Policy innovation in the energy sector: exploring the role of intermediaries in European collective switching campaigns

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Abstract

Recently, the literature has shown an increasing interest in research focused on new services and policy innovations adopting as unit of analysis the business ecosystem, instead of the single company (Adner and Kapoor, 2010; Teece, 2010; Clarysse et al. 2014). In the business ecosystem, contrary to a single company, the innovation comes through the share of expertise, capabilities and resources from different fields (Heikkilä and Kuivaniemi, 2012). The development of a policy innovation in the business ecosystem depends on players’ actions: knowing the market and the potential risks is a necessary requirement to avoid the policy innovation failure (Adner, 2006). The aim of this paper is to study variables that could affect the development of a policy innovation in an energy business ecosystem and the role of the intermediaries in encouraging its dissemination. To do that, it has been considered one of the most disruptive policy innovation that spread in Europe in recent years, called “collective switching”.

The collective switching is a policy innovation developed in Europe from 2011 and it is the result of a big change in the energy sector (like liberalization and subsequently privatization). The collective switching is characterized by a group of people with common features that, through an intermediary, negotiate with the energy suppliers and, thanks to their bargaining power, are able to obtain much more advantageous contracts. This policy innovation is developed at country level, but it is the result of European Commission pressure to improve customer experience, to help consumer to switch, and to incentive the competition among energy providers. In this realm, intermediaries, that work in the business ecosystem and create the environment for its dissemination, play a central role. This work considers as intermediaries the Energy Consumer associations that are part of BEUC (Bureau Européen des Unions de Consommateurs) and organize collective switching campaigns in their respective countries.
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1. Introduction

Recently, the literature has shown an increasing interest in research focused on new services and policy innovations adopting as unit of analysis the business ecosystem, instead of the single company (Adner and Kapoor, 2010; Teece, 2010; Clarysse et al. 2014). In the business ecosystem, contrary to a single company, the innovation comes through the sharing of expertise, capabilities and resources from different fields (Heikkilä and Kuivaniemi, 2012). The development of a policy innovation in the business ecosystem depends on the players’ actions: knowing the market and the potential risks is a necessary requirement to avoid policy innovation failure (Adner, 2006). The aim of this paper is to study the variables that could affect the development of a policy innovation in an energy business ecosystem and the role of the intermediaries in encouraging its dissemination. To do that, the study examines one of the most disruptive policy innovation that spread in Europe in recent years, called “collective switching”.

Collective switching is a policy innovation developed in Europe from 2011 and it is the result of a big change in the energy sector (like liberalisation and subsequently privatisation). This policy innovation is developed at country level, but it is the result of pressure by the European Commission to improve customer experience, help consumers to switch, and to encourage competition among energy providers. In this context, intermediaries, who work in the business ecosystem and create the environment for its dissemination, play a central role. This work considers as intermediaries consumer associations that are part of BEUC (Bureau Européen des Unions de Consommateurs) and organise collective switching campaigns in their respective countries.

This work lies at the intersection between previous research on the business ecosystem (Moore, 1993, 1996, 1998; Iansiti and Levien, 2004; Lewin and Regine, 1999; Chesbrough, 2003; Gaver and Cusumano, 2002) and on innovation intermediaries (Geels and Deuten, 2006; Raven, 2006; Bos and Grin, 2008; Medd and Marvin, 2008; Moss, 2009). Despite the emerging need to look at the diffusion of policy innovation through the perspective of business ecosystems, there is a lack of empirical work, which blinds these two approaches. In particular, being an ecosystem built upon relationships between heterogeneous agents, it is important to detect the role played by each component. It is well known in the innovation management literature that intermediaries are crucial for the diffusion of innovations (Hägerstrand, 1952; Rogers, 1962). Therefore, an analysis of the intermediaries in the business ecosystems is desirable. This work contributes to the present understanding of the business ecosystem that fuels an innovation in the energy sector by answering the following research question: what are the main variables that could affect the development of a policy innovation in a business ecosystem? What is the role of intermediaries? Is this policy innovation replicable in other sectors? If yes, under what conditions?
A multiple case study approach (Yin, 2003) is used to study the variables that in different ways could have an impact on the development and the dissemination of an energy policy innovation within a business ecosystem. For each case study, a large sample of information from different sources is collected. Information comes from semi-structured interviews, company profiles, company energy profiles and other external sources. The collected data is organised using the 6C framework (context, cooperation, construct, configuration, capability and change) proposed by Rong et al. (2015). This framework explores the complex network that composes a business ecosystem, taking into account different indicators related to intermediaries. The main aspects under scrutiny are: the stage of development of the company, its mission, its internal capabilities and the characteristics of the external business environment, the availability of partners, marketing expenditures, post switching management practices and the consequent overall changes in the ecosystem.

