Energy services innovation at the edges of distribution grids – a business model perspective

Nico Keyaerts, Research Fellow, European University Institute & Vlerick Busines School, +32 16 24 88 04,
nico.keyaerts@vlerick.com

Overview

This work deals with innovative business models of existing companies that offer energy services at the edges of distribution grids. Our mapping is based on information on over 20 businesses collected by the Horizon 2020 project STORY and other projects participating in the EU's BRIDGE initiative using a reporting template that simplifies and extends the well known business model canvas by Osterwalder and Pigneur (2010). Our method is therefore compatible to the mapping that has been done e.g. by Burger and Luke (2016), who have mapped business models for demand response, for solar PV and for storage systems, but differs in the choice of archetypical mapping dimensions.

Methods

The data collection builds on three building blocks that combined allow an ontological description of the business model of a company. The main building block corresponds to the completion of a simplified version of the traditional business model canvas by Osterwalder and Pigneur. The other two blocks extend the traditional business model canvas by describing the concerned company in general terms, and by looking at contextual factors driving business model innovation to adjust for the static nature of the business model canvas.

Data has been collected for a total of twenty one businesses that are active in the energy sector (Table 1). Of these twenty one companies, six business models have been excluded from further analysis (marked with *) because insufficient information was available or because the business model is in an R&D stage.

Table 1: Overview of investigated businesses according to principal activity

Energy Management Systems	**Storage systems**	**Aggregation & retailing**	**Distributed generation**	**Market facilitation**
Beegy Bosch Smart Home* Smappee*	Caterva Senec.ies SmartStorage Sharp Sonnen STEM Tesla UKPN Younicos*	CarbonCo-op CEA Ecopower* Restore Tempus Energy	Biolectric MyGreenHeating SolarCity	Datahub by Fingrid* Ingrid*

*Excluded from further analysis

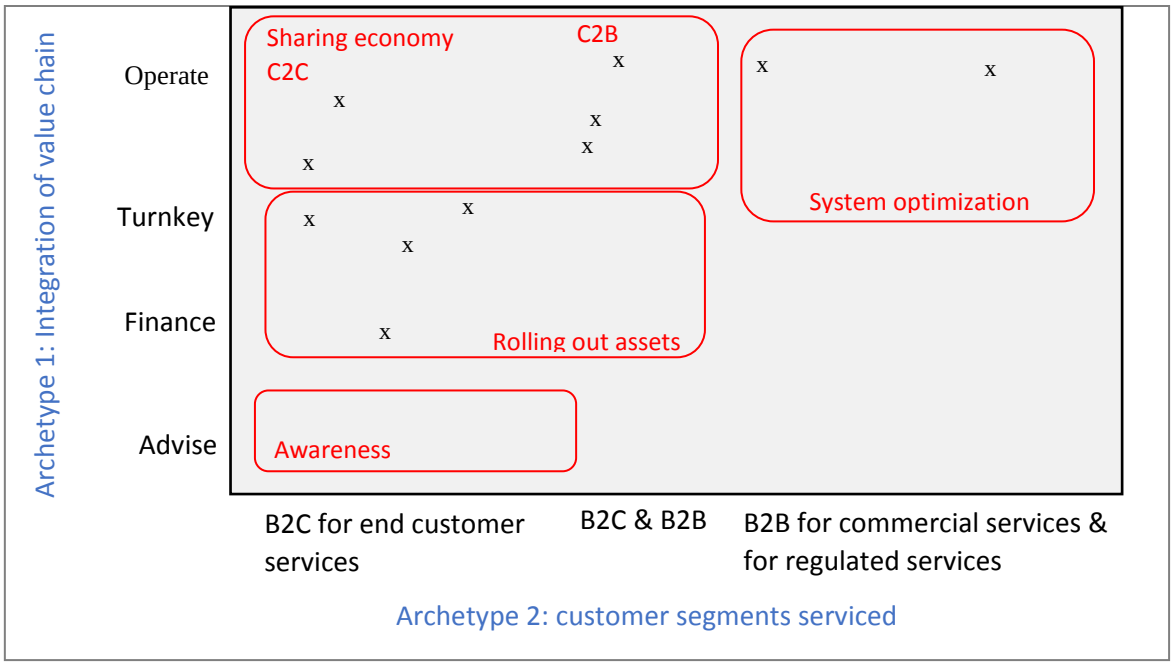
There are several ways to then map these business models. It is well established practice to classify businesses according to value proposition archetypes such as operational excellence, product leadership or customer intimacy. Business models can also be classified according to revenue model archetypes such as retail models with one-off payments, subscription models with usage fees or transaction models with commission fees.

The current mapping is based on two other archetypical dimensions of a business model, which are the degree of integration of the value chain, and the customer segments that are serviced. The integration of the value chain is further divided into advising on energy services, financing energy technologies, offering turnkey solutions, and operating the energy technology. The customer segments are further divided in the business to consumer segment

(B2C), which includes residential, commercial and industrial consumers, and the business to business segment (B2B), which includes commercial services to energy market players and regulated services to grid companies.

Results

A preliminary mapping of existing businesses in a two dimensional space with on the horizontal axis the customer segments served and on the vertical axis the degree of integration of the value chain allows four observations. First, there is a potential gap for energy service companies advising customers about the value of storage systems. Second, the majority of businesses focus on deploying assets through selling turnkey solutions and/or by financing the assets to remove the barrier of the significant upfront cost. The deployment is strongly focused to the B2C segment. Third, several business models embrace the sharing economy concept allowing consumer to offer services to other consumers (C2C, or peer-to-peer) or to market players (C2B). Fourth, at the moment, there seem to be few companies that are oriented towards the B2B segment for optimizing the energy system.



Conclusions

This paper looks at the potential business models to capture value in the business of energy related services, primarily looking at the case of storage systems. Using a common reporting template, a group of European research projects representing a significant cross-section of Europe have collaborated to collect data on innovative business models.

These business models have been analyses to identify archetypes that can be used for further research. The analysis resulted in a mapping of existing businesses in a two dimensional space with on the horizontal axis the customer segments served and on the vertical axis the degree of integration of the value chain.

Based on this mapping, four observations have been made. First, there is a potential gap for energy service companies advising customers about the value of storage systems. Second, the majority of businesses focus on deploying assets through selling turnkey solutions and/or by financing the assets to remove the barrier of the significant upfront cost. The deployment is strongly focused to the B2C segment. Third, several business models embrace the sharing economy concept allowing consumer to offer services to other consumers (C2C) or to market players (C2B). Fourth, there seem to be few companies that are oriented towards the B2B segment for optimizing the energy system. More elaborate analysis on an expanded dataset is however necessary to confirm these observations.