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From energy suppliers to energy managers? A shift in value proposition within a changing industry

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Abstract

Business model innovation is important for firms to ensure long-term sustainability of their businesses. Research on business models and business model innovation is still emerging but offers a helpful framework to assess the current performance of a firm. This research investigates how firms in a changing industry define and establish a new value proposition for their business model. The aspect of defining a new value proposition within an industry is widely unexplored, but is crucial to ensure sustainable performance in a changing environment. The research is based on a series of semi-structured interviews with representatives from German utilities. The analysis of the data outlines the process firms undergo during the shift of their value proposition and the influence of competitors on the process. The research provides empirical evidence that the process involves an intensive phase of experimentation, but also a high openness, especially among the smaller firms, to collaborate with each other. It shows that, while the main process is similar across all investigated firms, the influential strengths and weaknesses differ. We also found that businesses undergo a phase of experimentation to identify and establish a new value proposition, but the extent of experimentation is influenced and limited by the business environment.

1. Introduction

Business models reflect the way a firm creates, delivers, and captures value (Baden-Fuller & Morgan, 2010; Osterwalder et al.,2010), but the concept has only recently gained high prominence and recognition in management and academia, thus research in this field is still emerging (George & Bock, 2011). Previous research has indicated that business models provide a useful tool to understand a company as a whole and bring the customer into the picture of doing business by considering a value proposition. Nevertheless, no formal definition has yet emerged. Efforts have been addressed towards uncovering different themes, that is, the role of business models in entrepreneurship (Zott & Amit, 2007; Trimi & Berbegal-Mirabent, 2012; George & Bock, 2011), for internet-based firms during the new business era (Afuah & Tucci, 2003; Wirtz et al., 2010), and the broader remit of business model innovation (BMI) (Casadesus-Masanell & Zhu, 2013; Chesbrough, 2010; Spieth et al.,2014). BMI describes the change of its core elements triggered by an opportunity or threat in the firms' environment. Most existing studies focus on BMI at firm level, without really questioning what happens if BMI is necessary across an entire industry because of technological progress, a new law, or a change in customer demand.

When a business model element requires change the firm needs to identify a new approach for this element and subsequently adapt the other elements of the business model to ensure long-term sustainability and competitive advantage (Demil & Lecocq, 2010). In this paper we explore this process under the premise that the value proposition of a whole industry changes and all firms within the industry need to adapt their business model accordingly. We rely on a series of semi-structured interviews with representatives from fourteen German energy utilities whereby we investigated the process of defining a new value proposition and the role played by competitors throughout the process. Moreover it outlines the subsequent process of handling the conflict between the old and new business model and the adaption of the other elements. Research into this area is important as it adds to the previous work on BMI which focused on the change of the value delivery element rather than the value proposition element of a whole industry. As Germany is one of the leading nations in the area of renewable and sustainable energy supply this research can also inform utilities in other countries on how to successfully face the challenges caused by technological progress and increased regulation.

2. Literature review

The term business model is ubiquitous in business and academia but often misused due to a lack of understanding of the meaning (DaSilva & Trkman, 2014). In the subsections that follow, we briefly review the literature on business model and discuss the relation between models and strategy in business research.

Business models can be defined as the way “the enterprise creates and delivers value to the customer, and then converts received payments into profit” (Teece,2010:173). Moreover they are “a structural template of how a focal firm transacts with customers, partners, and vendors;” (Zott&Amit,2008:3). Mason & Spring (2011) see business models as a framework shaped by actions from individuals and markets, which in return has the ability to influence behaviour and shape new or existing markets. They can be seen as an important addition to Penrose's (1958) and Barney's (1991) resource-based work on competitive advantage. The resource-based view identifies resources as the key element for competitive advantage, but resources on their own do not create any value for the customers. The business model contributes to this by emphasising the importance of analysing and understanding the customer's view to decide on how to utilise the resources (McGrath, 2010). It also adds to economic theories; while the latter take the delivery of value and the customer's willingness to pay for such value for granted, business model theory stresses the importance of defining a value proposition and value capture as essential tasks for the firm (Teece,2010).

As research on business models is emerging, the ambiguity surrounding the definition of the term and its elements (Shafer, Smith, & Linder, 2005; Morris et al.,2005; George & Bock, 2011) is worthy of note. In the past, lack of clarity has led to a wide range of research using the business model concept in a way to fit with the research problem (Doganova & Eyquem-Renault,2009; George & Bock,2011).

It is important to differentiate “business model” from “strategy”. They are often used ambiguously and ideas in both concepts overlap (Seddon et al.,2004). However, even though both terms are related they describe different things. To differentiate the terms it is important to first define what strategy is, as business models have been defined in the previous section. As opposed to the static business model strategy is a more dynamic concept. It can be defined as “the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals”(Chandler,1962:15). While business models represent the state of how a firm does business at a given point of time (Richardson, 2008),

strategy is “a deliberate conscious set of guidelines that determines decisions into the future” (Mintzberg,1978:935). To ensure the business’ long-term success, managers need to analyse their current business model and the external environment.

Another difference is that current work on business models focuses on the single firm and its linkages leaving aside the market, rivals, competition or changes in the external environment (Magretta,2002; Seddon et al.,2004; Doganova et al.,2009; Casadesus-Masanell & Ricart, 2010). Since the elements of a business model can be imitated by competitors, it is essential for the long-term success of a business to couple its business model with a strategy to position the firm against rivals and ensure sustainability (Seddon et al.,2004; Teece, 2010). A further difference is the “emphasis of strategy on competition, value capture and competitive advantage” (Zott et al., 2011:1031), whereas business models emphasises customer value and the customer role (Chesbrough & Rosenbloom, 2002). Despite the differences, the concepts are closely related.