The paper proceeds as follows: section 2 presents the theoretical context, section 3 explains the research context and the methodology and section 4 presents the results. Conclusion and references follow.

2. Theoretical contexts

2.1 The Business Ecosystem

The business ecosystem concept was introduced for the first time by Moore (1996; 1998), who defined it as an economic community composed by mutually supportive organisations that interact to produce goods and services. The Business Ecosystem concept has been analysed by the existing literature from different points of view, which can be classified into three categories: the individual actors (typically a company), the relationship between the actors (typically a dyadic inter-company relationship) and the ecosystem (Järvi, 2017).

The individual actors can be customers, delivery channels, sellers of complementary products and services, suppliers, policy makers and so on. Each actor can play different roles in the ecosystem; in particular, it could have a central position (Moore, 1993; Iansiti and Levien, 2004; Lewin and Regine, 1999) or a marginal one (Pierce, 2009). The studies on the central position have examined business ecosystem leaders or keystones, as in the studies of Moore (1993) on Wal-Mart and Iansiti and Levien (2004) on Microsoft, where the authors describe how these companies develop competitive advantages by having a strategy to build a business ecosystem around their value proposition. There are also other studies of technology or platform owners (Gawer and Cusumano, 2002, 2014; Iyer and Davenport, 2008; West and Wood, 2013; Wareham et al. 2014) focused on main companies in ecosystems.

The second line is more focused on the relationship among individual actors (Pierce, 2009; Adner and Kapoor, 2010; Kapoor, 2013; Ethiraj and Posen, 2013; Kapoor and Furr, 2015). Authors that observe this relationship are interested in strategic interactions with independent complements. Nevertheless, there are also other studies that investigate the way users adopt technological platforms in ecosystems (Xu et al. 2010; Mäkinen et al. 2014; Kang and Downing, 2015). Finally, relationships between companies in the same market are examined (Pierce, 2009).
The studies on business ecosystems are various and investigate them from different points of view. They include business ecosystems (Moore, 1993; Heikkilä and Kuivaniemi, 2012), digital business ecosystems (Tsatsou, Elaluf-Calderwood and Liebenau, 2010; Selander et al. 2013), innovation ecosystems (Adner, 2006; Adner and Kapoor, 2010; Wessner, 2007; Nair, 2007; Almirall and Casadesus-Masanell, 2010; Chesbrough, 2003), technology ecosystems (Wareham et al. 2014), platform ecosystems (Ceccagnoli et al. 2012; Thomas et al. 2014) and supply ecosystems (Ketchen et al. 2014).

At the moment, there are no papers that apply the business ecosystem concept to the energy sector. It is used in this case for its flexible nature and its ability to adapt to different scenarios. As proposed by Weber and Hine (2015), the business ecosystem is considered as a structure of relationships between interacting actors. The ecosystem is not static, it should be considered as a dynamic system, which evolves through the interaction between ecosystem actors (Wallner and Menrad, 2011; Mercan and Goktas, 2011). The sharing of goal and objective, trust, and transparency, are the main factors of success for innovation (Nambisan, 2013). The ecosystem also has a social dimension and is made possible by the generation of social value and the shared economy (Porter and Kramer, 2011).

