

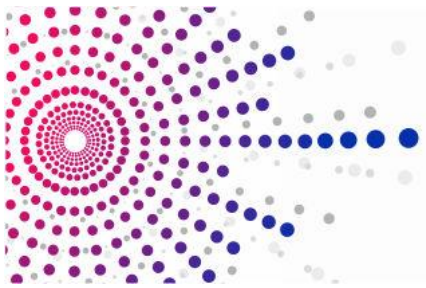
BD4NRG Technical Implementation

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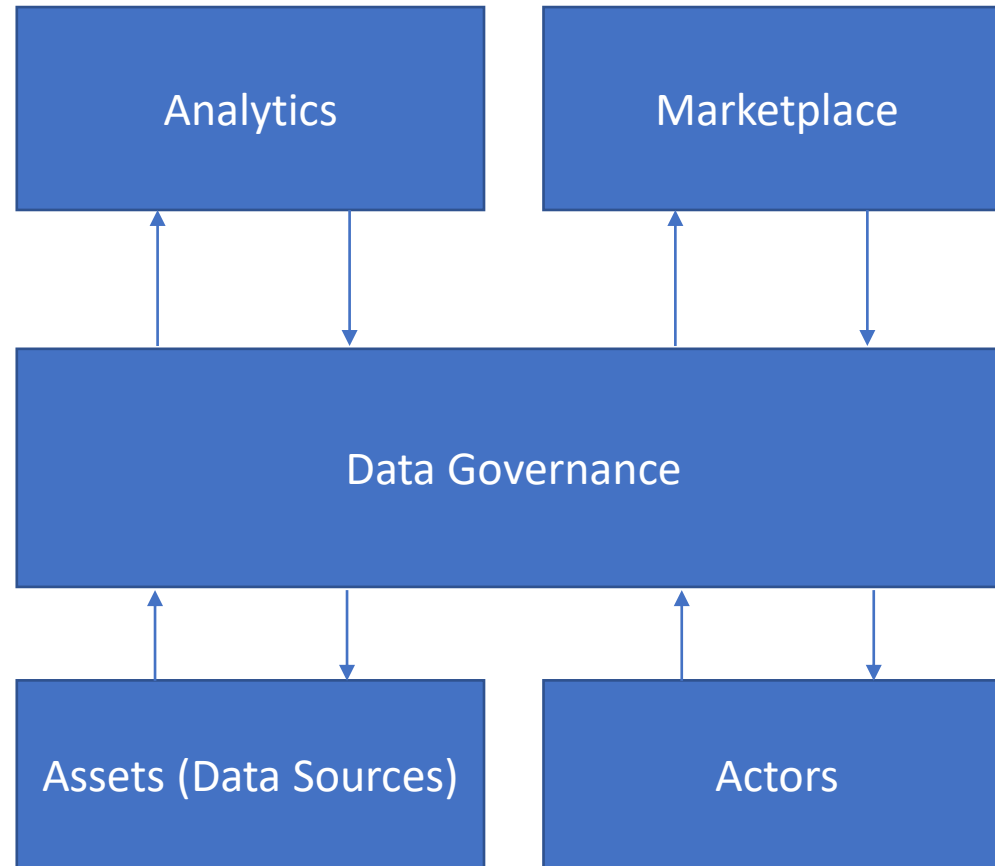