A changing business environment that demands adjustments in the core elements of the current business model may lead to BMI (Schneider & Spieth,2013). BMI may involve new ways of conducting transactions, delivering value to customers or a change of the actors, including customers and suppliers, and their roles within the business model (Pisano et al.,2014; Demil & Lecocq,2010; De Reuver et al.,2013). It is the point “when a firm adopts a novel approach to commercialising its underlying assets” (Gambardella & McGahan, 2010:263). Amit & Zott (2010) see BMI as a new or adapted activity system within the business, while Markides(2006) argues that “Business-model innovation is the discovery of a fundamentally different business model in an existing business” (Markides,2006:20). However, independently from the extent of change that is required businesses frequently do not preliminarily change their business model but instead postpone the changes until they are under severe pressure and are threatened by the new competitive environment (Chatterjee,2013; Doz & Kosonen,2010). To sense relevant environmental changes early on, businesses need to develop a high awareness for their surroundings. Moreover, they can use their customers as a source of information to identify new trends (Wirtz et al., 2010).

While BMI itself may not create competitive advantage, it can ensure a better usage of available resources or a better fulfilment of customers’ expectations, which then creates competitive advantage (Teece,2010; Zott & Amit,2008; Demil & Lecocq,2010; Voelpel et al.,2004). Moreover, the skill of innovating one’s own business model helps the firm to

inherit a certain level of flexibility and to react to challenges posed through new and emerging business models in its industry (Mitchell & Coles, 2003).

Even though BMI poses the above-mentioned advantages, many firms are reluctant to do it, because of the uncertainties regarding a new business model. Managers who have the power to initiate a business model change are often reluctant to do so, since they are familiar with the current model and aware of its strengths and weaknesses while they know nothing about the potential of the new model. Therefore BMI is more difficult to achieve for incumbent firms, as they are usually entrenched in a net of infrastructure and business activities already (Girotra & Netessine, 2014; Chatterjee, 2013; Chesbrough, 2010). But as openness towards a new business model is the key for successful BMI, managers need to identify the environmental changes that may threaten the business model and actively seek the re-allocation of their resources (Doz & Kosonen, 2010; McGrath, 2010). A further obstacle to BMI is the conflict between the new and the old business model regarding profit cannibalisation between them. Due to those reasons decisions which have an impact on existing routines, processes and value creation are often avoided (Velu & Stiles, 2013; Voelpel et al., 2004).

Previous research distinguishes between two types of BMI. Technology-driven BMI requires a completely new business model to commercialise the new technology, whereas market-driven BMI is based on changes in customer needs and usually leads to an adaption of the existing value proposition (Habtay, 2012; Cortimiglia, Ghezzi, & Frank, 2015). During the process of innovation the firms undergo different stages. Those can be divided into analysis, design, implementation, and control (Bucherer, Eisert, & Gassmann, 2012) or mobilise, understand, design, implementation and control (Osterwalder et al., 2010). A phase of experimentation within the company is a crucial step during BMI. These experiments help test the validity of the assumptions that underlie the business model and potential changes within a limited environment. Since the market environment is constantly changing, the outcomes of these experiments are unpredictable and require investments by the business (Sosna et al., 2010; Doz & Kosonen, 2010; McGrath, 2010; Achtenhagen, Melin, & Naldi, 2013).

Due to those uncertainties, McGrath (2010) suggests a discovery-driven approach. In this the success of the experimentation process is measured by the amount of information gathered about the new environment instead of by how close the forecasting meets the actual outcome. The business can also develop further capabilities alongside experimentation and leadership skills, such as the openness to new business possibilities,

the interaction between different actors and the acquisition and allocation of the resources within the business. Business model change can be a gradual transition by adding new activities, products or services to the existing portfolio or very abrupt through a full switch from one activity to another (Achtenhagen et al., 2013; De Reuver et al., 2013). Market-driven BMI requires the identification of a new value proposition based on customer's needs and requirements and it must be clarified how to monetise the serving of those needs. Based on this, decisions on how to adapt the other business model elements will be (Sabatier, Craig-Kennard, & Mangematin, 2012).

Furthermore inter-organisational collaboration and industry-networks can positively influence innovation within the business. When knowledge is widely spread between different actors, collaborations are a valuable option to exchange knowledge and experiences with other firms. Collaboration moreover reduces the level of risk and uncertainty for individual actors and also increases the available resources so that the actors can better meet the requirements posed by the changing environment. To achieve maximum benefits from collaboration, trust between the parties is required and successful collaboration often depends of the individual firm's market position as well as their position in the value chain (Powell, Koput, & Smith-Doerr, 1996). Overall gaining ideas and expertise through partnerships and networks supports the innovation process, especially if the innovation is planned to be disruptive and, as a result, enable the company to reconfigure its business model (Calia, Guerrini, & Moura, 2007).

After experimenting and deciding on a new business model, it is crucial to identify the right point to replace the current business model. In most cases both business models will run parallel for some time so that the organisation can get used to the new business model and core organisational values do not change abruptly. The knowledge that has evolved during the experimentation phase needs to be spread out within the organisation and in some cases new resources and capabilities need to be deployed to establish the new business model. Due to the co-existence of two business models for this transitional phase, it is key that one does not negatively impact on the other (Sosna et al., 2010; Johnson et al., 2008; Doz & Kosonen, 2010) and identify how two very different and potentially conflicting business models can work alongside each other. A new business model may require a different utilisation of the firm's resources and capabilities and thus the firm must be prepared to cannibalise the existing investments in order to make a disruptive change. For a successful transition it is important to leverage the synergies between the business models, but also to emphasise the differences in which the new

business model will create and capture better value to gain acceptance (Velu & Stiles, 2013).

As the literature review shows, extant research provides a detailed approach on how to design business models, their relation to strategy (Casadesus-Masanell & Ricart,2007; Casadesus-Masanell & Ricart,2010; Osterwalder et al.,2010; Teece,2010), and the organisational structure that could best support BMI (McGrath, 2010; Sosna et al., 2010; Chesbrough, 2010). Extensive research has also been conducted on business model design on entrepreneurial firms (Zott & Amit,2007) and on the circumstances that trigger BMI (Chesbrough, 2007; Johnson et al.,2008). Gambardella and McGahan (2010) were the first to research how identifying a new value delivery approach can influence business models within a whole industry. However the process of BMI under the premises that the value proposition rather than the value delivery or value capture of a whole industry has come under pressure through an external trigger remains widely unexplored. However, understanding the change of the value proposition is important to ensure long-term success. Through this research we investigate how firms in a fast-changing industry undergo the process of market-driven BMI, with a specific focus on value proposition.