2.2 The role of intermediaries in innovation

The role of intermediaries in the innovation process has emerged in the last twenty years. The literature stresses the idea that intermediaries have a more complete knowledge about the various technological domains in which they operate. In particular, the focus is on four main topics: diffusion and technology transfer, innovation management, system and network, intermediaries and services organisations (Howells, 2006). The literature related to the diffusion and technology transfer was the first that explored the intermediaries’ role in relation to innovation. Hagerstrand (1952) and Rogers (1962) were the first that studied the importance of the intermediaries in the information dissemination and in the adoption rate. After their works, different authors focused their attention on the role of intermediaries in the technology transfer process and investigated this aspect from different points of view (Watkins and Horley, 1986; Seaton and Cordey-Hayes, 1993; Shohert and Prevezer, 1996). The second group, the innovation management, considers the intermediaries as organisations and explores the principal activity in which they are involved (Hargadon and Sutton, 1997; McEvily and Zaheer, 1999). However, both authors took into consideration the intermediaries’ role in technology transfers as a key function. The system and network group identifies the role of intermediaries in the adoption of specialised solutions (Carlsson and Stankiewicz, 1991) and investigates the role of the intermediaries in providing collective goods to their members and facilitating and coordinating the flow of information (Lynn et al. 1996). Finally, the last group explores the role of intermediaries in the context of service activities and service innovation, in particular in relation to the growth of KIBS – knowledge intensive business services – (O’Farrell and Moffat, 1991; Miles, 2000; Bettencourt et al. 2002).

In general, the role of the intermediaries is less investigated (Geels and Deuten, 2006). The predominantly literature explores ex post-facto case studies (Raven, 2006; Bos and Grin, 2008) and only a niche of these paper analyses the intermediaries’ role in the energy context, but not in the energy business ecosystem (Geels and Deuten, 2006; Medd and Marvin, 2008). Moss (2009)
highlights that, in all these papers, intermediaries work as boundary organizations aiming to connect local projects between them and to generate infrastructures in support to the development of the innovation in question. Geels and Deuten (2006) identify three key roles of intermediaries: aggregation, creation of institutional infrastructures, reversal role. The aggregation role is the ability to transform limited knowledge into shared knowledge. The second role concerns the intermediaries’ ability to create an institutional infrastructure useful to the development and the circulation of the shared knowledge. Finally, the third role regards the ability to transform the “shared knowledge” into guidance for local projects.

3. Analytical framework
In this paper, we adapt the 6C framework used (Rong et al. 2015) to investigate the complex network that makes up the Internet of Thinking (IoT)-based business ecosystem. The Rong et al. papers extend the 3C framework (Zhang et al. 2007 and Lin et al. 2009) making it useful to analyse the network system in general. The 3C framework is composed by context, configuration and capability.

The context considers the main environmental characteristics (driving force, main barriers and key mission). The aim of this macro category is to investigate why a supply network emerges over another. In addition, this macro category considers the non-direct partners (government, industry associations and other stakeholders) to explore how an organisation in a business ecosystem expands its perspective beyond its core business supply-chain partners (Rong et al. 2013c).

The configuration includes the construction element of the network (role structure, process structure, information architecture). This category explores the external relationship among partners and its configuration patterns. (Hayes and Wheelwright, 1984) used the process and the products to categorise different patterns of the manufacturing system. (Shi and Gregory, 1998), then, extended the concept including the geographical dispersion and the manufacturing coordination.

The capability concerns key success features of the supply network (design, production, inbound logistics and information management). This macro area explains why one network operates better than another (Lin et al. 2009; Zhang et al. 2007; Shi and Gregory, 1998) subdivided the capability into four aspects: strategic targets accessibility, thriftiness ability, manufacturing mobility and learning ability. (Srai and Gregory, 2008) included the capability of communication and sharing, integration and synergising, innovation and learning and adaptation and restructuring.

Rong et al. add to these framework cooperation, construct and change dimensions. Cooperation includes all the mechanisms by which partners interact. The cooperation process could vary along the lifecycle of a business ecosystem (Rong et al. 2015).

The construct dimension defines the key structure and infrastructure for the business ecosystem. Hayes and Wheelwright, 1984 are the first to introduce the construct category to study the constructive elements that have an impact on the system-manufacturing strategy. To reach their objective, they introduced a “structure-infrastructure” framework. In line with traditional theories, a structure-infrastructure framework is adopted in this paper to deconstruct the business ecosystem.

