



The Smart Grids landscape in Europe: lessons learned and current developments

Flavia GANGALE, Vincenzo GIORDANO, Gianluca FULLI

European Commission - Joint Research Centre (JRC)

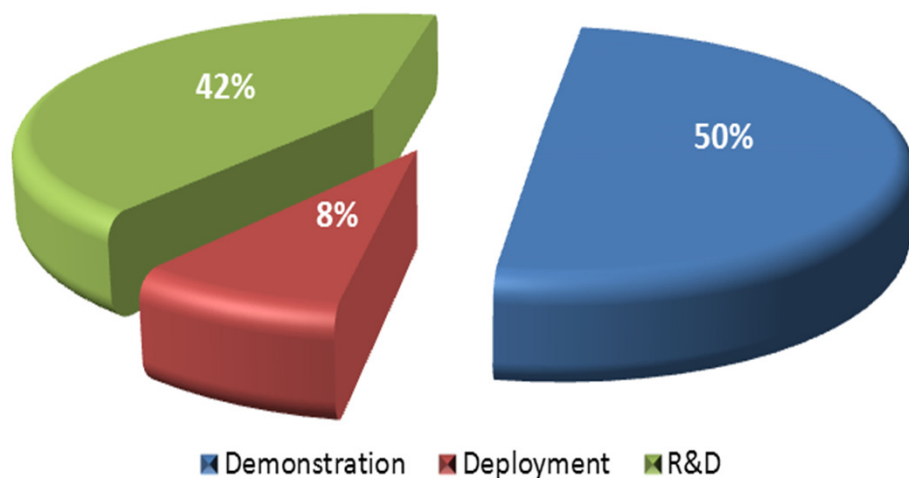
IE - Institute for Energy

Petten - The Netherlands

- Questionnaire sent in November 2010
- About 300 projects received
- Screening of the projects to take out those which did not fall into the scope of our study or that didn't provide enough information for the analysis
- About 215 projects in the final catalogue, accounting for around 4.5 Billion Euros

- Overview of information received from projects
 - How do projects distribute along the various stages of the innovation process?
 - Which countries are investing and in which areas? Which are the main actors in Smart Grid development?
 - Which are the main topics addressed by the projects?