3. Methodology

This research uses a multiple case-study approach for the main purpose of theory building. The case-study was conducted through fourteen semi-structured interviews with representatives of German energy utilities of different sizes and regions and supplemented through information in annual reports and company websites. BMI is a phenomenon that is highly dependent on the attitude and behaviour of the organisation's actors, for example managers and employees. It is often shaped by existing path dependencies and organisational structures within the company (Demil & Lecocq,2010).

This research investigates how firms within a changing industry identify and implement a new value proposition for their business model. According to the criteria posed by Yin (2014) case-study is the best method to explain how something is done and requires studying the phenomenon within its natural environment. Moreover a theory-building case-study approach is used because even though there is extensive research on BMI, it does not discuss the question of defining a new value proposition within a fully changing, diverse industry. To increase rigour the research is based on a multiple case-study approach (Eisenhardt,1989; Ketokivi & Choi,2014).

Sampling strategy: Theoretical sampling is used when the selected cases are chosen to replicate or extend an existing theory or to represent various categories and thus represent different examples in theory building (Eisenhardt,1989). The strategy of snowball sampling is based on asking the interviewees to further recommend other participants for the study. The benefit of this approach is that potential participants are more likely to respond to a request if the trustworthiness of the researcher has been confirmed by someone they know (Small,2009; Remenyi et al.,1998). This research combines both theoretical sampling and snowball sampling. Thus seven initial cases were selected to gain a broad and diverse insight into the topic and further interviewees were recruited through recommendations.

Evidence to answer the research question was gathered from the German energy industry in which technological progress along with a new law series issued in 2011 have led to the current business model coming under severe pressure. Along the industry being eligible due to its current business model change process, it is also an industry providing public services and thus this research could potentially provide information on successful BMI in other public service companies as well.

Within this research the selected firms are referred to as 'utility'. The term describes a firm which provides public services such as water, heat, light and electricity supply or transportation (Rappa, 2004). To be eligible for this study was that the firm had to provide electricity. Therefore within this research the term describes a company supplying electricity to the customer, even though many of the studied firms provide other public services as well. The German utility market is highly fragmented and diverse with over 800 utilities offering electricity and sometimes further public goods to consumers (Richter, 2013). Moreover, utilities in Germany can be privately or publicly owned (municipal utility), which influences their steering as well as operating radius (Sander,2009).

The traditional business model of utilities was based on a combination of generating, delivering, trading and retailing electricity (Rappa,2004). However technological progress has led to a more de-centralised approach of generating electricity in which many customers can produce their own electricity. A PwC energy study found that more than half of the interviewed energy managers expect a massive change for their business by 2030 (Pwc, 2013). While all energy utilities face significant change, one of the most drastic disruptions can be observed in Germany. The German government in 2011 announced their goal to achieve the energy transition (Deutscher Bundestag,2011). This is

based on two elements: renewable energy generation and energy efficiency. By 2030, 50 percent of the electricity in Germany will be generated through renewables and, moreover, the efficient usage of electricity shall reduce the overall electricity consumption (Bundesministerium für Wirtschaft und Energie,2014). Whilst the first element, renewable energy generation with a parallel nuclear phase-out until 2022, influences the current electricity generation of utilities, the second element, energy efficiency will impact the amount of electricity utilities can sell to consumers. The combination of both, customers generating their own energy through decentralised power generators such as solar panels or co-generators while simultaneously reducing their overall usage has a severe impact on the utilities' business model (KPMG,2014). The energy transition puts severe pressure on the utilities to innovate their business models as the past value proposition of reliably delivering electricity to the consumer has lost its relevance and the technological progress will lead to an increasing number of energy independent households and de-centralised energy generation.

The fourteen utilities in this study range from small to large and from public to private utilities. The cases were chosen through internet research and through recommendation of knowledgeable representatives or interviewees within the industry. The main criteria were that the company is a German utility which delivers electricity to consumers. Furthermore it was important to include companies of different sizes and regions to fulfil the criteria of theoretical sampling.

For confidentiality purposes no absolute data such as electricity sales or revenues are provided. Instead the utilities have been sorted into different clusters, based on their annual electricity sales, as suggested in a previous study conducted by the German Association of Energy and Water Industries (BDEW) and its release on Germany's 10 largest electricity suppliers (BDEW,2011; BDEW,2013). Where possible the data for the clustering has been obtained from the latest annual report (Company 2,2015; Company 4,2015; Company 5,2015; Company 6,2015; Company 7,2015; Company 9,2015; Company 10,2014; Company 11,2015; Company 12,2015; Company 13,2015) or publications on websites (Company 1,2015; Company 3,2015). Where the data is not accessible publicly, which was the case for Companies 8 and 14, it has been provided by

the interviewees.¹ Table 1 below provides an overview of the cases included in this research.

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3.3 Data collection and data analysis

Data was collected through seventeen semi-structured interviews that were either conducted by phone or face-to-face. All interviewees held expert or management-level positions in their companies and were involved in the development of a potential new value proposition.

The interviews lasted between 30 and 75 minutes and all but two were recorded through a recording device and subsequently transferred into written protocols for the purpose of analysis. Two interviewees did not consent to being recorded, so extensive notes were taken to keep the details. Upon request, transcripts were provided to the interviewees who could then make comments and confirm their consent. The interview guide was revised and adapted throughout the data collection process.² As Eisenhardt (1989) states, the continuous overlap of data collection and data analysis is a key feature of theory-building case-study research. For triangulation purposes, to increase rigour of the collected data and to overcome the potential bias in elite interviews (Welch et al.,2002) the data is complemented by data from annual reports and company websites.

Analysis of the data was done both within and across the cases. Initially the elements of BMI, especially those that involve the process of defining a new value proposition, were identified for each case individually. Moreover the reasons for the change of the value proposition and the handling of conflicts between the old and the newly evolving business model were assessed. It was also analysed what role the competitors or other German utilities play in the process. Four main elements were derived from the analysis:

- Change awareness,
- Process of identifying a new or adapted value proposition,
- Influential factors on the process to define a new value proposition,
- Strengths and weaknesses to implement the new value proposition.

Limitations

¹ Due to an agreement with some of the participants to ensure anonymity the companies are not referred to by their names. Further details about the data source could be provided on an individual basis and for academic purposes only.