Finally, the change dimension underlines how a business ecosystem, at the end of its lifecycle, is renewed with the new pattern. The new patterns will include a new configuration and a cooperation evolution.

All of these macro areas are detailed in Table 2.
Context

- Electricity and gas retailers prices
- Retailers to final consumers (electricity and natural gas)
- Market share (electricity and natural gas)
- History and development of the company

Cooperation

- Partner relationships
- Customer base

Construct

- Business Ecosystem structure and infrastructure

Configuration

- External relationships
- Platform of strategies

Capability

- Special team
- Internalised technical capability
- Experience acquired during the editions
- Platform used into other sectors

Change

- Δ Retailers to final consumers (electricity and natural gas)
- Δ Market share (electricity and natural gas)
- Presence of other intermediaries
- Collective switching internalised at government level
- Auction regarded renewable energies

Table 1: variables considered in the analysis

Looking at Table 2, it is possible to notice that the 6C framework considers the internal and the external variables that in different ways have an impact on the business ecosystem. The contest macro area takes into consideration the external factors at the time when the collective switching begins as well as the internal company characteristics. The aim of this macro area is to understand why a phenomenon emerged and what are the principal drivers of the innovations. This considers not only company characteristics, but also other external factors and non-direct partners (Rong, et al., 2013c). The cooperation macro area considers how the company interacts with its stakeholders and partners to reach common goals; for these reasons, it considers not only the relationship with the partner but also the relationship with the customer. The cooperation may vary during the business ecosystem lifecycle (Rong et al., 2015). The construct macro area concerns the structure and the supportive infrastructure of the business ecosystem; it takes into consideration also the stakeholders involved in the business ecosystem and their role. The configuration area was mentioned, but not as well explored as in the previous studies (Shi and Gregory, 1998; Zhang et al., 2007). It is important to define the business model and the platform strategy of consumer associations. Through this area, configuration patterns of each business ecosystem were defined. The capability macro area, in accordance with Srai and Gregory (2008), include the capability of communication, the activated synergy, the knowledge acquired and the adaptation capacity. The change macro area takes place at the end of lifecycle and, for this reason, it considers how the business ecosystem is renewed; in particular, if there are some changes in the retail energy market.
(electricity and natural gas), if the phenomenon is replicated by other intermediaries or internalised at the governmental level and if it pushes for the development and use of renewable energy.

4. Research context and methodology

4.1 Industry specificities

In most European countries, the energy industry is undergoing radical change. The energy market liberalisation, for example, started in 1980s and stimulated competition between energy suppliers. Horizontal and vertical mergers and acquisition took place; numerous electricity brands were created and independent energy sector regulators were established (Walsh et al. 2005). In the electricity and downstream gas industry, the liberalisation was followed by privatisations and by structural reforms with the aim to create competition among wholesalers in the retail market. Energy liberalisation led to positive and globally efficiency gains across all sectors, but also to a lack of visible direct benefits to households. However, it improved the governance of monopolistic utilities, the prospect for competition and innovation and the quality of policy instruments for environmental emission control (Pollitt, 2012).

The result of these changes, which started more than thirty years ago, is also the possibility, for consumers, to purchase energy from the suppliers that they choose. However, in many countries, the switching rate is low and consumers are reluctant to switch energy supplier. The reasons are various: customer inertia, cost of finding alternative suppliers, risk aversion and lack of market transparency for customers (Graehl et al. 2001). After the market liberalisation, a large number of consumers decided to stay with their energy supplier. Gwinner et al. (1998) explain this behaviour by identifying the interpersonal relation as a barrier to switching, but is it also true that consumers are little incentivised to switch because they consider the energy market non-transparent and too complex.

In Europe, the European Commission's “Clean Energy for All Europeans” package, presented on November 30, 2016, is the first positive step towards improving conditions for consumers within the energy market. In particular, the “Clean Energy for All Europeans” aims to (BEUC, 2017):

- Improve consumer experience through transparent and easily comparable offers, clear contracts, accurate bills in a user-friendly format;
- Help the consumer compare different offers providing additional rules for comparison tools and bundled offers;
- Set rules to facilitate switching supplier;
- Ensure effective market surveillance and dispute resolution to break up monopolies and incentive a dynamic competition.

