Business Models for Active Buildings, Markets and Regulation

1. Supply chains involving Active Buildings

The AB enables several different value propositions. We focus for now on the energy aspect and the building supply chain.

The building supply chain ensures the availability of the building through the development and the construction phase. The building could then be sold or rented. The latter approach eases affordability of the building for liquidity constrained occupants. The building offers them a technical platform to supply flexibility to the grid or to sell information.

2. Business Models for Active Buildings

We propose three business models, the build and transfer model, the all-inclusive rental model and the energy service company. All three are presented as business model canvas:

- **Build and transfer** - Building developer installs everything needed for an Active Building but has no ongoing relationship with the owner or occupier.

- **All-inclusive rental** - Building owner (often developer) rents units with all utility costs included in rent, manages building to optimise costs.

- **Energy service company** - buys energy for controllable loads in ABs considering local or central scarcity of energy and credits, reduces and owns the equipment.

3. Willingness to pay for Active Buildings

Data on the Willingness to pay are crucial for an estimate of the viability of the business models proposed. In the following figure we have developed a method to compose this WTP based on accessible data.

Starting from an estimate of energy efficiency premiums (Fuerst et al., 2015) an AB can be interpreted as a highly efficient building. Its market price premium can then be extrapolated with respect to savings and a scarcity premium. In addition the AB can earn from selling flexibility to energy markets. An estimate of future revenues is provided by simulations from Danny and Goran. The components sum up to a total willingness to pay of £18,000.

Research area

ABs offer the technical potential of comfortable, affordable and sustainable living. However, this potential can only be raised if the necessary prerequisites are available. These include the supply of services that ensure AB’s availability, facilitate their operation and lead to revenues from their operation. Since ABs can be integrated into various value chains, we select the most promising ones, design viable business models for according services and examine which regulations on market access and operations could impede the implementation of these value chains. We deal particularly with the energetic aspects of the ABs and consider dramatral long term changes due to the energy transition.

Impact of research - accelerating decarb + support of net - 0 targets

The analysis delivers a sketch of an environment that enables ABs to unfold their potential to reduce CO2 emissions and to deliver valuable services to the energy system supporting the transition to a low carbon economy. It furthermore identifies barriers that might be removed.