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QUANTUM LEAP - WHY AND HOW ENERGY UTILITIES AIM TO SERVITIMIZE THEIR BUSINESS MODELS

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Overview

The utility sector in Europe, particularly in Switzerland & Germany, is under heavy pressure. The *European Union of the Electricity Industry* concludes in a recent industry review that the “average company of the sector is undergoing a value destruction process“ (Eurelectric, 2013). In this environment, a broad agreement exists that utilities need to renew their business models (Richter, 2013; Schleicher-Tappeser, 2012; Schoettl and Lehmann-Ortega, 2011). Numerous scholars have discovered *business model innovation* as a vehicle for corporate transformation and renewal (Zott et. al., 2011) and as a holistic concept, effecting the whole organization (Nair et. al., 2012; Amit and Zott, 2001). Moreover, industry experts and scholars propose, that utilities need to transform from *commodity suppliers* to *energy service providers*, by developing and offering comprehensive energy solutions for residential and commercial customers (Richter, 2012; Richter, 2013; Pecan Street, 2010; Valochi et al., 2010; Klose et al., 2010; Servatius, 2012; The Boston Consulting Group, 2011; PWC, 2013). An increased service orientation of a firm is often referred to as *servitization*, and can be defined as “the increased offering of fuller market packages or ‘bundles’ of customer focused combinations of goods, services, support, self-service and knowledge” (Baines et al., 2009). *Service orientation* or *servitization* of a firm can be regarded as a specific form of business model innovation (Nair et al., 2012; Maglio and Spohrer, 2013; Visnjic and Van Looy, 2013; Velamuri et al.; 2013), represents a fundamental re-orientation of a firm, and is related to significant managerial challenges (Kindström, 2010; Baines et al., 2009; Gebauer et al., 2005). This paper analyses *why* and *how* utilities aim to *servitize* their utility business models, by exploring the major drivers, and specific challenges related to the service orientation of utilities. I apply a multiple case study of German and Swiss Energy utilities to understand the drivers and challenges of this process. This paper argues, that the transition from a highly capital intensive business model such as the utility business model, towards a service oriented business model is related to great challenges, resulting from the required *asset transformation*, the replacement of tangible assets through intangible assets, which represent the foundation of the business model. A further understanding of the specific challenges of servitization of capital intensive commodity providers will be of highest relevance for utilities in countries with an increasing importance of renewable energies and energy efficiency, and in other industries facing similar contingencies.

Studies and research on servitization and its managerial and organizational implications are largely limited to the manufacturing industry, and little evidence exists about these challenges in the context of utility companies and generally about capital intensive commodity suppliers. Robinson et al. (2002) conclude that future work should focus on non-differentiated markets and commodity sectors, where the challenges of differentiation and service marketing are greatest. Furthermore, the existing business model and activity system literature emphasizes the importance of interdependencies and interactions for the dynamic of a business model or a system (Demil and Lecocq, 2010; Zott and Amit, 2010). Sosna et al. (2010) particularly propose to further research the role of the existing business model for new business models, both the hindering effects through lock-in, and the possible positive benefits, e.g. cross-subsidization through the established business model. To analyze the *how* of the transition process, this paper particularly analyzes both the *fostering* and *inhibiting* interdependencies between a specific starting and end point, namely the utility and the energy service business model. The interdependencies affecting the transition will be mapped in a detailed matrix

The empirical contribution of this paper is an illustration of drivers for servitization of utility companies, and particularly a detailed mapping of the challenges they are facing in servitizing their business models. Furthermore, this paper contributes to the servitization literature by identifying drivers that previous studies paid little attention to, namely the ongoing separation of ownership and operation of generation assets. Moreover, I find that changes of *capital intensity* in the transition represent a core determinant for the complexity of the transition. I propose to complement previously described barriers for business model innovation such as *asset re-allocation* (Christensen, 1997) or *cognitive barriers* (Chesbrough and Rosenbloom, 2002), and introduce *asset transformation* as a major challenge. *Asset transformation* can be observed in the energy sector: business models previously centered around highly capital intensive *tangible assets* such as power plants and grids, need to be complemented or even replaced by *intangible assets* such as knowledge and customer orientation, crucial for the service oriented business model.

