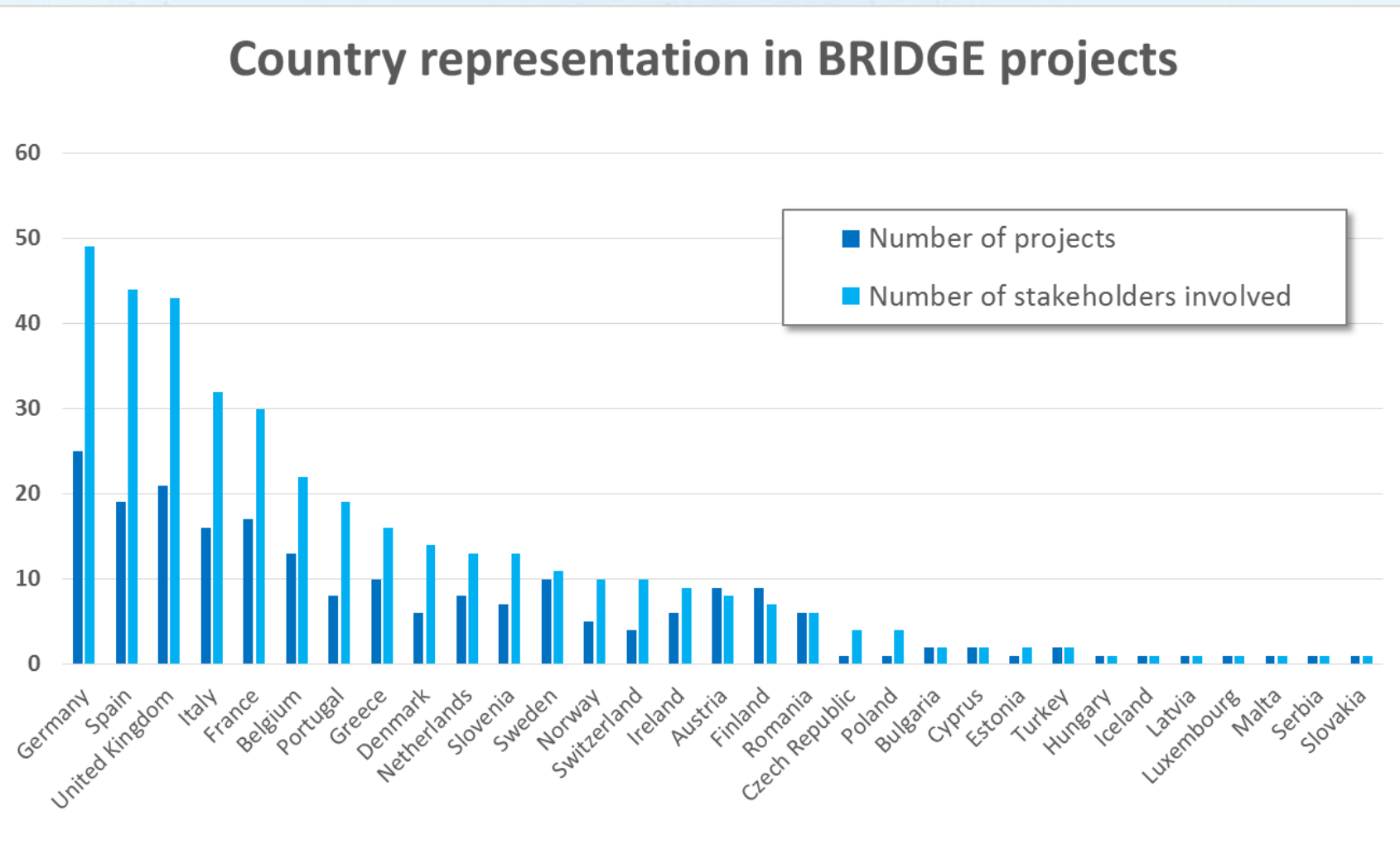
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# Geographical distribution

