

Business model transformation: a dynamic network approach

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Introduction

Business model is more and more becoming an imperative in strategic marketing and management; even if the theoretical conceptualization is weak; a vision, a management idea, the DNA of the firm, etc, it is a well-spread concept that is being used by many practitioners in different industries in different parts of the world. A critique against business models is that they typically are static and do not reflect the dynamic aspects of firms. Therefore, analyzing business model transformation is relevant as it adds a dynamic dimension to the concept.

Both practitioners and academic scholars tend to increase the use of the term business model, as a metaphor for the way a firm performs its business (Foss and Saebi, 2018). Literature has tried to conceptualize the term more specifically; for example the special issue in *Long Range Planning* 2010 (Long range Planning, 2010). However, as the business model can be seen as a relative static concept, more and more it is linked with *innovation* (Chesbrough, 2010), *evolution* (Demil & Lecocq, 2010) and *transformation* (Aspara, Lamberg, Laukia, & Tikkanen, 2013) in order to emphasize the dynamic and changing nature of a business model. While business model innovation is concerned with novel or new ideas, business model transformation indicates how incumbent business approaches change in business models over time. Innovation has received much attention from academic scholars (Foss & Saebi, 2018), while transformation thus far has been less researched.

Looking at an industry which is undergoing dramatic changes; the electric utility industry is at the brink of the most far-reaching disruptions since the industry emerged and formed its incumbent business models (PA Consulting, 2016; PwC Reports 2014; 2016; Saba 2014; Sioshansi, 2014). These still-dominant business models are based on large-scale distant generation (e.g., nuclear power and hydropower) and grids that distribute electricity great distances to serve rate payers attached to meters. However, with a set of recent and approaching innovations, the dominant modus operandi, in the near-term, is challenged by a more decentralized, networked, self-supporting and circular economy (CE)-based way to operate. The CE has many advantages, as it is a sustainable alternative economic model compared to a traditional linear one. The fundamentals of CE include for example better allocation and use of available resources and recycling with less waste. However, since technology shifts are dangerous threats for any successful business (Tongur & Engwall, 2014), firms need to develop ability to manage transformation of existing business models.

This impending shift towards a CE is expected to overturn the electric utilities' traditional roles, and drive them to transform their positions and business models (Brown et al., 2015). The anticipated challenge is made possible from megatrends including distributed electric generation, smart microgrids, and new methods of energy storage (Overholm, 2015; Saba, 2014). Business model transformation imply a shift from an already existing business model and hence differentiates from business model innovation, which can be seen as radically new business models. For example, transforming offering from customer value proposition to customer network value proposition (Cova & Salle, 2008) can be seen as one example of a business model transformation. Business model transformation can be characterized as: *"a change in the perceived logic of how value is created by the corporation, when it comes to the value-creating links among the corporation's portfolio of businesses, from one point of time to another"* (Aspara et al., 2013, p. 460)

Transformed business models that are based on decentralized production, more active "prosumers" (producing consumers), and peer-to-peer sharing of electricity will likely affect all incumbent electric utilities in terms of their roles in the network and the products and services offered to customers. Hence business model transformation need to be seen in the light of the surrounding network, as changes in one relationship will always affect inter-linked relationships in different degrees (Håkansson & Ford, 2002). Coombes and Nicholson (2013: 663) argue that an IMP approach to business models could be fruitful for theoretical development as "the focus within that perspective on the embeddedness of action and relationships across time also offers the potential to develop dynamic open-business models that evolve over time and which are not fixed and static entities".

Recent studies have concluded that the logic of a CE — sharing resources, restoring resource acquisitions, and ensuring minimum waste generation — is incompatible with the traditional linear-based design that implies extraction, transformation and disposal of resources (Murray et al., 2017). Thus, the change towards a CE can be a powerful force, initiating an industrial disruption by changing the system order. However, how business models are transformed in the light of these changes is still a less researched area, especially studies that take a network approach to understand business model transformation.

The aim with this study is to first recognize different actors in the network of energy provision/consumption i.e., producers, consumers, "prosumers", and other intermediaries. Secondly, we will propose a framework for business model transformation in this network focusing on the producer's dilemmas in a circular economy context. This will contribute to our knowledge concerning business model transformation in networks under strong changing forces.

