

ETIP PV parallel event at EUPVSEC 2023- Main takeaways

Data, AI, IoT: Opportunities and Challenges of PV digitalization (21/09/2023- Lisbon)

The session consisted of 3 (15 minutes) interactive discussions with the audience on three roadmaps mentioned in the SRIA PV around the PV digitalization.

The main output from the three discussions can be found below:

- **Digitalisation of PV systems**
 - **Access to data set:**
 - **Percentage of utility scale PV plant implementation in the public domain for wider use-cases (tender process, incentives)**
 - **Or allow companies to claim to make it public to be used following the agreement.**
 - **Digital Twin for PV: Tendency for grey box modelling with benefits from both physics base model and partially data driven qualities.**
 - **Citizen's science perspective: advantage of sharing his own data set to benchmark with other providers.**
 - **Sensors quality for soiling and meteorological measurement to be improved.**

- **Digitalisation of PV manufacturing**
 - **Data sharing:**
 - **Willingness of people is a debate**
 - **Technical measures and governance of data. Issue of data privacy/ protection by applying AI (federated learning (homomorphic encryption) -> Cybersecurity of manufacturing OT**
 - **Edge devices / high speed acquisition (high throughput)**
 - **Data spaces-> demo action/ computing power**
 - **Data representation "compression" -> compressed sensing**

 - **Standardisation:**
 - **Labeling of issues in products and machines linked with language processing**
 - **Education: Self-describing data format (HDF5)**

 - **Interaction between users and developers: Trustable and Interpretable AI/ Theory guided.**

- **Smart Energy Integration of PV**
 - **Enabling services provided as a blueprint from knowledge service as assistance (Environmental and prize development factors helpful for building owners)**
 - **Energy community, smart contracting and sharing.**
 - **EU wide harmonization**
 - **Cybersecurity measures and data privacy to protect data providers**

- **Standardize communication between generators and users from data and technology points of view.**
- **Hierarchical optimization at 3 levels: locally (energy community), distribution, transmission**
- **Real time dynamic pricing to facilitate optimization of demand and generation to the customer side.**
- **Sector coupling (heat pumps)**

The ideas will be considered in the 2024 update of the SRIA PV.

Another possibility to express your opinion on the different challenges mentioned in the SRIA PV is to fill in the survey by 31.10.2023: [EUSurvey - Survey \(europa.eu\)](https://eu-survey.europa.eu)