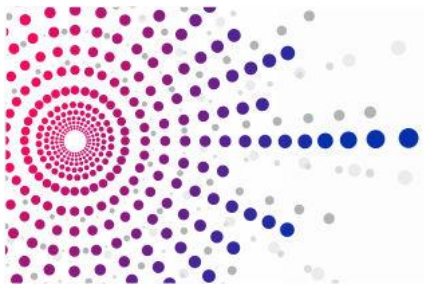
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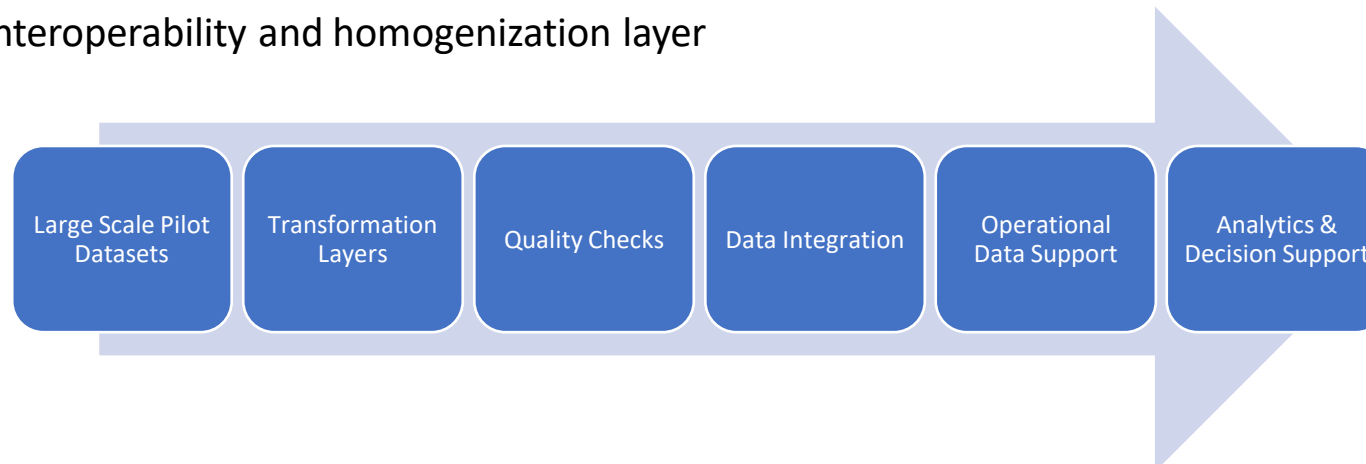
BD4NRG Technical Framework