² The interview guide is available upon request.

A frequent critique on qualitative research and case-studies in particular is the lack of generalisability of the findings and potential biases occurring during the research process (Diefenbach, 2009). It is also often criticised for being biased, either through case selection or the collection of data. To minimise bias this study uses theoretical sampling as well as a method of recruiting further interviewees through previous participants. Furthermore a high level of objectivity is also ensured through triangulation of data by adding information from websites and annual reports to the interview data (Remenyi et al., 1998) A further critical remark could be made of the mix of phone and face-to-face interviews. While this was necessary because of the limited amount of time for the research and financial constraints, previous research has indicated that there is no significant difference in the quality of data gathered from face-to-face interviews as compared to phone interviews (Sturges & Hanrahan, 2004). The data analysis showed that neither the length of the interviews nor the main themes that evolved during the discussion differed based on whether the data was collected by telephone or during a face-to-face interview.

4. Findings

This section presents the findings gathered from the interviews. Initially the interviewees' judgement of the current situation is presented, as change awareness is a crucial element for successful BMI. Afterwards the elements that were considered important during the innovation and experimentation phase are outlined followed by the factors which influence said process. Subsequently this section outlines how the utilities intend to implement the value proposition they derive from their experimentation phase on the market and what they see as their strengths and weaknesses compared to competitors. Finally the findings regarding the question of how the utilities intend on delivering their new value proposition to the customer and how to capture value from it are presented.

4.1 Change awareness

To define and establish a new value proposition and subsequently innovate the business model it is crucial for the firm to be aware of the need for change. The findings from the conducted interviews clearly demonstrated such awareness across all cases. The majority of interviewees identified two drivers for this: the increase in decentralised generation and digitalisation. When asked about their opinion on the future of the energy industry and the predicted change one interviewee stated:

“Utilities will still exist in the future but they will be different, their generation portfolios will change, there will be more energy-related services than today and the industry structure will be different.” (Interviewee utility 2)

Utilities across all sizes have accepted this change and its non-reversible nature and therefore try to shape the new environment:

“We are not powerful enough to change or reverse this trend, so rather than working against it we want to be a part of it.” (Interviewee utility 4)

These statements summarise the opinion all interviewees gave on this matter, which illustrates the awareness for environmental change. However to successfully undertake BMI firms must also be aware that the environmental changes, through the energy transition and technological progress, will have an impact on their business model and that there is a need for change to survive in the new market environment. The findings showed awareness for the impact the shift in the industry will have on the individual utilities, but whilst some of the interviewees identified this development as a long-term process, others estimate an abrupt change of the industry within the next few years. Independently from the time-frame though, all interviewees agreed that the utilities will need to find their role in the new industry structure. One interviewee stressed that the challenge for utilities is to accompany the change process in the market and guide consumers in their transition from consumers to prosumers. A prosumer describes a combination of a consumer and a producer and includes market actors who produce and sell energy while simultaneously still being dependent on an energy retailer to cover shortages (Sepponen & Heimonen, 2015).

Overall all representatives agreed that the energy industry is undergoing fundamental change and that to ensure long-term sustainability they must react by innovating their business models to meet the new market conditions and customer needs.

4.2 Elements to identify a new value proposition

This research investigates the way businesses in a changing industry identify a new value proposition for their business model, therefore this part demonstrates the main findings. It presents the elements and procedures the utilities listed to assess new activities and subsequently define a new value proposition. It also shows whether the findings indicate a disruptive or more gradual change of the business model.

All utilities used a range of different elements and techniques to identify a new value proposition. One key finding was that all elements and ideas that are tested revolve around the field of energy so that the change within the utilities is gradual and builds on existing resources, assets and know-how. Table 2 provides an overview of the most frequently named elements in the process of finding a new value proposition across all cases.

-----Table2-----

The main aim of the pilot projects and the small-scale implementation of certain activities is to gain experience in those fields and to test the applicability and customer demand. It also enables firms to establish a reputation in those fields. For the benefit of knowledge and reputation building all companies willingly accepted the losses generated by most activities throughout the experimentation stage.

“Even though we are aware that there will be no huge demand initially, we offer the product and even if there is very little demand in the next few years, we can learn from it. How does it work, which technical problems occur, does our offer meet customer demand, how do customers like the product? This way we try to be prepared for the day when there is mass demand in these fields.” (Interviewee utility 6)

To assess the potential of the new activities with regards to customer need fulfilment and its potential to be part of the future value proposition, the companies used constant evaluation methods. However, the scope of experiments varied depending on the firm's size. Since smaller utilities are facing tighter financial constraints, they had to be very selective with their investments, while bigger utilities' experiments can be spread wider. Moreover large utilities have the necessary competences and financial opportunities to actively engage in partnerships or investments into new market entrants such as Start-Ups, which allows them to get access to new ideas, knowledge and methods that are disconnect from the existing path dependencies.

Regarding the time scale for the change process most interviewees stated that they had started with the re-orientation of their business between 2008 and 2010 as this was when a lot of technological progress was made. According to the interview data the energy transition that was resolved by the German government in 2011 (Deutscher Bundestag, 2011) has not caused, but accelerated the process. Nevertheless some of the municipal utilities did not realise that the change would affect them until a couple of years ago and only started with the innovation process two or fewer years ago.

All interviewees emphasised the importance of industry networks and exchange within these networks. Most of the other utilities in the German market are perceived as partners rather than competitors. There is a high willingness to share knowledge, exchange experience and even collaborate on certain projects. One of the most common reasons named for this was the limited availability of resources especially within the smaller firms as well as the huge variety of activities. This makes it difficult for the small utilities to enter all emerging fields independently.

“The market is structured in such a way that very rarely two municipal utilities stand in direct competition with each other. Therefore there is a general openness to exchange information and to cooperate.” (Interviewee utility 9)

A further reason for facilitated cooperation among small utilities is the aim to reach a certain scale within the projects to make them more efficient and profitable, as due to the restricted regional scope of action of municipal utilities their customer potential is often limited. Therefore one interviewee stressed:

“If we cannot scale something, we need to find others to cooperate with. Something that is not profitable for us individually may be profitable in a group.” (Interviewee utility 1)

4.3 Influential factors

When researching the process of BMI and particularly the identification of a new value proposition it became obvious that it is important to not only focus on activities undertaken by the firms, but to also consider the internal and external factors which influence the options for a new value proposition. From the interviews four main factors developed which are considered as influential on the process of evaluating a new value proposition. These factors are: the customer structure within the region of operation, the attitude of the customers, the pace of technological progress and political decision making and the legal environment.