31 countries are involved in BRIDGE

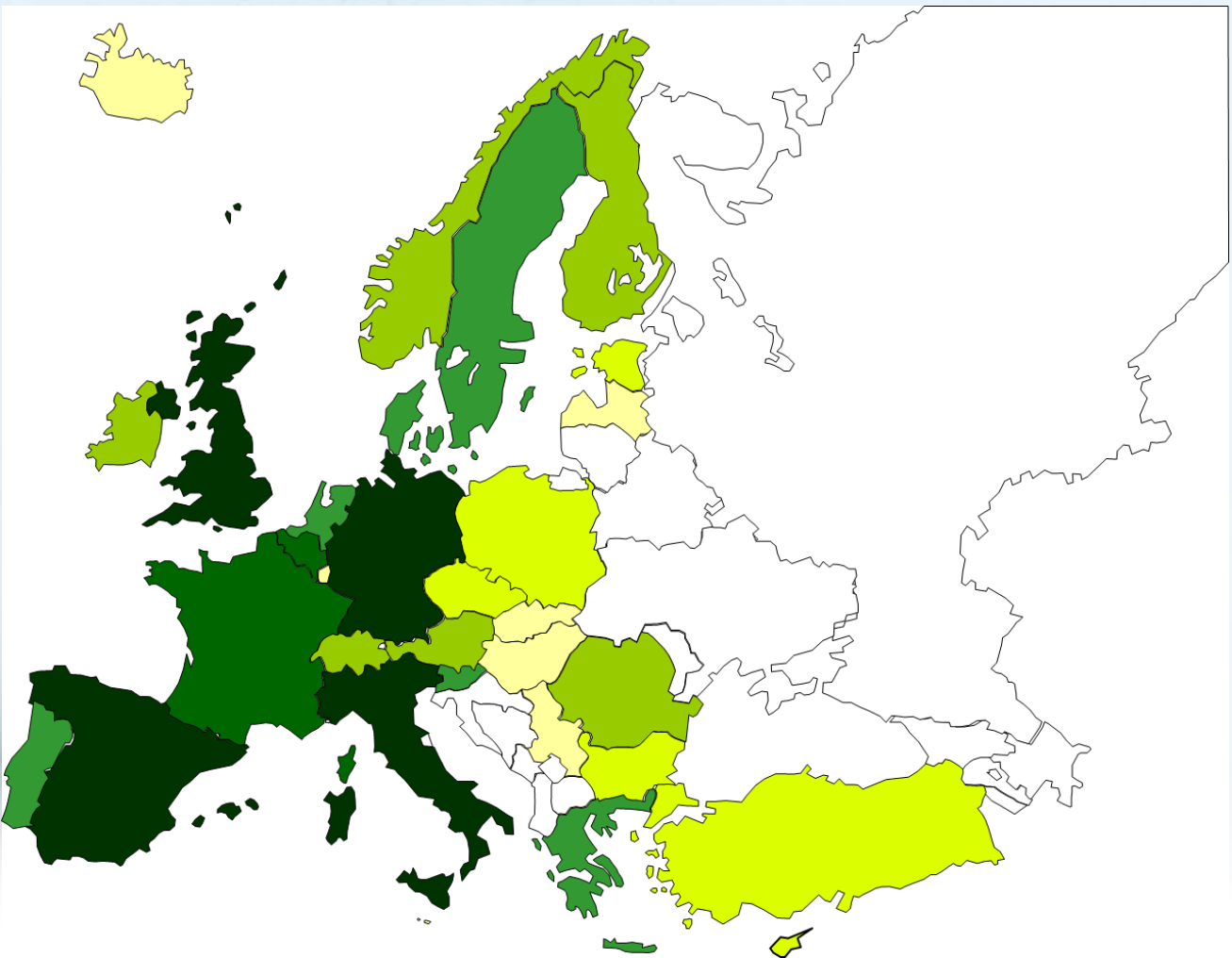


# Geographical distribution

31 