The policy innovation that we take into consideration fits perfectly to the European Commission roles proposed in 2016. Collective switching, in fact, was born to improve the consumer switching behaviour; in particular, it is possible to see how intermediaries (in this cases consumer associations) are able to overcome consumer and market barriers, to allow the development of a policy innovation in a business ecosystem. Collective switching is a new phenomenon that recent literature has not yet investigated and that has spread in recent years in the United Kingdom, Netherlands, Ireland, Belgium, Denmark, Austria, France, Italy, Slovenia, Spain and Portugal.
Collective switching is characterised by a group of people with common characteristics that, through an intermediary, negotiates with energy suppliers and, thanks to their bargaining power, is able to obtain a much more advantageous contract. The intermediaries (consumer associations, local authorities, private companies) mediate between consumer and energy suppliers, organise a price lowering auction and send to the consumer the “winning offer” and the details of the new tariff. There is no obligation to switch and, if they decide to switch, they enter into a contract with their new supplier (ACER, 2015). The main difference between switching and collective switching is that the first does not involve a group of people, but only a single consumer that decides to choose another supplier, while the second does. Studies about consumer’s behaviour affirm that consumers are often reluctant to switch their energy supplier (Konkurrensstyrelsen, 2009). However, the collective switching campaign is changing the existing scenario. With the introduction of the liberalised market in 2007, suppliers started to propose several offers. This means that whilst the consumer can choose different products and services, the level of transparency is subsequently reduced, because the comparison between offers becomes more difficult. In this context, collective switching could be considered a policy innovation aimed at creating “better protection” for consumers. Over the past few years, in fact, collective switching campaigns have become increasingly effective, due to their potential to remove perceived barriers to switching, such as the time-consuming switching process, the risk of not obtaining the best deal and the distrust in new suppliers.

Figure 1 provides a graphic explanation of the collective switching process.

![Collective switching process diagram]

Figure 1: the collective switching process

4.2 Research methods
The research uses a case study approach (Eisenhardt, 1989; 1991; Yin, 1994; 2003; 2013). The purpose of the case study research is to use empirical evidence from real people in real organisations to make an original contribution to knowledge. The case study method is amongst the most flexible of research designs, it includes different sources of evidence, for example direct observations and interviews, and it is particularly useful in this case because this is a new phenomenon, which has not been investigated by the existing literature; in addition, there is few data about it. In particular, the multiple case study approach is useful in the early stage of a phenomenon (Eisenhardt K. M., 1989) and when “the boundaries between phenomenon and context
are not clearly evident” (Yin, 1981). The methodology of analysing case studies is certainly, at the theoretical level, a holistic research strategy directed at understanding the internal dynamics of a single specific context (Eisenhardt K. M., 1989).

This work relies on a research design based on multiple cases, carried out using more than one unit of analysis (Yin 1994). The multiple case study approach generates results that are more robust and compels arguments even though it requires more resources. This methodology fits with the exploratory aim of this research. The case selection is made in accordance with “purposeful sampling” outlines and based on the principle of theoretical replication or namely the repetition of the analysis on different cases with distinct variables (Eisenhardt 1989). According to Eisenhardt and Graebner (2007), case research is a theory-building approach that is deeply embedded in rich empirical descriptions of particular instances of a phenomenon, based on a variety of data sources. The case study aims to answer research questions that address the “how” and “why” in unexplored research areas. Consequently, the results from this research cannot be subject to statistical generalisation or theory testing, but they can be used to generate theoretical construct propositions and/or midrange theories (Eisenhardt, 1989; Yin, 2003).