The influence of the customer structure on the change process can be further broken down into the themes of purchasing power and housing situation respectively. Most of the new activities the utilities are experimenting with are tailored to meet the requirements of energy efficient living and self-supply of electricity. However, many of the currently furthest developed solutions, for example assets such as solar panels or charging stations for e-vehicles, are aimed at financially liquid customers owning a house. Thus in areas where a high share of the customers live in rented homes and have more financial constraints the experiments and new solutions have to be adapted accordingly. On the question of the living situation, interviewees frequently agreed that the development of products for owned accommodation is far more advanced than the solutions for rented accommodation. Nevertheless developing solutions for flats and customers living in rented homes has begun as well.

“The question whether one owns or rents a place plays a crucial part. Only if I own a place and intend on living there for longer I will invest in energy efficient equipment” (Interviewee utility 7)

Most of the small and medium-sized utilities agreed with this statement. However, the bigger the region of operation, the more diverse is the customer structure and the bigger is

the variety in potential products and services. Therefore the influence of the customer structure plays a stronger role for smaller utilities operating locally. For them, the target area strongly influences the value proposition and this has to be considered when working in networks.

“Something that has worked for a medium sized utility in West Germany doesn’t have to work for us. It depends on the size of the town, on the infrastructure, is there a manufacturing industry? Are there many businesses? How is the social structure etc.” (Interviewee utility 6)

A further factor that was seen as critical during the innovation process is the influence of the political and the legal frameworks. Currently the decision-making around energy politics is unsteady with a lot of uncertainties regarding the future legal framework. Legislation also restrains the progress of some developments. One example that was given is a law that was established in 2014 in a county in southern Germany. The law states that when building a wind turbine, the surrounding area for a radius as long as ten times that of the wind turbine must be housing free (Bayerische Bauordnung, 2007). Given the infrastructure in Southern Germany, this discourages further investments in wind energy.

Apart from this specific law there was a general fear that future laws will increase competition, accelerate the transformation process or push it into a different direction. Moreover several interviewees felt that the current decision-making in politics is based on short-term decisions whereas the investments the utilities need to take to innovate their businesses are long-term and thus conflict with the environment that shapes their sphere of action. Thus there is a general fear to making long-term investments within the uncertain environment. This especially poses a problem to smaller utilities which have limited financial options.

Overall it became apparent that the volatile external political and legal environment negatively impacts the business innovation process as the utilities fear to make huge investments into new activities, services and products due to the potential of future disruptive changes. Therefore the process of BMI is, whilst on-going, slower and more cautious than it would most likely be in a more stable environment. Due to many of the uncertainties affecting all kinds of utilities no matter the size or region, such as a potential further liberalisation of the EU energy market, all of the utilities are currently caught in this state of uncertainty regarding strategic planning and action.

4.4 Implementation

Despite the above mentioned uncertainties regarding the definition of a new value proposition there is a general acknowledgement that the business model needs to change.

This section will examine the strengths and weaknesses as well as any potential problems that may help or hinder the implementation of a new value proposition and subsequently a new business model in the firms. Initially the strengths and weaknesses which influence the presentation of a new value proposition to the customer are presented. Afterwards it is assessed how the utilities plan on delivering this value to the customer and more importantly how they plan on capturing value from the new business model and how they perceive the conflict between their current and their new business model.

Table 3 provides an overview of the answers given by the interviewees when asked for the strengths they have and that they will benefit from when implementing a new value proposition.

-----**Table3**-----

A key finding was that all utilities named the trust of customers in their business or their brand as strength and see this as an important advantage over industry-external competitors that push into the energy market. Especially small utilities identify this as an important asset to establish and place the new value proposition on the market. Small and medium-sized utilities see their regional embedding as their key strengths in comparison to the large multi-national utilities. This also includes the fact, that all small and medium-sized utilities named their proximity to their customers and their understanding of regional specifics as key strengths over large utilities and industry-external competitors. In contrast for the representatives from the large utilities their brand reputation will play a key role in entering new fields as it represents technological expertise, long-term experience and stability which can prove to be an advantage over smaller utilities and new Start-Ups entering the market. Moreover their involvement in various business fields and value-added steps is seen as an advantage. This also relates to another frequently named strength among medium and large utilities: the know-how and experience of established utilities.

The findings regarding flexibility presented a disagreement within the small and medium-sized firms. Some saw their businesses as more flexible due to the smaller size, but others felt their business is just as inflexible as larger ones due to staff reluctance or the influence of politics due to their status as a publicly owned company. However the majority saw a slight advantage due to shorter chains of command. The role of the strengths in the innovation process is explored in the discussion (Section 5). Interviewees were also asked what they thought were the weaknesses of their company in implementing a new business model. Table 4 below provides an overview of the responses.

-----**Table4**-----

A major weakness named by all interviewees was a certain reluctance of their employees to change. While there is a general support for the overall change there is usually a bigger refusal when it gets to actual changes in departments or working methods. This weakness is combined with a lack of skills that many interviewees saw in their sales staff, however this is addressed by continuous staff training or the outsourcing of sales activities during the transformation process. Path dependency and overcoming the existing organisational culture was perceived a barrier across all sizes of utilities. While large utilities aim to limit the negative impact of deadlocked organisational structures on innovation by positioning the innovation entities outside of the main organisation, smaller utilities do not have this opportunity and are struggling to find the balance between innovation and incumbent business. The discussion will further explore the issues of overcoming path dependency, organisational culture and staff reluctance.

The large utilities, as well as to some extent the small and medium-sized utilities, see inflexibility as their major disadvantage. The reason for this inflexibility in large organisations stems from long decision-making processes within their organisation whereas in small and medium-sized utilities, the inflexibility is caused by the influence of politics, e.g. through the city council, on many decisions. While large utilities identified their inflexibility as their major weakness, the smaller utilities most often named the influence of politics either through indirectly through the setting of the political framework or directly through the ownership structure of many utilities as a major problem. Moreover the smaller utilities often identified a lack of human and financial resources as a weakness in the innovation process. The discussion provides further insight into the consequences of these weaknesses.

