

BD4OPEM







Big Data for **OP**en innovation Energy
Marketplace



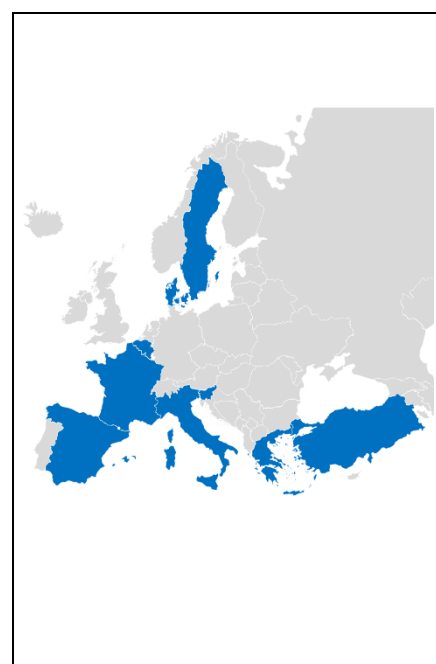
BD4OPEM will develop an open innovation marketplace where, through an analytic toolbox that integrates solutions based on artificial intelligence, products and services to improve the monitoring, operation, maintenance and planning of electrical distribution grids will be made available to stakeholders.

From 2020 To 2023	Project total cost	EU contribution	Website
	9.865 M€	8.024 M€	www.bd4opem.eu

Technologies and services deployed

	Technologies for consumers	<ul style="list-style-type: none"> ✓ Demand response ✓ Smart appliance ✓ Smart metering
	Grid technologies	<ul style="list-style-type: none"> ✓ Network management, monitoring and control tools ✓ Micro-Grid
	Large-scale storage technologies	
	Distributed storage technologies	<ul style="list-style-type: none"> ✓ Batteries ✓ Electric vehicles
	Generation technologies	<ul style="list-style-type: none"> ✓ Wind turbine ✓ PV ✓ Micro-generation
	Market	<ul style="list-style-type: none"> ✓ Electricity market ✓ Ancillary services

Project partners' countries



Coordinator: UNIVERSITAT POLITÈCNICA DE CATALUNYA (SPAIN)

Other partners:

- WE PLUS (ITALY)
- ODIT-E (FRANCE)
- ATOS RESEARCH AND INNOVATION (SPAIN)
- INSTITUT JOSEF STEFAN (SLOVENIA)
- INTRA TELECOM (GREECE)
- NUVVE (FRANCE)
- OZMANGAZI ELETRIC DISTRIBUTION (TURKEY)
- VRIJE UNIVERSITEIT BRUSSEL (BELGIUM)
- ESTABANNELL (SPAIN)
- ELEKTRO CELJE (SLOVENIA)
- SUSTAINABLE INNOVATION (SWEDEN)

Project Description

Context. Energy power systems face important challenges to cope with the requirements and needs of an ever-increasing number of distributed generation and consumption devices in an interconnected world. Energy systems have seen a natural evolution, moving from the analogue world to the current digital interconnected real-time IoT world. Now, huge amounts of energy systems data are available, most of which are unused or underused. The appropriate monitoring, acquisition and processing of this data can boost innovative tools and services.

Scope. The BD4OPEM strategy will be to share data and to provide data analytics services in an Open Innovation Marketplace. It should be like an “energy supermarket” where users find the solutions they need using the services provided by different specialized companies. In this “market place”, several solutions will serve the DSO's and other stakeholders for a better management of their networks. This project will extract more value from the available data providing new big data solutions for the operation, planning and maintenance of highly complex networks, including services like grid topology identification, observability, predictive maintenance, fraud detection, smart houses, buildings and industries energy management, blockchain transactions and flexibility aggregation for demand-response.

Technical description and implementation. The Open Innovation Marketplace will be based on well-known and proven open big data reference architectures, and relying on an underlying analytics toolbox. The analytic toolbox will ensure secure data flows from data providers to solution providers, always compliant with GDPR requirements, so that asset management is enhanced, consumer participation in energy balancing is promoted and new data-driven business models are created. Solutions will be based on artificial intelligence techniques including supervised learning, deep learning, data mining, among others.

The project will demonstrate these features at 5 pilot sites (Spain, Turkey, Slovenia, Belgium and Denmark) with distributed energy generation, such as photovoltaic, storage infrastructure, EV and charging infrastructure, hydro, wind and geothermal generation.

Impact. Replicability: Data will be collected from legacy systems and stored in a public data lake. This structure enables new and existing

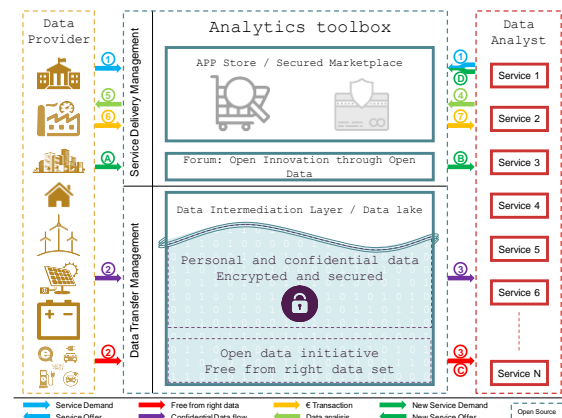
players to link their platforms to the lake. The platform will ensure replicability and scalability, fully compatible and open to everyone.

Socio-economics: BD4OPEM will create growth possibilities for the project members, for the energy sector in general, the European IT market and the European Sustainable Innovation Ecosystem. It will result in the creation of highly qualified jobs in the ICT and energy sectors. Also, it will reduce the technology gap between countries. The project will facilitate a technology convergence and promote innovative big data solutions for energy in countries where there is less data and technology available.

Environment: BD4OPEM encourages a more efficient use of energy resources and the penetration of renewable energy, leading to a reduction in greenhouse gas emissions and promoting a more effective and smart usage of energy through flexibility and storage.

Market Transformation: BD4OPEM is a clear example of interaction between different stakeholders. Exploitation and dissemination tasks will facilitate the extension of this model to the European Sustainable Innovation Ecosystem

Policy: The topics addressed within BD4OPEM are consistent with European and international standards, policies and initiatives, aiming to develop the next generation technologies. Furthermore, the project is dedicated to advancement and enrichment of these efforts. Due to BD4OPEM scalability, interconnectivity and replicability in specific countries and markets, it has the potentiality to become a reference tool in the Energy sector so it can also become an efficient way to facilitate the introduction of regulations and standards advancing towards the Energy Union.





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More information at <http://www.h2020-bridge.eu/>