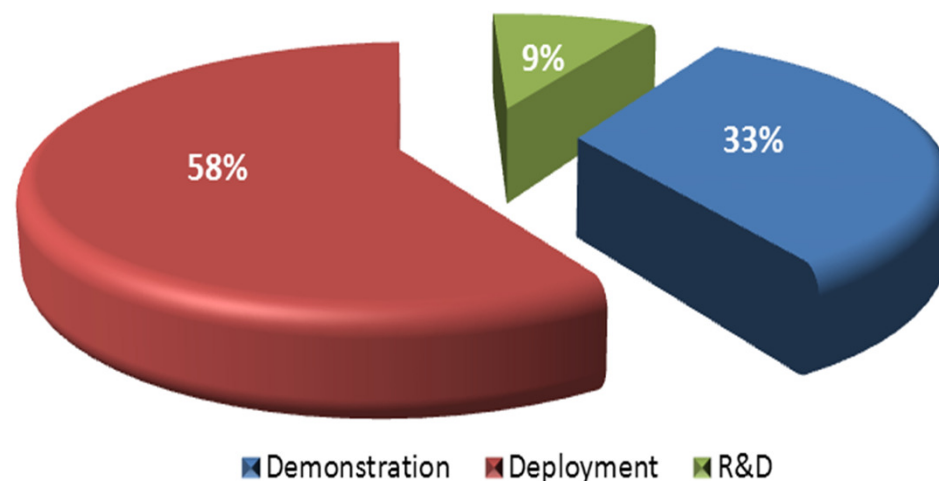
Number of projects

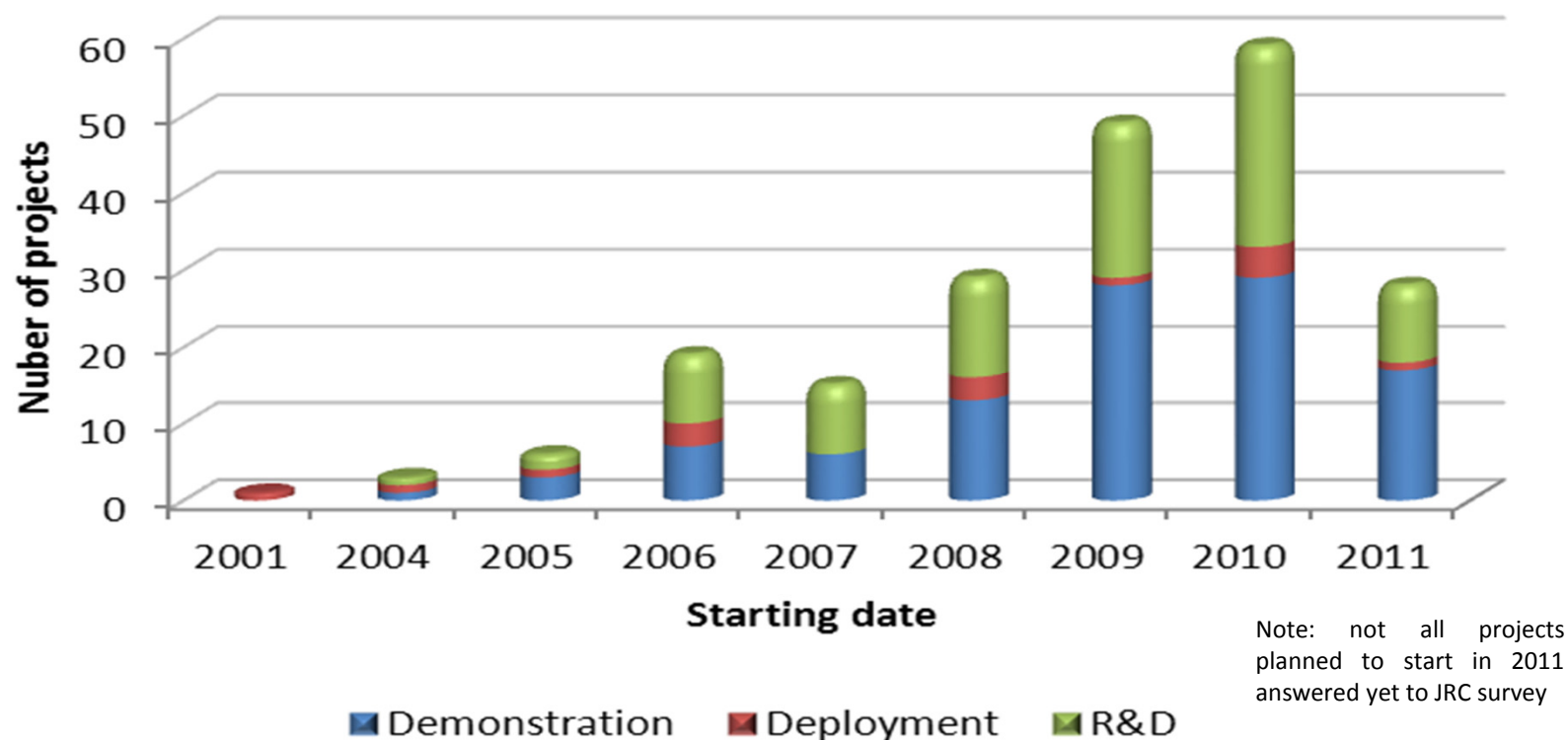


The collected projects span across all the stages of the innovation process, but the majority of them is in the demonstration phase.

Deployment projects account for the greatest part of investments. 76% of the are Smart Metering projects. **R&D and Demonstration projects** are mostly small-medium scale, but they have a wider portfolio of technologies and applications.