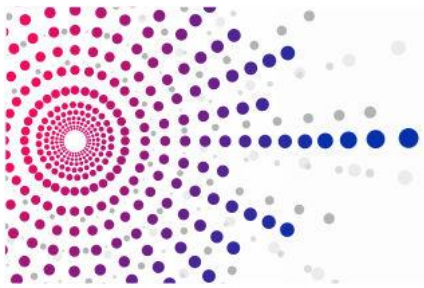




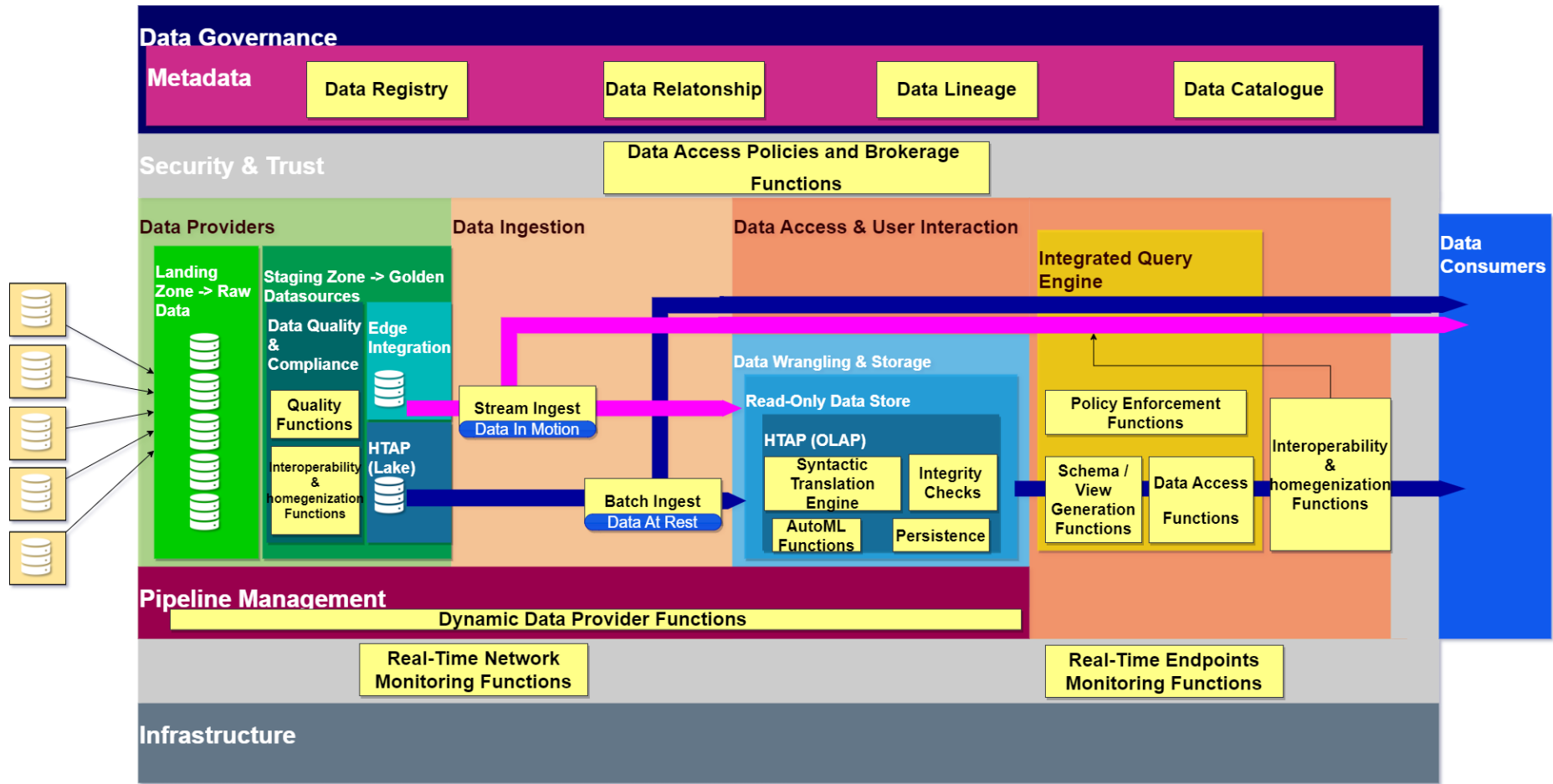
BD4NRG – Data Governance Objectives

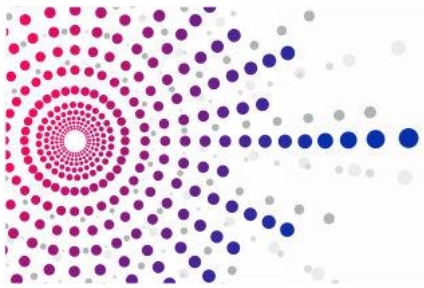
- To implement the BD4NRG Data Governance Layer according to Big Data Management and Modelling best practices
- To enable the exchange of information between assets, systems data hubs and actors in a common manner
- To define a data access policy layer and a legal/ethical/cybersecurity framework implementation
- To develop and configure the modules that will assure the quality of the retrieved datasets
- To develop the P2P DLT blockchain/smart contracts platforms and DApps
- To develop edge/IoT big data management enablers including elastic streaming data capturing management
- To build the interoperability and homogenization layer





BD4NRG – Data Governance Architecture



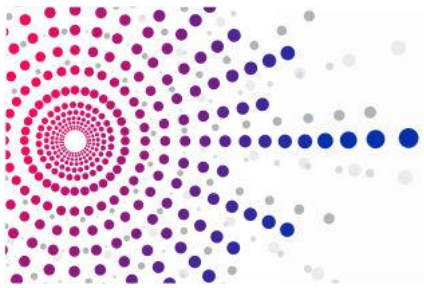


BD4NRG – Analytics Toolbox Objectives

Develop data analytics services

- Enable to analyse data seamlessly and holistically across *multiple data sources* and in different languages operating across the entire data lifecycle.
- Handle to deliver the libraries and algorithms for significant **data knowledge extraction, business intelligence and energy analytics** (BD4NRG-ANALYTICS).
 1. Deliver the tools, Methods and frameworks for processing, visualization, exploration and querying
 2. Deliver the libraries and algorithms for knowledge extraction, business intelligence and analytic
 3. Integrate all the different modules of the platform with clear interfaces and low level of interdependence
 4. Continuously integrate additional functionality to each module, starting from core set of features and gradually reaching the desired outcome, considering the pilot cases requirements identified in WP2 and 6
 5. Consolidate and fine-tune the different modules forming the integrated BD4NRG platform.