4.5 Value delivery and value capture

While the classic value proposition, the delivery of energy to the consumer, has been delivered through self-operated channels, a new value proposition frequently requires a different value delivery, such as partners and other businesses to deliver the new value proposition. The reasons why the utilities chose external value delivery channels or a combination of self- and foreign-delivery were manifold.

For small and several medium-sized utilities, one reason to outsource certain activities, was the lack of own resources and sometimes know-how. These activities may include the sale of solar panels, or consultations on how certain constructions to insulate the house more efficiently can best be done. Often, part of the value proposition, such as the initial screening and testing of the house and the detection of improvement potential, is

delivered by the utility itself, while for other activities, such as the delivery of assets, certain details regarding the consultation and the final implementation the utility then cooperates with local handicraft businesses or start-ups which provide specialised solutions.

“For example currently during the solar weeks we serve as a sales platform and personal point of contact for our customers, but the final consulting and implementation at home is realised by a local handyman.” (Interviewee firm 7)

This means that in the future the utilities will more often than today serve as an agent or manager for the customers, but the actual work on-site will be provided by third parties. Alongside the adaption of the value delivery element, the value capture must also be adjusted accordingly. In the case of the energy industry in Germany the main value is currently captured through energy generation and trading, and monthly utility bills. However, the new value proposition of energy management, which includes the elements of consultancy on energy efficiency management and on self-supply options, conflicts with the aim to sell electricity and gain profits from it. The data shows that all interviewees were aware of this problem, nevertheless they felt that to some extent cannibalisation is necessary. The opinions were all very similar and a statement from one interviewee from utility 4 summarised this best:

“I’d rather cannibalize myself to some extent than be eaten by someone else”

There was a consensus that if the energy utilities will not provide these services then someone else will, as there is a general demand for them. The current business model of utilities would therefore be impacted either way. Thus by changing or adapting their own business model, utilities try to compensate for losses in their old business model as well as possible, even though they all agreed that revenues will not be the same.

*“It is a fact, that there is a demand and a market for these services, but from today’s point of view it will not deliver the same revenues our traditional business did over the last few decades. Therefore ideally we can combine both.”
(Interviewee utility 9)*

Generally interviewees intended to capture value on three levels. One is from the sale of the necessary assets, i.e. co-generators, solar panels, charging stations etc., either by manufacturing and selling these assets directly or by gaining a commission through forwarding customers to partners. While the former is only realistic for larger utilities, the latter is done by utilities of all sizes. Secondly, while basic energy efficiency services are usually free for customers, the utilities intend to charge for more extensive and specialised services, for instance by adopting contracting models. The third is to combine these new

elements with the old service of delivering electricity, especially given that some recent studies seem to assume that almost no household will be fully energy-independent in the short run (Trockel, 2014; Tjadan, Weniger, & Quaschnig, 2014). Thus in the future, value capture will be more diverse, based on the changed value proposition, as highlighted by the interview data, there may be a shift from sole energy or electricity supply to a more holistic energy service or energy management proposition.

5. Discussion

This research investigates the process of identifying a new value proposition within BMI due to severe external influence on the industry. In this the study focused on two major aspects: The internal process and behaviour to identify a new value proposition and the external factors influencing this process.

5.1 Finding a new value proposition

Literature suggests that the ideal point for incumbent firms to reconsider the sustainability of a business model and adjust it, is when the business is still running smoothly (Markides, 1998). Even though this reduces the pressure on the change process, the firms in this study only began re-orientating themselves when they felt impact on their firms. Only when the utilities realised that neither the technological progress nor the changed expectations from the environment were reversible, they began to develop a new value proposition and thus decreasing revenues now limit the potential for experiments.

The subsequent process of finding a new value proposition is often approached with a high level of uncertainty and reluctance among staff and management. As discussed in the literature review (Voelpel et al., 2004; Sosna et al., 2010; McGrath, 2010; Chesbrough, 2010), reluctance to BMI and changes to the existing infrastructure in incumbent firms is overcome once the changes in the environment have a severe impact on the business. This study confirmed these results and showed that customer demand, decreasing revenues from electricity sales and the political and legal pressure have increased and triggered the process of identifying a new value proposition across all utilities that were studied.

Moreover, previous research suggests that a results-open phase of experimentation is necessary to find a new value proposition for a business (McGrath, 2010; Sosna et al., 2010). The findings add to previous research by providing a more detailed understanding of how different elements (e.g., pilot projects, staff idea management, customer councils, cooperation with research institutions, industry-network exchange) are used during the experimentation phase. In particular, the analysis showed that while the basic elements of

experiments are similar across all utilities, the scope of experimentation varies. Larger utilities experiment within a wide variety of fields, aiming to position themselves as first-movers on the market. In contrast smaller utilities prefer to observe the market and initially scan the environment for solutions which have been successfully tested by others. They learn through exchange with other utilities before engaging in the piloting of promising new products or services. The reason for this lies in the limited financial and human resources of smaller utilities which restricts the number of experiments they can undertake. Similar observations have been found in previous studies (van de Vrande, de Jong, Vanhaverbeke, & de Rochemont, 2009). This leads to the phenomenon that the small utilities cannot make use of one of their major strengths against large and medium-sized utilities; their greater flexibility and less bureaucracy. Thus in the process of identifying a new value proposition in the industry the large and medium-sized utilities take first-mover and early-adaptor positions, whilst the smaller utilities take a more selective follower position.

The high influence of city councils as shareholders in public companies, which in this study includes the municipal utilities (see Appendix Table 1), hinders fast and independent decision-making (Roessner, 1977) as many of the decisions have to be discussed within the council parliament before they can be put into place. Additionally the conflict of interest between business and politics influences the innovation process. Whereas the managers of the utilities often did not identify any potential for investment into certain activities, politicians heavily supported such investments simply for prestigious reasons. Considering the already tight constraints on resources in those firms, this puts them in a disadvantaged position compared to private company competitors with a similar business model, as those can make investment decisions independently. Therefore the publicly owned utilities should be granted more freedom within the new business fields to be able to keep up with the private companies, as long as this does not affect their public service duties.