Budget (M€)

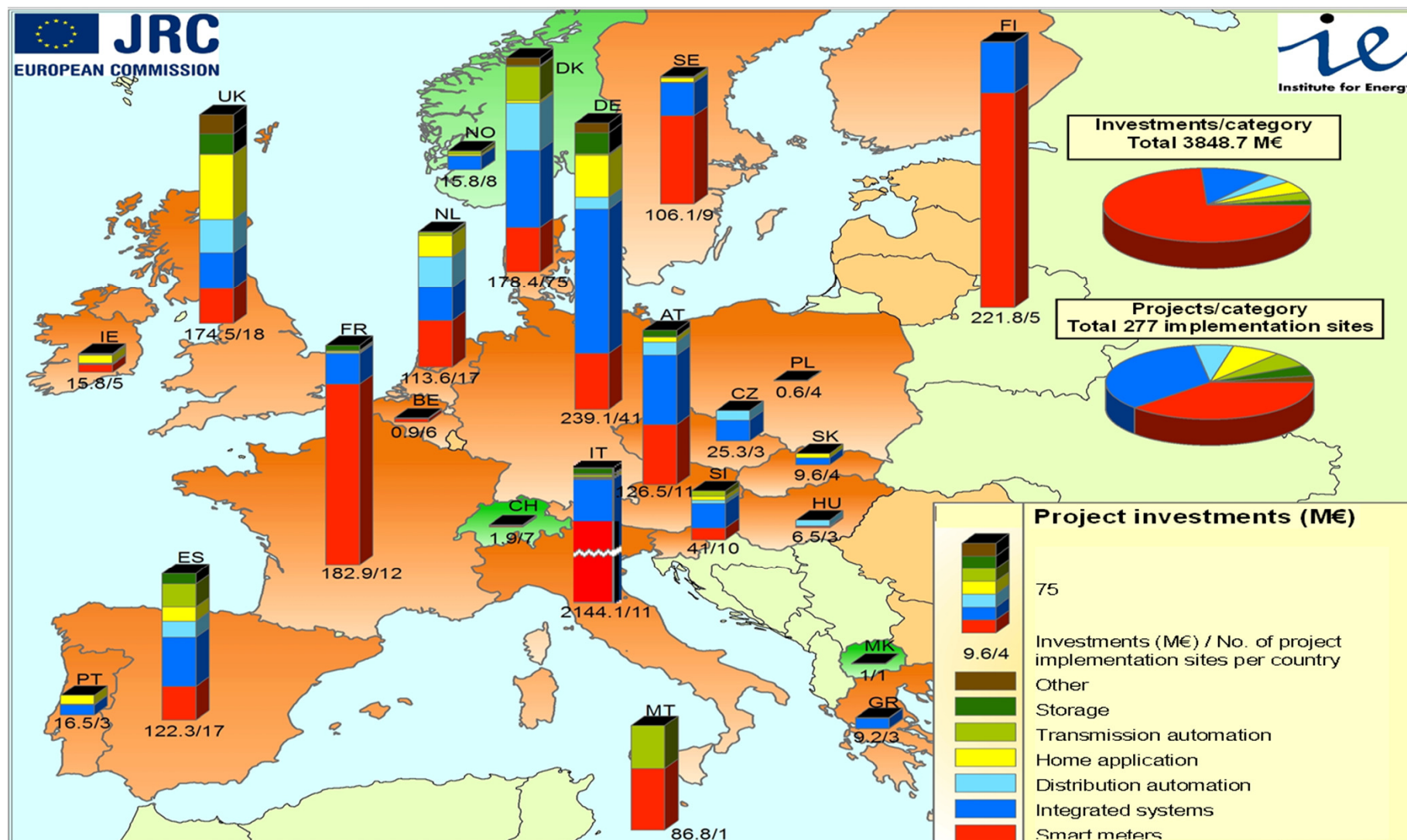




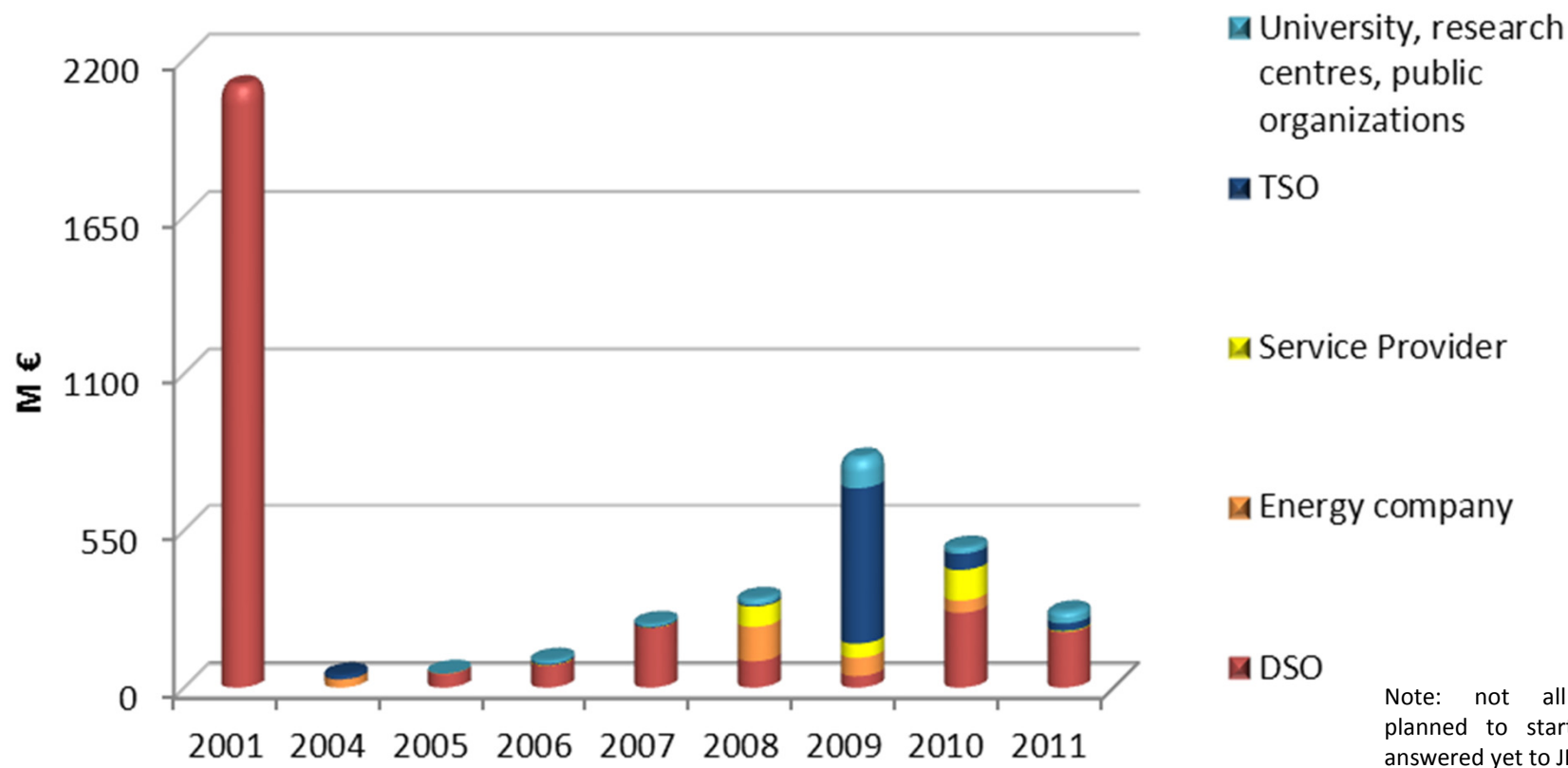
The increase in the number of demonstration projects with time shows a growing confidence in moving to the demonstration stage. On the other hand, the number of deployment projects has not increased dramatically since the first project in 2001. Most of them are Smart Metering projects.