The administration of semi-structured interviews collected information on: how the consumer associations and the energy suppliers make their strategy operational, how consumer associations create relationships with the energy supplier and its typology (long term or short term relationship), what is the relationship with the territory/consumers and the policy implication of this phenomenon (it is helpful to people with energy poverty, it favours the switch to renewables energy, and so on). The interviews were conducted from April to the end of September and were carried out in person, for the Italian sample, and by phone for the other countries. The interviews varied from thirty minutes to one hour and they were conducted with the respective managers in charge for the coordination of the collective switching campaign (head of communications, coordinators of the partnership and loyalty areas, directors of information and services and heads of public affairs and media relations, marketing managers and directors of the retail market and operations). A BEUC Senior Economic Officer was interviewed to better understand the phenomenon and the BEUC role inside these ecosystems. BEUC is more focused on the policy development. They do not have an active role in collective switching campaigns, but they monitor collective switching campaigns organised by their members, analyse conditions that affect collective switching campaigns and also analyse contracts and offers. Data triangulation was implemented to increase the validity of this qualitative research (Rice and Ezzy, 1999). In particular, Country statistical profile (OECD, 2017) and energy profile (EC, 2017) were analysed to enrich personal and telephone interviews. The study considered data from 2011 to 2016. These years were considered because they cover the collective switching period and, for this reason, they could provide additional information about the development of the phenomenon in different countries.