countries are involved in BRIDGE

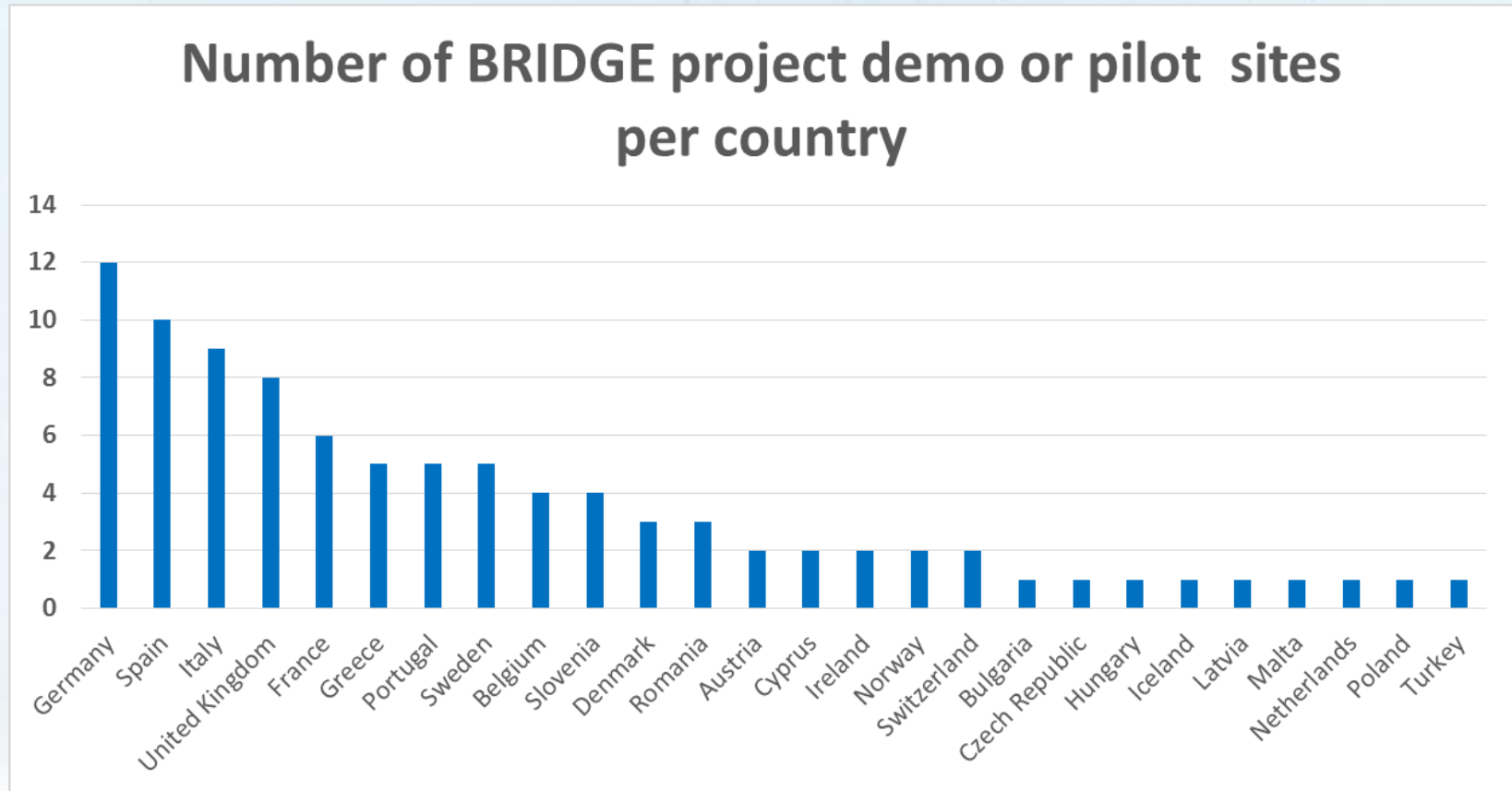
Number of stakeholders involved per country