Overview of information received from projects

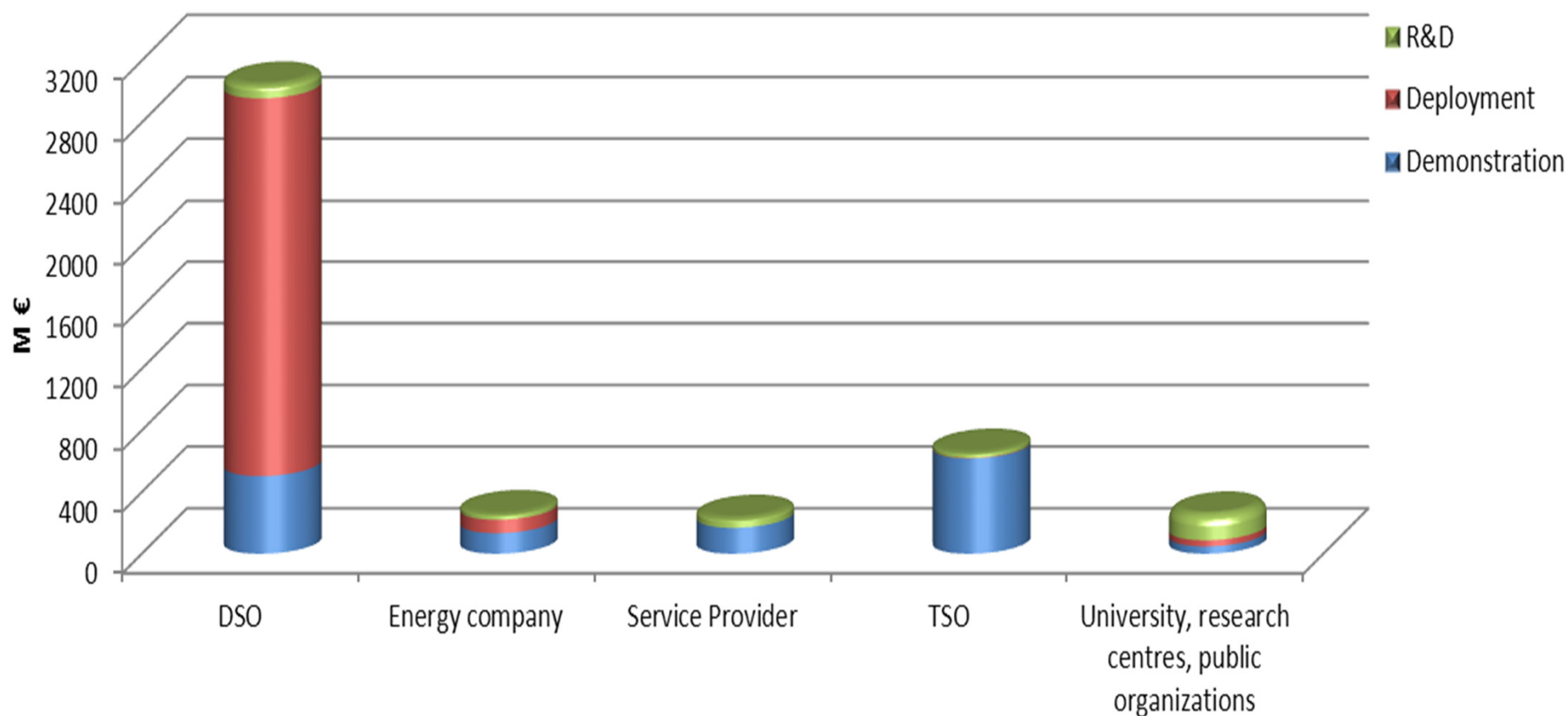
- How do projects distribute along the various stages of development of the innovation process?
- Which countries are investing and in which areas? Which are the main actors in Smart Grid development?
- Which are the main topics addressed by the projects?



Projects represented can span over more than country and can include more than one category. Three projects are not represented in this Picture: Kriegers Flak project, a Super Grid between Germany and Denmark, total investment of 507 M€; Smart Meter Roll-out and AMI in UK, estimated investment of 11897 M€; and Smart Meter Roll-out in Sweden, spanning in approx. 150 projects and amounting a total investment of approx. 1500 M€.