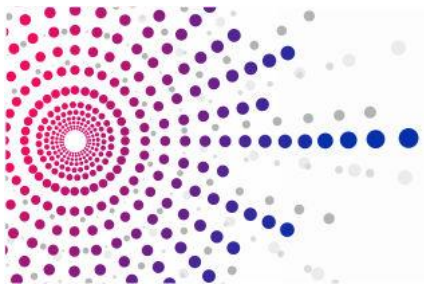
RESULTS: Data Analytics Toolbox & BD4NRG integrated Web-Based Platform



BD4NRG – Analytics Toolbox

- Incremental, Distributed & Self-learning Analytics
- Cross-stakeholder Transfer Learning
- Declarative, Predictive & Prescriptive Real-Time Data Analytics
- Visual Analytics, Dashboard and Report Libraries for Energy Domain

Let's see some examples...

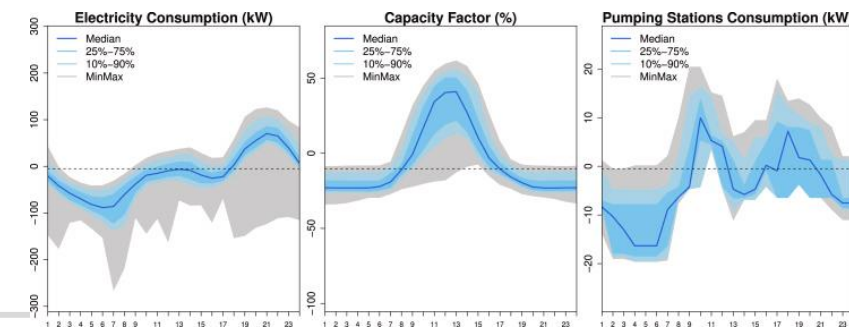
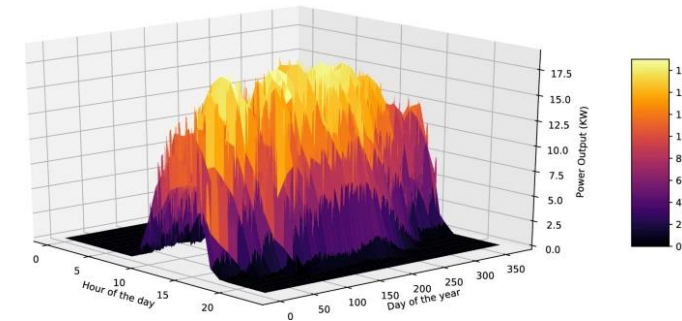
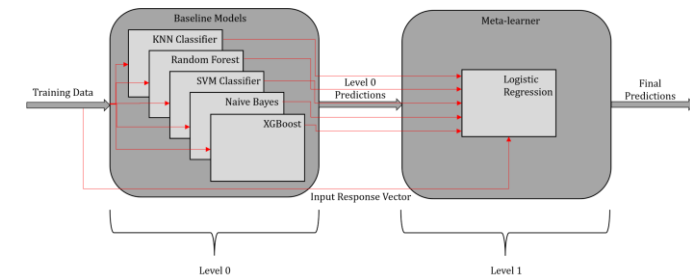


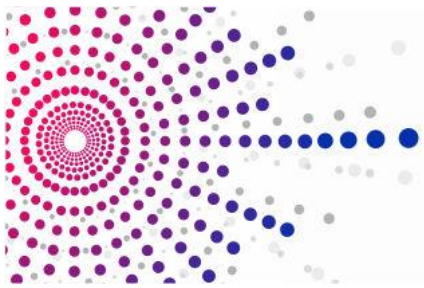
BD4NRG – Analytics Toolbox

BD4
NRG
Big Data for Next
Generation Energy

Developed data analytics services so far:

- ✓ NWP-based Mid-term Photovoltaic production forecasting
- ✓ Large scale Load Forecasting at an island level
- ✓ Water Pumping Systems Load Shifting
- ✓ De-risking investments in energy efficiency actions in buildings
- ✓ Thermal Comfort Analytics for Buildings
- ✓ IPMVP-based Energy Efficiency Renovations Assessment
- ✓ PV & CPV Production NWP-independent Short-Term Forecasting
- ✓ Power scheduling optimization between EV charging station, storage system and PV Panels
- ✓ Cross-Stakeholder Transfer Learning
- ✓ Predictive Assessment of Power Transformer Ageing
- ✓ Visual Analytics, Dashboard and Report Libraries for Energy Domain

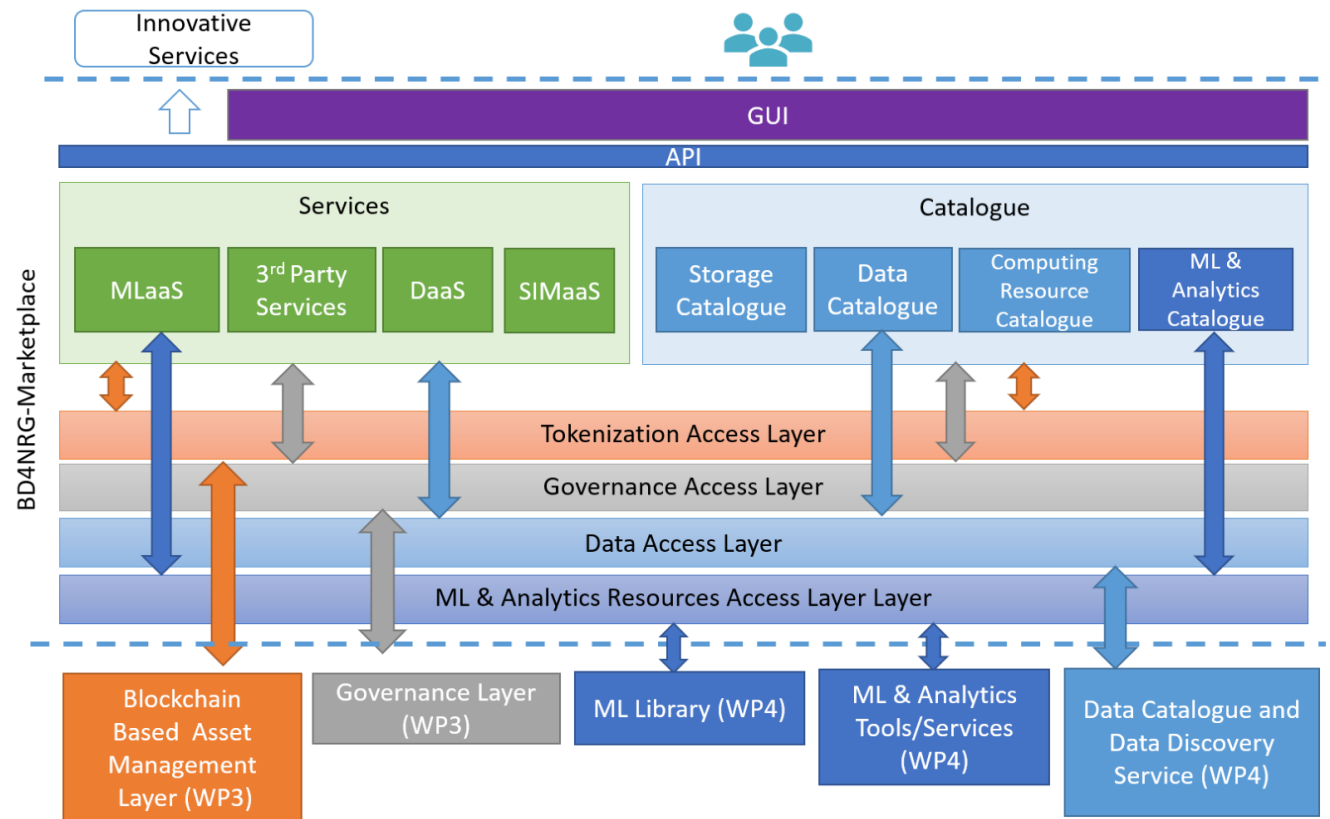