0	
1	
2-5	
6-10	
11-20	
21-30	
>30	



# Geographical distribution

*26 countries are hosting BRIDGE demos or pilots*



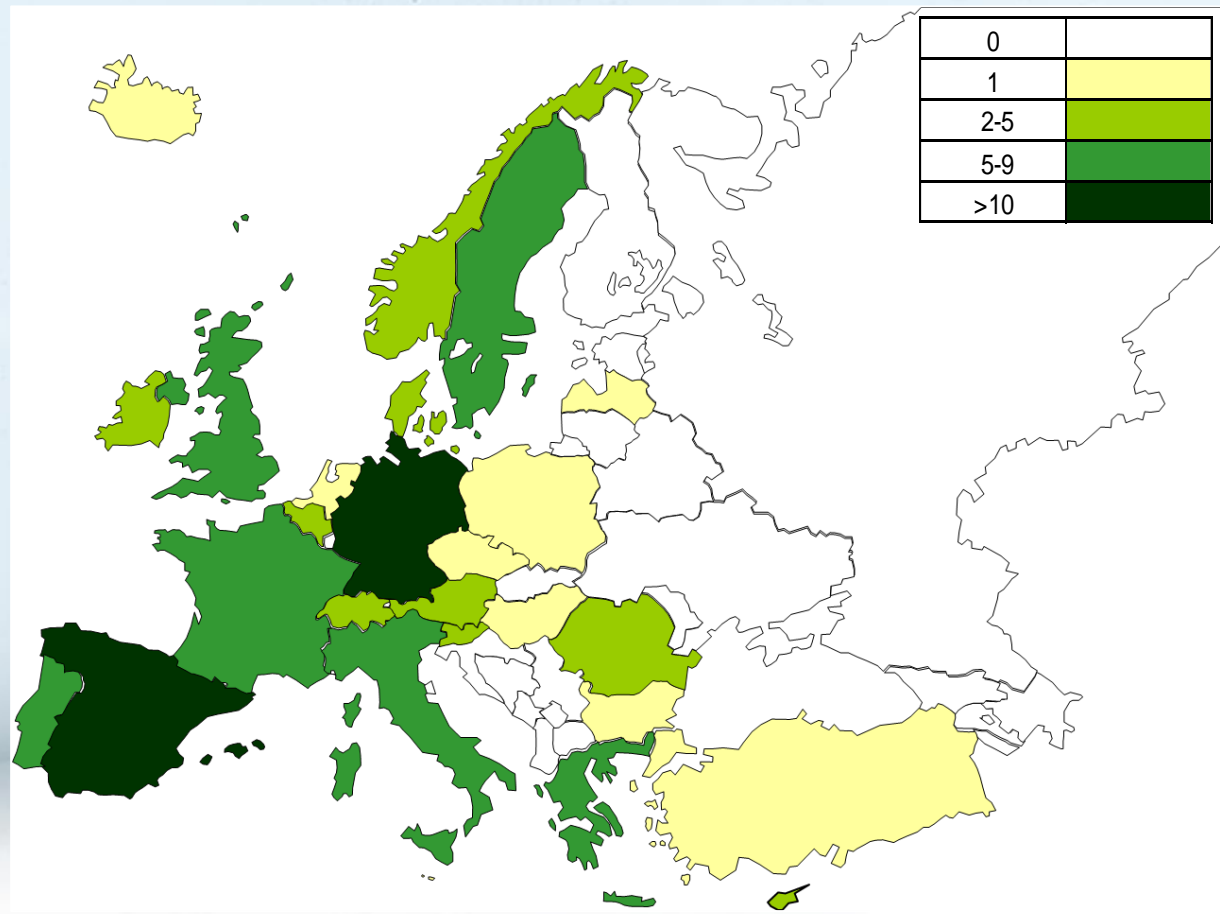


# Geographical distribution

26 countries are hosting BRIDGE demos or pilots

Locations of the BRIDGE demos and pilots

0	
1	
2-5	
5-9	
>10	




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# Technologies tackled by BRIDGE projects




### Technologies for consumers

- Demand response
- Smart appliance
- Smart metering




### Grid technologies

- HVDC
- HVDC breaker
- HVAC
- Inertia
- Multi terminal
- Network management
- Protections
- Micro-grid




### Large-scale storage technologies

- Power to gas
- Compressed Air Energy Storage
- Hydro storage
- Flywheel




### Distributed storage technologies

- Batteries
- Electric Vehicles
- Power to heat



### Generation technologies

- Wind Turbine
- PV
- Solar thermal
- Biogas
- Micro-generation



### Market

- Electricity market
- Ancillary services



# Technologies tackled by BRIDGE projects

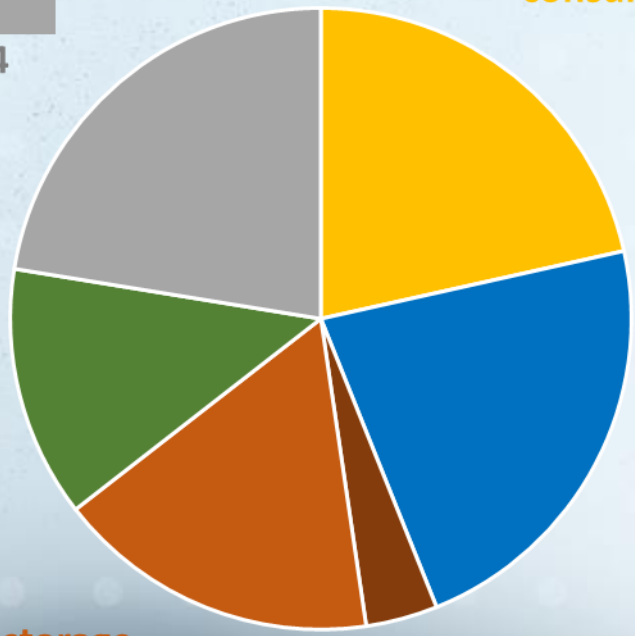
Number of projects addressing each family of technologies