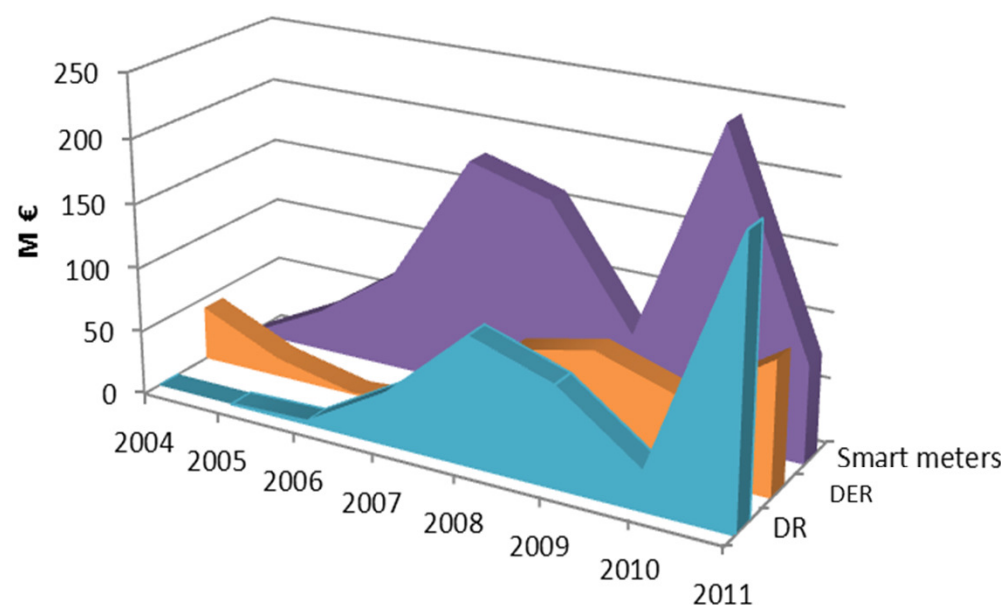
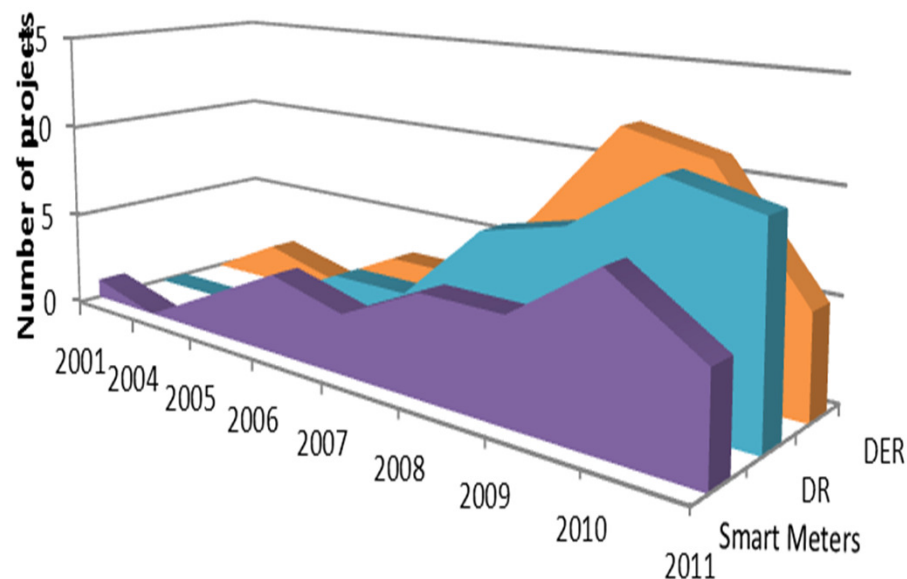


Network operators play a key role in smart grid development. Some smart grid solutions require multidisciplinary competencies and integration of different technologies.



The main share of DSOs' investments is represented by smart meters roll-outs. Other actors are more involved in the R&D and demonstration phases.

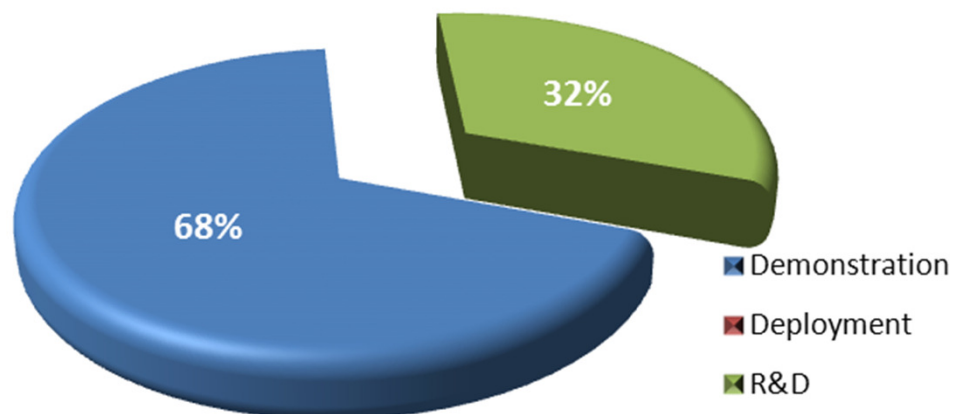
- Overview of information received from projects
 - How do projects distribute along the various stages of development of the innovation process?
 - Which countries are investing and in which areas? Which are the main actors in Smart Grid development?
 - Which are the main topics addressed by the projects?