Frame of references

From a marketing scholar perspective it has from the beginning been an important task to differentiate the business model concept from the more general *Strategy* concept; Casadesus-Masanell and Ricart (2010: 205) write: “a firm’s business model is a reflection of its realized strategy”., in a similar way Margretta (2002) see business models as stories that that tell the story of the work of the firm. Further, with more details, the business model is defined by Wirtz et al (2015: 41) as : “*a simplified and aggregated representation of the relevant activities of a company. It describes how marketable information, products and/or services are generated by means of a company’s value-added component. In addition to the architecture of value creation, strategic as well as customer and market components are taken into consideration, in order to achieve the superordinate goal of generating, or rather, securing the competitive advantage.*” In this regard, the business model is not only the firm’s strategy but also a reflection of its tactics (Richardson, 2008). Seeing the business model as a form of DNA of the firm – its smallest component - is a descriptive, static approach to the business model that considers the focal firm. The business model serve as a blueprint of the firm’s business and can be used for internal clarity and external interaction with other actors. There are numerous example of obsolete business models, caused by rapid changing technology or changing market behavior – e.g., Kodak (McGrath, 2010), Nokia (Aspara et al., 2013). Common for these business models are a static mode without ability to respond to changing environment.

Dynamic business models

However while much of literature addressing business models traditionally has seen rather static; like a blueprint or DNA (Demil and Lecqoc, 2010), a trend among scholars is to adopt a dynamic approach towards business models (Bohnsack et al., 2014; Nyström & Mustonen, 2017). The dynamic approach does not only see the business model as a description of the firm’s business but rather on the evolutionary characteristics of the business model; business model innovation (Bolton & Hannon, 2016; Foss & Saebi, 2018), business model learning (Teece, 2010), business model evolution (Demil & Lecocq, 2010), business model erosion (McGrath, 2010), business model lifecycle (Morris et al., 2005). The core of this approach towards business model is that firm need a constant reconfiguration of the business in order to stay competitive (Teece, 2010); this is based both on technological shifts (Tongur & Engwall, 2014) and changing market behavior.

Networked business models

Increasingly, network – with its actors and roles - is seen as key elements of the business model (Shafer, Smith, & Linder, 2005). However, still literature that examines the roles of the actors surrounding the focal firm is weak (Palo & Tähtinen, 2013), and business models is considered a belonging of the firm (Mason & Spring, 2011). Many times the concept is almost equivalent to “Porter-esque competitive strategy and increasingly only applied at the level of the firm (Mason and spring, 2011: 1032). Theoretically, a networked business model approach is put forward by several scholars (Palo & Tähtinen, 2013. Bankvall, Dubois & Lind (2017: 201) argue for the need to take the

network approach towards business models: “there is a need for an industrial network approach to business model analysis”.

		Nature of business model	
		Monolithic	Networked
Business model approach	Dynamic	<i>The iterative business model</i>	<i>The complex business model</i>
		<ul style="list-style-type: none"> • Literature: Storbacka et al. (2013) • Core concept: innovation, adaptability, • Key question: How do the firm innovate new way of creating value? 	<ul style="list-style-type: none"> • Literature: Bankvall, Dubois & Lind (2017) • Core concept: innovation, network adaptability, sustainability • Key question: What is the future role of the firm in the business model?
	Static	<i>The blue print business model</i>	<i>The multi-actor business model</i>
		<ul style="list-style-type: none"> • Literature: Timmers (1998) • Core concepts: shareholder value, value chain • Key question: how do the firm create and deliver value? 	<ul style="list-style-type: none"> • Literature: Palo & Tähtinen (2013) • Core concepts: sustainability, value network • Key question: What is (or could be) the role of the firm in the business model?

Table 1 Business model typology

Business model transformation

Storbacka et al (2013) recognize business model transformation along four different continua; *customer embeddedness, offering integratedness, operational adaptiveness* and *organizational networkedness*. The author discuss how transformation is take place gradually and not in radical leap as often is the case in business model innovation; for example Markides (2006, p.20) defines business model innovation as “the discovery of a fundamentally different business model in an existing business”. The four dimensions of transition in the model by Storbacka et al. (2013) cover customer relations, scope of offering, grade of internal flexibility and network harmonization; hence much of the changing business model can be seen as incremental transformation of existing business. Meanwhile, incumbent firms differ from entrepreneurial firms as the incumbents typically follow a path of efficiency while entrepreneurs will focus on novelty as the main source of value creation in the business model (Bohnsack et al., 2014).