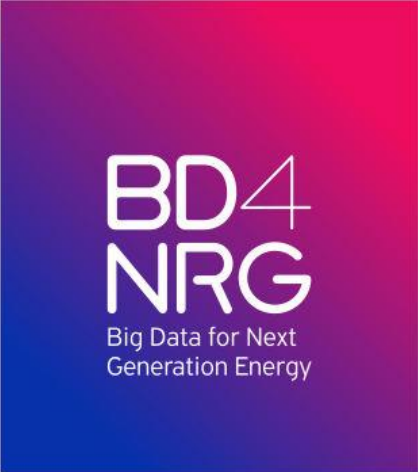
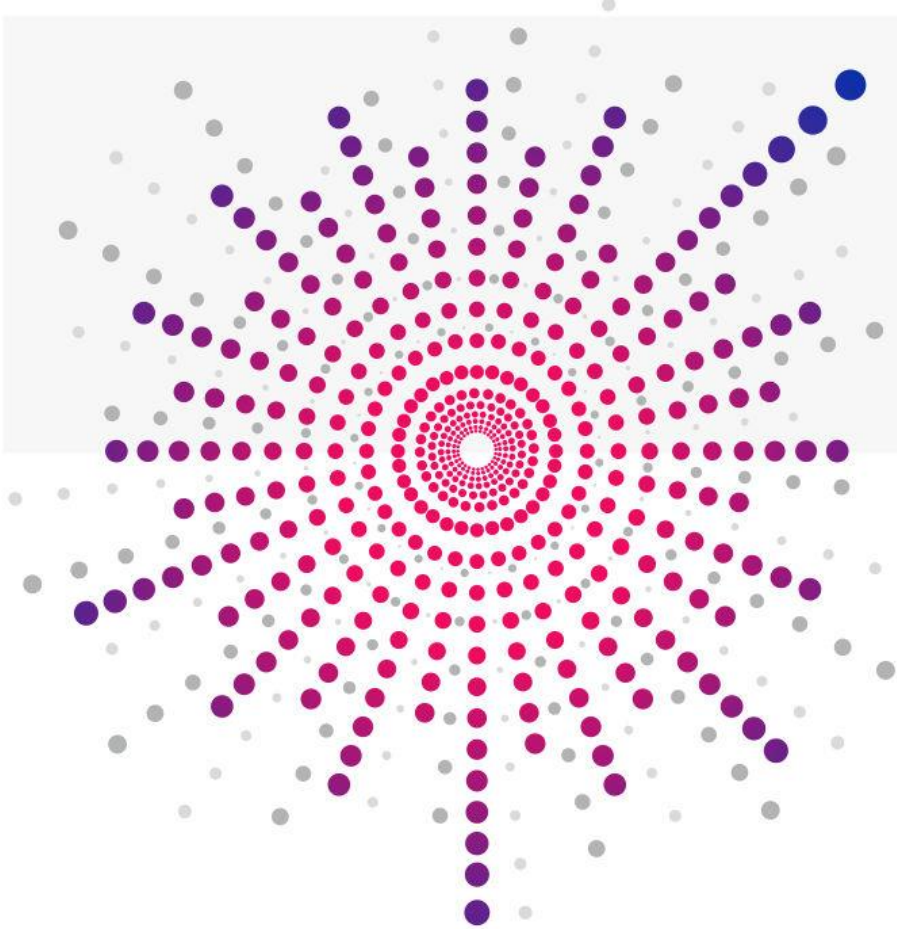


BD4NRG – Marketplace Objectives & Architecture

Marketplaces for realizing EU-level Energy Data Economy

- Boost the wider use of the project’s results by opening new business opportunities that will magnify the market share of European data companies and by expanding the scope of the BD4NRG ecosystem.
- BD4NRG Marketplace integrates and coordinates different services to provide the required functionality.
- Loosely coupled, collaborating services.
- Expose their functionality through a REST API.






Thank you!


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