The findings of this paper will support managers in elaborating appropriate implementation strategies, and policy makers in supporting such pathways for often publicly owned utility companies. Finally this paper will enhance our understanding of revolutionary and disruptive business model transitions of incumbents.

Method

Questions of “why” and “how” are typically addressed with cases (Eisenhardt and Graebner, 2007; Edmondson and McManus, 2007; Yin, 2009), and case studies are a common method for the analysis of processes, organizations and strategy (Eisenhardt and Graebner, 2007; Edmondson, Bohmer, and Pisano, 2001; Galunic and Eisenhardt, 2001; Gilbert, 2005; Mintzberg and Waters, 1982). For the purpose of the paper at hand, a multiple case study approach, primarily based on semi-structured interviews with leading utility managers has been chosen. The case sample includes 2 large multinational companies (revenues > 10 billion EUR) 2 regional medium-sized utilities (revenues > 1 billion EUR), and 2 cooperation’s representing the small local utilities (revenue < 1 billion EUR) in Germany and Switzerland. To consider previous literature, an analytical induction approach is applied (Manning, 1982).

Results

Similarly to studies in other industries, the interviewed managers stated unanimously that they see *financial, strategic* and *marketing* aspects as drivers for their utilities to servitize their business models. The macro-economic drivers revealed were particularly interesting: major drivers identified are the *shift of value potential downstream*, on which utilities react with services around the consumption of energy and energy efficiency, and the increasing *separation of investment and operation of generation assets*, breaking up traditionally integrated value chains, driving utilities to offer services around distributed energy generation. Particularly this aspect has to my best knowledge, hardly been considered in literature as driver for the servitization of industries.

Furthermore, in their attempts to develop innovative service oriented business models, utilities are facing major challenges, rooted in the difference of the traditional and the service oriented value proposition: The previous efficient and reliable bulk generation, distribution and sale of a commodity business was characterized through a high capital intensity. This resulted in a commonly *impersonal and standardized customer interaction*, in *hierarchical and highly specialized organizations*, and led to a rather *risk-minimizing company culture* and *limited sensitivity for operational and overhead costs*. The service-oriented business model and the customer-centered provision of *heterogeneous, bespoke and innovative solutions* represents therefore a *quantum leap*: it entails a rather *long term, close and active customer interaction*. The activities need to be centered around the customer, requiring a *flexible organization*, and the establishment of an *entrepreneurial and innovative company culture*. Finally, as returns will be rather small scale, utilities need to reduce *costs-to-serve*. I illustrate in a detailed matrix the interdependencies between the changing business model components in the transition. Interestingly, also different fostering relationships between the established and the new business model are identified, which utilities may leverage.

The great challenges can be largely attributed to the high capital intensity of the established business model. Previous revenues represented a return on *tangible assets* such as power plants or grids, whereas the service related revenues will be a yield on *intangible assets* such as competences and workforce. I propose *asset transformation* as a barrier for business model innovation, complementing existing concepts such as *asset re-allocation* or *cognitive barriers*.

Conclusion

This study sheds light on the specificities of servitization as a specific form of business model innovation in the power sector, and improves the understanding of the challenges related to such a transitions also in other capital intensive commodity industries. It provides utility managers with a map of the *hot spots* to be tackled in the course of the implementation process, and may support policy makers with the introduction of appropriate support schemes. From a theoretical perspective, the results will improve the understanding of the role of the established business model and the different components for the innovation process. I introduce *asset transformation* as a new concept in the business model innovation literature, complementing previously researched barriers such as *asset re-allocation* and *cognitive barriers*. *Asset transformation* can be determined for example by measuring changes of capital intensity of business models.

The study furthermore suggests that companies need to develop the capability of *creative accumulation* (Bergek et al., 2013) namely the combination of old and new competences and technologies to comply with future market needs. Whereas previous literature considered the organizational separation of exploitative and explorative activities as appropriate (e.g. Smith and Tushman, 2005; O’Reilly and Tushman, 2004), recent contributions support the integration of such innovative activities into the established operational organizations (Gassmann et al., 2012).

Future research could identify further attributes, which will allow scholars and practitioners to predict the extent of the complexity and the characteristics of business model transitions between predefined starting and end points.

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