While Storbacka et al. (2013) manly focus on interactional and organizational characteristics of the business model transformation, technological dimension can also catalyze a business model transformation; can also be typically related to (1) better use of technology and maximization of resource efficiency, (2) reduce resource waste and (3) a transition towards sustainable processes (for example stop the use of fossil energy in manufacturing processes) (Bocken et al., 2014). On the other hand business model transformation in the social dimension is related to what the firm offer its customer; (1) build the business on deliver functionality instead of producing goods and services, and (2) to facilitate customer resource efficiency. By focusing on the value created by the customer (as value-in-use) instead of the products the firm produces, the firm is adopting a more long-term oriented business model with a relational focus. Comparing a business model that counts success in

forms of sold units with a business model that counts success in terms of output related to deployment of products and services, the latter is believed to be more conservative with resource exploitation since it is in both the customer and the firm's interest of using the resources efficient and not overconsuming. This can be a challenge for firm since the traditional business model has created norms and standards among for example sales employees with systems that stimulate product sales.

The last category is business model changes in organizational dimension, and this include (1) re-inventing the organization's aim and (2) to develop scalable solutions (Bocken et al., 2014). More and more, scholars emphasize the firm's role in an ecosystem, and that wealth not only should be geared to the owner but to a broader range of stakeholders, and that innovation is taken place in open ecosystems (Koskela-Huotari, et al, 2016).

The transformation of the business model can be seen as the firm's organizational response toward changing and increasing complexity in the environment.

Research design

The paper adopts an explorative, qualitative approach to provide theoretical and managerial insights on the researched phenomenon. Three different cases from the electric utility industry are used, to substantiate our conceptual claims in this paper. The three case are studied in-depth to reveal the complex phenomena embedded in the contextual setting ((Eisenhardt & Graebner, 2007). The chosen design enabled us to capture contextual aspects (Dubois & Gadde 2002; Halinen & Törnroos 2005) as well as the empirical richness required. Thus, theorising from case data is presumed to generate accurate, interesting, and testable ideas (Eisenhardt & Graebner, 2007), which is in line with the aim of this paper.

The selection of the cases is based on a unique access to a network of incumbent SMEs within the electric utility industry, where the investigated cases are part of an ongoing research project. This paper reports on the first empirical work of the project. The process of collecting data progressed between September 2016 and March of 2018. A range of different types of data collection methods were employed to get a rich understanding of the cases from multiple perspectives. The qualitative fieldwork consisted of a mix of face-to-face, semi structured interviews as well as internship days at the incumbent firms, round table discussions, workshops and observations at firm meetings. Interviews were conducted within five companies. The representatives were either CEOs, business area managers, sales managers, marketing and communications manager or partner manager. The interviewees had qualified knowledge on the overall, strategic, market and operational parts of the businesses. The questions applied an open-ended question approach and covered areas of industry change, market trends, offerings, current business models, transformations processes, strengths, weaknesses, opportunities and threats as perceived by the companies, ongoing collaboration projects etc. The interviews lasted on average around 60-90 minutes. All interviews were recorded using a digital voice recorder. Besides the interviews made, the researchers have also spent one whole day at each company (5 in total) as an internship to learn more about the market, the companies, offerings and customers. Impressions and lessons learned were written down and compiled in company reports. Notes have been taken during round table discussions and firm meetings. Work material has been collected from workshops. All material has been collected in a document management system for better structure and accessibility for the researchers involved.

Secondary data have also been collected which includes presentations and reports provided by the companies, annual reports, press releases and newspaper items. Hence, the secondary data included both company internal material as well as official material.

The parts of the collected data with relevance to the present paper were coded and related to the various points of analysis (see structure below). Findings were also synthesized towards previous research to ensure the theoretical contribution of this paper, and to precise the findings.

Business model transformation in electric utility industry

Up until now, electricity subscriptions have been linked to a residence rather than to a person or a family. Families who own multiple residences need multiple subscriptions. This has long been, but it might be changed as part of the disruption. With the introduction of electric vehicles (EV) and petroleum-electric or diesel-electric hybrid vehicles (HV), the need for considerable electricity consumption away from home increases.