With regard to the strengths that will support the establishment of a new value proposition Chesbrough (2007) sees the bond to existing strengths as a major problem hindering disruptive BMI. Accordingly the findings of this study show that the strengths the utilities aim to utilise to establish a new value proposition are based on strengths stemming from previous experiences and the old business model. Moreover the new products and services that are considered as options evolve closely around the past business activities. However, other scholars (Amit & Zott, 2010; Doz & Kosonen, 2010;

Cortimiglia et al., 2015) have argued that the awareness of firm's strengths, weaknesses and competencies as well as the link to its roots are a major key to establish a successful new or changed business model and this seems to be the approach of utilities.

Additionally this study has found that there are two different patterns of strengths that the utilities consider important. Larger utilities build on rational strengths such as resources, know-how, a high level of experience in the energy field and a well-known brand name. They assume that these strengths will help to convince the customer of the new value proposition and to successfully place these new services and products on the market from their perspective the customer will base his decision on logical arguments and rational strengths and will be less influenced by emotions. In contrast the smaller utilities find the majority of their strengths and competitive advantages in the emotional and loyal attitude of the customer. The small and medium-sized utilities especially see their local roots and well established presence and involvement in the region as their main competitive advantage against new market entrants and larger utilities with the same or a similar business model. This emotional aspect of BMI has not been discussed before. Due to the limited scope of this research further research is needed to assess whether this is a general phenomenon.

The findings of strengths across utilities stand in contrast to a Finnish study on the transition to energy service management. The Finnish case study found that utilities can be hesitant to enter this new field due to a fear of harming their reputation and scepticism of customers towards the real motives of a utility providing these services (Apajalahti, Lovio, & Heiskanen, 2015). In contrast the German utilities showed a high preparedness to utilise their reputation to establish the new activities and also saw the trust of consumers in their business as a major key to successfully establish energy services. However, further research would need to confirm or reject whether these findings may stem from different market situations or a bias in case selection, as both studies have been based on a small sample size.

A previous study on innovation within incumbent firms found that those firms, which decided to embrace the innovation, often adopted the innovation alongside the old business model (Charitou & Markides, 2003). A similar behaviour was found in this study, with most representatives not perceiving the two business models as mutually exclusives but as complementary and able to exist alongside each other. However, as opposed to some industries in which the new and old value proposition may stand in conflict with each other, the energy industry has the potential for complementary business models, because

full energy autonomy from consumers is very unlikely. Therefore a new value proposition towards holistic energy management will lead to an adapted rather than completely new business model combining both the new and old model by providing services to enable energy efficient, self-supplying households while still delivering any extra electricity.

Nevertheless such a parallel existence of conflicting business models that require a new way of delivering value leads to problems among staff members. In this study this was especially observed among sales employees. On the one hand the new business model requires different sales skills as selling assets such as solar panels or charging stations for e-vehicles is a very different task compared to selling energy contracts, and on the other hand the sales members of staff have to handle the conflict of the business models in their daily activities. The high awareness among sales employees that for every assets and energy service they sell, their sales for electricity decrease leads to a conflict of interest and causes difficulty in gaining full support for the new business model from those employees. As a solution several medium-sized and the large utilities initially use external sales experts for the new business model, which seems to be good way of solving this conflict. However, this is not possible within smaller utilities and therefore these firms consider an approach where some of the sales employees work for the old business model and the others work for the new business model, thus preventing the employees from standing in constant conflict.

This study furthermore found that the common barriers to successful change such as path dependency and staff reluctance appeared in all cases (Sosna et al., 2010; Chesbrough, 2010; Girotra & Netessine, 2014). The transition from a quasi-monopolistic public service company with very limited competition and low innovation incentives, into a firm that survives in a competitive environment is a difficult step, which has been fostered through EU-legislation (Torres & Pina, 2002; Reichard, 2006) and now increases even more with the challenges on the existing business model. Within a short time-frame the utilities need to find a way to shift from a firm doing business in a highly protected market into a firm that is able to establish their new business model onto a competitive market. The interview data indicates reluctance among established staff members to adapt and accept the new situation of the company. However, the inclusion of the employees into the innovation process (e.g. through idea management schemes), the high pressure on the industry, as well as the employer loyalty that is observed in the smaller utilities, have lead to a high acceptance and bigger openness and effort to change among the employees of the utilities.

5.2 The role of competitors in the process

The study assessed what influence competitors have on defining a new value proposition. Surprisingly it was found that other utilities most often were not perceived as competitors but as partners with which the utilities engaged through networks and exchange to learn and benefit from the experiences of each other. While other utilities that were active in the same region were observed, the assessed utilities were linked to many other utilities through inter-organisational platforms. Moreover joint projects were set up from small utilities to be able to cover a wide range of activities. The threat was seen in new, industry-external competitors such as solar panel retailers or technological firms, which are emerging into energy market as well. These firms are seen as threats in some cases due to their higher risk disposition with regards to emerging firms (Christensen & Bower, 1996; Hill & Rothaermel, 2003) or in other cases due to their strong brand reputation as established technological or digital firms.

While this is a surprising finding with regards to BMI, as it is often described as a way to distinguish the company from its competitors in other research (Voelpel et al., 2004; George & Bock, 2011), there are two possible reasons why utilities in Germany choose cooperation over competition. For smaller firms, cooperation during the innovation process leads to sharing of knowledge, resources and experiences as well as scale benefits (Ahuja, 2000; Gronum, Verreyne, & Kastle, 2012). As a major problem for small utilities are the limited resources to experiment and quickly realise new products and services to compete with the bigger utilities, networks can partially solve this problem.

Another reason may stem from the legislation in Germany that applies to most of the municipal utilities. The legislation limits the possibilities for these utilities to engage in activities outside their home area (*see for example: Gemeindeordnung NRW, 2015*). Regardless many of the medium-sized private utilities do not have any strong ambitions to extend their action radius either, mostly due to a lack of resources. Therefore there is less fear of other utilities from different regions taking advantage of the cooperation and engaging in fierce competition with them. In both cases, due to the small sample size, the results from this study are not generalisable and require further testing in other countries or industries.