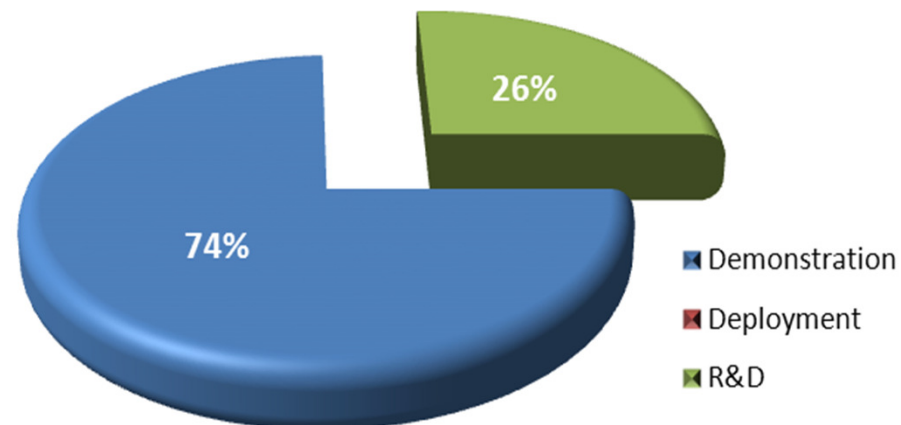
Integration of **Distributed Energy Resources (DER)** steadily growing

Demand Response (DR) projects, testing dynamic pricing and consumer participation, are growing in numbers (smart meters as key enabler)

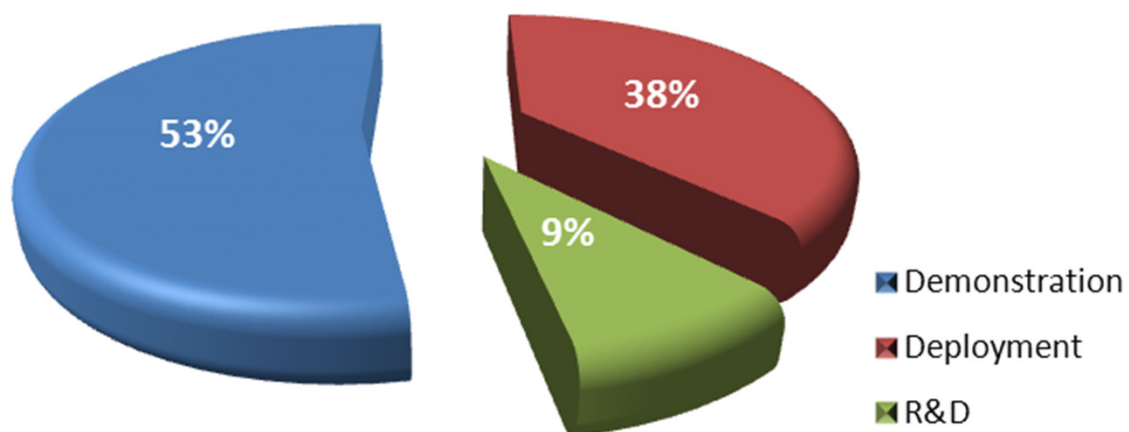
Distributed Energy Resources



Demand Response



Smart metering



- The catalogue offers an updated and comprehensive overview of the Smart grid projects developments in the EU, but does not aim to be exhaustive: the data collection is still ongoing!
- Need for a coordinated and continuous mapping of Smart Grid initiatives at National and European level;
- Need for a common structure for data collection (common metrics, definitions, terminology, categories etc.)

Thank you for your attention

Institute for Energy
<http://ie.jrc.ec.europa.eu/>

Smart Electricity Systems
<http://ses.jrc.ec.europa.eu/>