The charging network: Consume wherever you need

In response, several competing players, in Sweden as well as in many other countries, are building public networks of charging posts, such as at resting areas along the highways, at gas stations, at supermarkets, at car dealerships and at restaurants, etc. Typically, these networks are either owned by a car manufacturer (e.g. *Tesla*), an electric utility firm, independents (e.g. a supermarket who offers free charging to customers), or co-owned (e.g., municipalities and local electric utility firm share investment costs and ownership). Whereas the car manufacturers typically exclude other brands of cars from charging at their posts, public charging posts owned, or co-owned, by electric utilities are typically open for everyone who is ready to pay for electricity. To this end, a set of local and regional electric utility firms in Sweden cooperate in a national network of charging posts named *Clever*.

Besides selling and installing charging posts to companies and homes, *Clever* is building a national-wide public network at strategic positions (gas stations, restaurants, shopping malls, railway stations, near major highway junctions, etc.). For local electric utilities, being part of the *Clever* network is an opportunity to compete on equal premises with the largest competitors who have their own national-wide networks. By building, owning and caring for a local subset of charging posts in the municipality of Lindesberg located about 200 km west of Stockholm, local utility *Linde Energi* is a typical partner of the *Clever* network.

Upon charging, the person who needs a refill uses a special card to access the charging post, and for the company to track the consumption. While not actually owning the infrastructure, the co-owned *Clever* company handles end-user relations and invoicing. Hence, customers of *Linde Energi* that drive an EV and charge through the *Clever* network get two separate electricity bills – for the household electricity and for the EV charging away from home, respectively. Still, the electricity subscription with an identification card, which enables charging your EV anywhere in the country, as well as in partner companies' networks in other countries, opens a possible future where electricity subscription is not limited to one particular building but rather linked to a person who has a consumption plan (similar to a cell phone plan) that allows access to electricity wherever and whenever the person needs it.

Surplus storage: Produce when the sun shines, and consume whenever you need

Traditionally, electricity consumers are characterized by passivity; electricity is produced in power plants (in Sweden, often hydro or nuclear), transmitted over the grid to a household attached to a

meter that track consumption. A traditional customer rarely has any contact with the electricity company other than via the invoice. This is, although, starting to change. Recently the residential solar cell prices are dropping, and growing numbers of Swedish households and companies have, spurred by the authorities and subsidies, become "prosumers," meaning a person or company that both produces and consumes electricity. The more solar cell panels produced, the lower price of production; "Swanson's law" (Carr, 2012) states, for solar cell panels, that with every doubling of production, there has been a 20 per cent reduction in the cost since the 1970s.

As long the sun shines, home fabrication of electricity seemingly is becoming a better business every year. Nevertheless, to handle the time asymmetry between when the electricity is generated and when consumed, it must be accompanied by a large and still rather expensive battery, or/and access to the main power grid.

From the utilities and grid owners point of view, "prosumers" might have large impact on their core business model, because if a large bunch of customers only request grid access to cope with peaks in consumption and production dips, grid owner still had to uphold the same grid capacity and high maintenance costs as today for just the peak hours but will not be able to transmit as large sums of electricity in total over the year. This threatens the grid owners' traditional per-kilowatt-hour price model.

Being an owner of hydropower plants and an electricity supplier to more than 150.000 households, the Swedish *Jämtkraft* company recently launched an answer to this challenge. It offers property owners help to install solar cells and sets up deals so that customers can swap all what they overproduce in the summer (when there are many hours of sunshine and little need for heating of houses) for kilowatt-hours out of the main grid in return whenever they need them in the winter months (when it's dark and requires much warming). For *Jämtkraft*, every kilowatt-hour their customers' solar cells deliver to the common power grid during the summer month means one less they have to produce in their hydropower plants. That means, in turn, higher filling in their water reservoirs, and more potential energy stored until the winter. In other words, the water sharing solution offered stores the prosumers' production for a later use just like a battery can do, but instead of each household invests in its own battery (with all its limitations and costs), *Jämtkraft* make use of their large infrastructures (water reservoirs) that they already have invested millions of dollars into; no batteries of limited capacity at homes are needed but the prosumer must stay connected to the main power grid (and keep on paying for its maintenances).

