

Power management in buildings – RealEstateCore

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Category: Information and communications technology integration,

Time plan: Started January 2019

Web: <https://www.realestatecore.io/>

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Location: Uppsala

Possible to visit: Yes

Background

Intelligent services and appliances are getting more and more common in buildings and generate increasing amounts of data. There are several different systems that control climate, lighting, access control, etc., not to mention an array of new IoT devices, all of which generate data. These large amounts of heterogeneous data need to be organized if they are to contribute to cost-efficient and environmentally friendly real estate management.

By developing RealEstateCore, the aim is to develop a common language that will enable increased control within buildings and to develop new services. It is a broad concept that prepare buildings to interact with the Smart City.

The project is part of the testbed Live-in Smart grid in Uppsala, that will lay a foundation for infrastructure to enable quick and easy testing of future smartgrid services, encompassing projects from seasonal storages in hydrogen to emerging charging infrastructures for cars and buses. The purpose is to find and test solutions that are necessary to reach a 100% renewable energy system and to try and find a solution to challenges in power transmission capacity into the Uppsala region.

Implementation of the project

In Uppsala, the main focus for the RealEstateCore trials is to analyze the behavior of the systems when it reacts on signals from an external player. This would for example let the property owner sign a contract where the grid owner or an aggregator could alter the power flows in one or more buildings in certain circumstances. In the project, it shall be evaluated how this work in practice and how the business model for this would look like. The project will also evaluate the RealEstateCore ontology and its components and improve on it continuously.

RealEstateCore is not aiming to be a new standard, the instead intends to work as bridge between existing standards and find common denominators between them. RealEstateCore uses and maps existing standards in a pragmatic manner by adding annotations.

Benefits

The benefits of a common language for property control systems are numerous. Property owners can use RealEstateCore to describe the data of interaction within the buildings that they operate, as well as the management, storage, and sharing of this data. Having the shared language that these data schemes provide enables property owners to connect their buildings with new services on a large scale, without having to worry about building- or technology-specific details and formats.

For the grid owner and the energy system as a whole, the benefits with this system is that it allows for a model where external players can send impulses to a building regarding their energy usage and thus alter the power flows. In situations where there is a strain on the power grid, this would allow for the grid owner to send an impulse that buildings in an area, that leads to a lowered strain.

Scalability

The scalability of the RealEstateCore is uncertain at this moment, but this could to some extent be clarified in the Uppsala project.

Interoperability

The approach in developing and using RealEstateCore is to use and improve upon existing semantic web tools, but also to develop new tooling as needed to support use cases. This is done in collaboration with the Semantic Web research community.

Investment horizon

The tools developed, like ontologies, are released under free or libre licenses.

International potential

Property energy management systems are used world-wide, and the RealEstateCore concept of streamlining different standards is useful in any location.