Objectives of the Research

The study and the development of a generic architecture that enables the interoperability between heterogeneous systems in the industrial environments generally and the smart gas grid particularly.

Issues

The interoperability between the heterogeneous systems arise due to:

- Different communication mechanisms
- Different data formats
- Different semantics
- Different messaging patterns
- Application of operational/business rules

Scientific skills

- Software Engineering: Model Driven Engineering and data modeling
- Architecture Modeling for IT Systems
- Interoperability: aggregation and data processing techniques

Proposal

Smart-Hub IOT: A conceptual, technically implementable, modular and extensible multi-layer architecture that relies on deep separation of concerns and model based engineering. The architecture framework aggregates the data from external systems (Data Producers - DP), processes it and makes it available for other external systems (Data Consumers - DC) in order to facilitate interoperable exchanges of data between the heterogeneous systems [1,2].

The advantages of the proposed architecture: (i) It is extensible to all models. (ii) it promotes reusing of components. (iii) It reduces the cost and time of developing ad-hoc interoperability solutions.

References


Applications

Gontrand Project: A French national project for the real-time management of a smart gas grid.

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