The cooperative solar cell park

A third example of a business model transformation initiated from incumbent electric utilities, for them to stay relevant and not get overturned by new entries and self-sufficient households, is to offer consumers that cannot have, or does not want, solar cell panels on their own building an alternative: shares in cooperatively owned solar cell park. The utility company can use their accumulated expertise in energy production and power plant maintenance, while the consumers receive the equivalent of their own solar cells. Moreover, to build large-scale solar cell parks outside of the cities on flat ground and adjusted to maximize the insolation from the sun seems to be more cost-efficient than residential solar sell panels on top of already existing buildings. For consumers who rent a flat and consumers that just need very little electricity, smaller shares in a cooperatively-owned park can still be profitable as many shareholders split the cost of installation work, etc.

If consumer-cooperative solar cell parks become big business, then electric utilities will transform their business model to become more like real estate companies who build, manage and deliver services to their shareholders.

Discussion

We can see a future where all three business model features described above will be united; owning a large enough share in a solar cell park will potentially make the prosumer self-sufficient of electricity in terms of the number of kilowatt-hours produced and consumed during a year (including charging electric vehicles and all other devices away from home), but the prosumer will still need the main power grid and the utilities hydropower plants to be able to access electricity whenever and wherever needed, during both sunny summers and cold winter. In a such future, the electric utilities do not (only) produce and deliver electricity to properties attached to the main grid by a meter, but rather adds value in time and place utility for people in need of electricity.

Based on the findings in our study, business model transformation can be seen both as a strategic intent – hence forming a new order - but also more unintentional *adoption* to a new dominant industry order. Our research suggest business model transformation in two different dimensions and illustrates this with three empirical case. The case of *Clever* indicates a transformation towards a network based business model where focus shifts from the firm’s creation of value towards the value creating network and value-in-use for the customer. This business model is identified as the multi-actor business model and emphasize the cooperation in the network among several actors; hence the business model cannot only be the DNA of the firm, instead it is the environment that the firm is situated within that actually defines the boarder of the networked business model. See Table 2a.

In the second case *Jämtkraft* showed how transformation towards dynamic and iterative business model is taken place; replacing the passive receiving customer with an active prosumer. The prosumer’s entrance in the business model of *Jämtkraft* force the business model to become more a dynamic since it is not only a matter of describing the firm’s business but rather a formula for continually supporting the customer in a collaborative manner. See Table 2b.

In the final case - *the cooperative solar park* – we can see changes sin both dimensions, indicating a business model that is changing towards both a networked and a dynamic approach. This is a more difficult strategic maneuver since it requires involvement from a broad range of actors and also changes in the actor’s mindset towards a more collaborative approach where resources are integrated by all the actors engaged in the ecosystem. This requires reconfiguration of both the resoruces of the actors (e.g., more active customer’s contributing with own knowledge) but also changes among the institutional arrangements (e.g., finding new ways and platforms for actors to collaborate). See Table 2c.

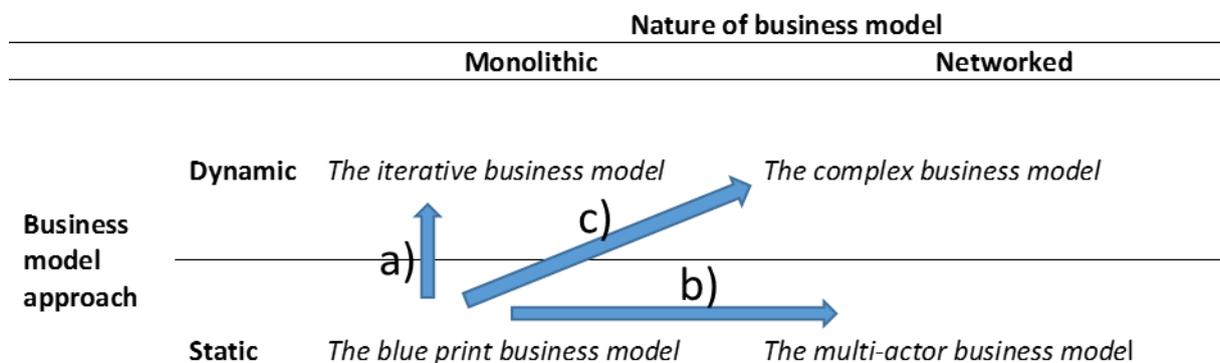


Table 2 Business model transformation

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