Market, 24



Generation technologies, 14



Technologies for consumers, 23



Grid technologies, 24

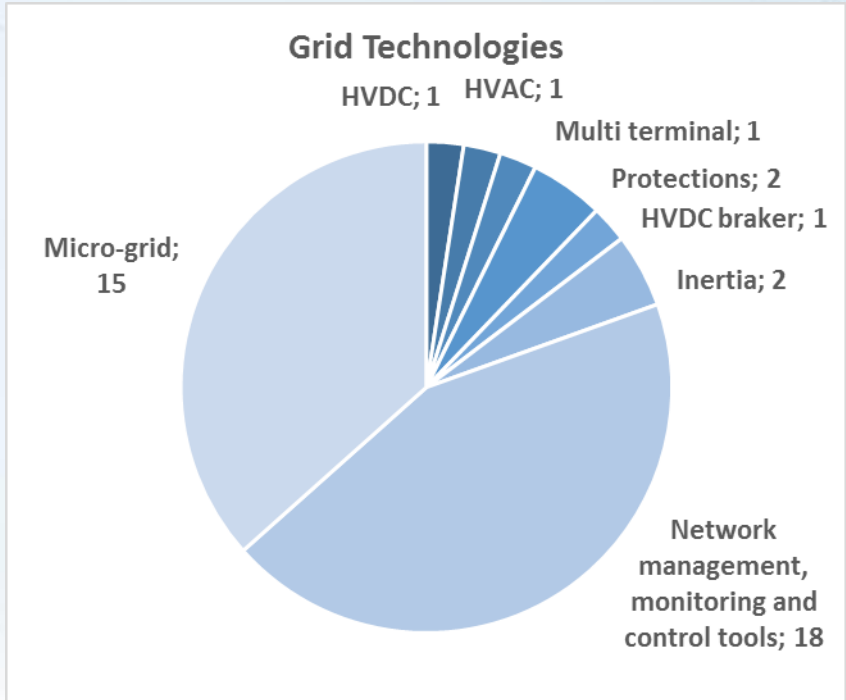
Distributed storage technologies, 18



Large-scale storage technologies, 4



# Grid technologies: 24 projects



<http://www.h2020-bridge.eu/>

[Twitter: @BRIDGE\\_H2020](https://twitter.com/BRIDGE_H2020)



News Working groups Projects **Download** Contact

## Cooperation group of Smart Grids and Energy Storage H2020 projects

BRIDGE is a European Commission initiative which unites Horizon 2020 Smart Grid and Energy Storage Projects to create a structured view of cross-cutting issues which are encountered in the demonstration projects and may constitute an obstacle to innovation.

The BRIDGE process fosters continuous knowledge sharing amongst projects thus allowing them to deliver conclusions and recommendations about the future exploitation of the project results, with a single voice, through four different Working Groups representing the main areas of interest:

- Data management
- Business models
- Regulations
- Customer engagement

### Tweets by @BRIDGE\_H2020

**BRIDGE-H2020** @BRIDGE\_H2020  
See you the 14th September for the 1st international conference of @inteGRIDy\_H2020 at Politecnico de Milano! Only 2 days!

15h

BRIDGE-H2020 Retweeted

inteGRIDy project @inteGRIDy\_H2020



connect • share • learn



# BRIDGE projects





# BRIDGE Working Groups



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# What is the added value of BRIDGE ?

## *Participants:*

- Benefit from **field experience**, **feedback** and **lessons learned** by the participating projects when coping with barriers to innovation in the four WGs
- Shape **collective recommendations** for policy makers with the aim of removing barriers to the deployment of innovation
- All projects speak in a **single voice**, which in turn strengthens their message and **maximizes the impact for policy makers**
- Create **new contacts** for future collaboration with other members of the group



# What is the added value of BRIDGE ?

## *Policy makers and regulators:*

- Benefit from **coordinated, balanced and coherent recommendations** from the participating Research & Innovation projects, with a focus on non-technical issues hindering innovation deployment
- Allows the comparison of non-technical barriers to innovation in **different countries** and the learnings from **the diverse experiences** of the most current and relevant EU-funded projects