6. Conclusion

This research provided empirical insight on the process of BMI within a whole industry. To do so an extensive literature review was conducted which presented the on-going

debate on the business model framework in academic research and a valid definition for the purpose of this research. The literature review also outlined the importance of BMI for sustained competitive advantage and the barriers that limit or decelerate the process. It was suggested that to accomplish successful BMI incumbent firms need to overcome inertia and that this often happens only when the pressure on the current business model increases. However, it was remarked that previous research has either focused on BMI in individual firms or on the change of the value delivery element within an industry. It was pointed out, that the process of identifying a new value proposition for the business model of a whole industry had not been discussed thoroughly in existing literature.

Upon analysis of the data it became obvious that the basic approach to identifying a new value proposition is similar across all utilities and is based on a phase of experimentation with different products and services. However, the data showed that the scope for experimentation varies due to financial constraints that small utilities face. Data also showed that instead of perceiving the other utilities as a threat and trying to distinguish their own utility from others through disruptive BMI, the utilities, particularly the small and medium-sized, collaborate in industry-networks or through affiliation structures and are open to sharing experiences and cooperate on projects. Industry-external companies however, were perceived as threats. Moreover, the data showed a tendency for small and medium-sized utilities to rely on customer loyalty and regional embeddedness as strengths to implement a new value proposition, while larger utilities base their strengths on more rational factors such as know-how, experience and a strong brand reputation in the energy field.

The research adds to existing literature in the field of BMI in two ways. Firstly, it provides in-depth insight into the process of identifying a new value proposition in an industry that is suffering from decreasing revenues, a changed customer attitude and legal and technological pressure. It shows what elements the utilities use to find a new value proposition and also what strengths and weaknesses they feel empower or hinder this process. The research has shown that while the small utilities often enjoy huge trust and loyalty from their customers, their financial constraints make it difficult for them to provide a huge variety of products and services to their customers. It would be interesting to analyse whether a collaboration between the large utilities, which have the financial and human resources to develop a wide scope of products and services, and smaller utilities which have access to many customers within their regions and a higher flexibility, would positively influence the outcomes of experiments. This could for example be done through

white label products that the large utilities offer to smaller ones to sell or test in their region and under their own branding. Such an approach would combine the strengths and mediate the weaknesses of both sides.

Secondly, this research has shown how BMI across a whole industry can lead to higher collaboration and stronger networks between existing firms in the industry. This applies to collaboration among utilities but also to partnerships that the utilities actively seek with other established firms in the industry such as the local craft business. It should be assessed whether similar developments can be observed in other industries and whether this is a common behaviour of incumbent firms to defend themselves against new market entrants or whether this phenomenon is based on the specific circumstances in the German energy market.

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Table 1: Overview of participating utilities

ID	Region of operation	Type	Size
1	South Germany	1	S
2	West Germany	2	M
3	West Germany	1	S
4	Germany	1	L
5	East Germany	1	M
6	East Germany	2	S
7	South Germany	1	M
8	West Germany	2	S
9	West Germany	2	S
10	West Germany	2	S
11	North Germany	1	L
12	North Germany	2	S
13	South Germany	1	M
14	West Germany	2	S

Legend**Type:**

- 1 = regional or national utility
2 = municipal utility

Size:

- S = electricity sales < 1 TWh
M = electricity sales > 1 TWh but < 10 TWh
L = electricity sales > 10 TWh

Table 2: Elements during the phase of establishing a new VP**Elements to define a new value proposition**

- Pilot Projects
- Small-scale set up of activities
- Partnerships or investments in Start-Ups
- Research cooperation with other businesses, local universities or institutes
- Exchange of experience in industry networks or with affiliated utilities
- Employee workshops / idea management
- Customer surveys or councils

Table 3: Overview of strengths (from interview data)

Strengths	Times mentioned per utility size		
	S	M	L
Involvement in decentralised, regenerative energy	1	2	0
Regional presence	7	5	0
Customer proximity / good command of regional specifics	7	4	0
Wide customer basis and utility network	0	0	1
Trust in the company / the brand	3	3	2
Flexibility	4	3	0
Diverse activities along the value-added chain	0	1	1
Involvement in IT and Telecommunication	0	0	1
Know-how and Experience	0	2	2

Legend (Total number of utilities per category as defined in Table 1)

S = 7

M = 5

L = 2

Table 4: Overview of weaknesses (from interview data)

Weaknesses	Times mentioned per utility size		
	S	M	L
Lack of human resources	4	1	0
Financial constraints	3	1	0
Lack of IT infrastructure	1	1	0
Lack of skills (sales staff)	4	2	2
Staff reluctance / path dependency	5	3	2
Inflexibility	2	1	2
Risk adversity / perfectionism	1	2	0
Political influence	6	3	0
Cost structure / efficiency	1	0	1

Legend (*Total number of utilities per category as defined in Table 1*)

S = 7

M = 5

L = 2

Appendix Table 1 – Overview of participating utilities

ID	Region	Role of the interviewee	Type	Duration (min)	Status	Market coverage
1	South Germany	Attorney	Face-to-face	45	Public	Local
2	West Germany	Head of research and development department	Face-to-face	32	Public	Local
3	West Germany	Head of domestic customer development department	Face-to-face	75	Private	Regional
4	Germany	Member of strategy department	Face-to-face	45	Private	International
		Member of sales strategy department		37		
		Member of sales strategy department				
		Head of B2C customer analysis department		50		
5	East Germany	Head of B2B product development department	Phone	28	Private	Regional
6	East Germany	Head of business development department	Phone	47	Public	Local
7	South Germany	Head of strategy department	Phone	45	Private	Regional
8	West Germany	Chief Executive	Phone	54	Public	Local
9	West Germany	Chief Executive	Phone	41	Public	Local
10	West Germany	Chief Executive	Phone	30	Public	Local
11	North Germany	Member of business development department	Phone	53	Private	International
12	North Germany	Chief Executive	Phone	28	Public	Local
13	South Germany	Member of domestic customer sales department	Phone	38	Private	Regional
14	West Germany	Chief Executive	Phone	40	Public	Local
				Total (mins)	688	