4.2.1 Data collection
This paper considers consumer associations that are part of BEUC (Bureau Européen des Unions de Consommateurs) and organise collective switching campaigns in their countries. Table 1 specifies the consumer associations that compose our sample and provides additional information about collective switching campaigns.
<table>
<thead>
<tr>
<th>Countries</th>
<th>Consumer Association</th>
<th>Sector Covered</th>
<th>Energy supplier that won the auction</th>
<th>Date</th>
<th>Number of consumers who signed up for the campaign</th>
<th>Number of consumer that switched</th>
<th>% Over the population</th>
<th>% Of consumers that switched</th>
<th>Total saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>VKI</td>
<td>Electricity and gas</td>
<td>-</td>
<td>2013-2014</td>
<td>260,584</td>
<td>70,000</td>
<td>3.08%</td>
<td>26.86%</td>
<td>€12.6m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2015</td>
<td>48,410</td>
<td>12,500</td>
<td>0.57%</td>
<td>25.82%</td>
<td>€2.8m</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2015-2016</td>
<td>-</td>
<td>15,200</td>
<td>-</td>
<td>-</td>
<td>€5.3m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2016-2017</td>
<td>-</td>
<td>20,000</td>
<td>-</td>
<td>-</td>
<td>€5.9m</td>
</tr>
<tr>
<td>Belgium</td>
<td>Test-Achats</td>
<td>Electricity and gas (Gas only contracts were not possible) Photovoltaic panel</td>
<td>Elegant; Eneco; Essent; Lampiris; Mega; Octa+; Poweo – direct energy</td>
<td>2012</td>
<td>151,586</td>
<td>46,753</td>
<td>1.36%</td>
<td>30.84%</td>
<td>€16.9m</td>
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<td></td>
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<td></td>
<td></td>
<td>2013</td>
<td>138,299</td>
<td>32,995</td>
<td>1.24%</td>
<td>23.86%</td>
<td>€6.8m</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014</td>
<td>70,008</td>
<td>33,883</td>
<td>0.62%</td>
<td>48.40%</td>
<td>€6.9m</td>
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<tr>
<td></td>
<td></td>
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<td></td>
<td>2015</td>
<td>94,787</td>
<td>16,154</td>
<td>0.84%</td>
<td>17.04%</td>
<td>€2.6m</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>dTest</td>
<td>Electricity and gas and Europe easy energy</td>
<td>-</td>
<td>2015-2016</td>
<td>74,000</td>
<td>22,229</td>
<td>0.70%</td>
<td>30.04%</td>
<td>€6.4m</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2017</td>
<td>55,775</td>
<td>-</td>
<td>0.53%</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Denmark</td>
<td>Forbrugerrådet Tank</td>
<td>Electricity and gas, Green energy from wind turbines</td>
<td>Vindstø</td>
<td>2012</td>
<td>-</td>
<td>4,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2013</td>
<td>-</td>
<td>2,000</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2013-2014</td>
<td>-</td>
<td>71,000</td>
<td>-</td>
<td>-</td>
<td>€13.7m</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2015</td>
<td>-</td>
<td>60,000</td>
<td>-</td>
<td>-</td>
<td>€5.0m</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2016</td>
<td>-</td>
<td>106,784</td>
<td>-</td>
<td>-</td>
<td>€15.7m</td>
</tr>
<tr>
<td>France</td>
<td>UFC-Que Choisir</td>
<td>Gas</td>
<td>Lampiris</td>
<td>2013</td>
<td>197,000</td>
<td>40,000</td>
<td>0.75%</td>
<td>20.30%</td>
<td>€9.1m</td>
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<td></td>
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<td></td>
<td>2014</td>
<td>84,000</td>
<td>13,229</td>
<td>0.31%</td>
<td>15.75%</td>
<td>€1.8m</td>
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<td></td>
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<td></td>
<td>2015</td>
<td>68,000</td>
<td>11,500</td>
<td>0.25%</td>
<td>16.91%</td>
<td>€3.9m</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2016</td>
<td>60,000</td>
<td>12,000</td>
<td>0.22%</td>
<td>20.00%</td>
<td>€2.4m</td>
</tr>
<tr>
<td>Italy</td>
<td>Altroconsumo</td>
<td>Electricity and gas</td>
<td>Dolomiti Energia; Alma Energy Trading; Gala; Engie</td>
<td>2013</td>
<td>157,000</td>
<td>40,000</td>
<td>0.75%</td>
<td>20.30%</td>
<td>€9.1m</td>
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<td></td>
<td>2014</td>
<td>84,000</td>
<td>13,229</td>
<td>0.31%</td>
<td>15.75%</td>
<td>€1.8m</td>
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<td></td>
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<td>68,000</td>
<td>11,500</td>
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<td>2016</td>
<td>60,000</td>
<td>12,000</td>
<td>0.22%</td>
<td>20.00%</td>
<td>€2.4m</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Consumentenbond</td>
<td>Electricity and gas</td>
<td>-</td>
<td>2011</td>
<td>135,227</td>
<td>58,294</td>
<td>0.81%</td>
<td>43.11%</td>
<td>€14.1m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2012</td>
<td>308,508</td>
<td>110,186</td>
<td>1.84%</td>
<td>35.72%</td>
<td>€34.7m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2013</td>
<td>282,401</td>
<td>60,547</td>
<td>1.68%</td>
<td>21.44%</td>
<td>€16.1m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014</td>
<td>295,493</td>
<td>53,059</td>
<td>1.76%</td>
<td>17.96%</td>
<td>€16.0m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2015</td>
<td>-</td>
<td>79,375</td>
<td>-</td>
<td>-</td>
<td>€3.6m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2016</td>
<td>-</td>
<td>78,216</td>
<td>-</td>
<td>-</td>
<td>€27.9m</td>
</tr>
<tr>
<td>Portugal</td>
<td>DECO</td>
<td>Electricity and gas</td>
<td>Endesa, Goldenergie and Galp</td>
<td>2013</td>
<td>587,080</td>
<td>40,433</td>
<td>5.61%</td>
<td>6.89%</td>
<td>€0.7m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014</td>
<td>176,030</td>
<td>28,160</td>
<td>1.68%</td>
<td>16.00%</td>
<td>€1.8m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2016</td>
<td>74,697</td>
<td>6,361</td>
<td>0.71%</td>
<td>8.52%</td>
<td>€0.3m</td>
</tr>
<tr>
<td>Slovenia</td>
<td>ZPS</td>
<td>Electricity and gas</td>
<td>Gen-I</td>
<td>2014-2015</td>
<td>-</td>
<td>12,300</td>
<td>-</td>
<td>-</td>
<td>€1.0m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2017</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>OCU</td>
<td>Electricity and gas</td>
<td>Endesa</td>
<td>2013</td>
<td>486,254</td>
<td>27,300</td>
<td>1.04%</td>
<td>5.61%</td>
<td>€1.4m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014</td>
<td>120,000</td>
<td>15,000</td>
<td>0.26%</td>
<td>12.50%</td>
<td>€0.4m</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2016</td>
<td>-</td>
<td>12,200</td>
<td>-</td>
<td>-</td>
<td>€0.8m</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Which?</td>
<td>Electricity and gas and Cooperative Energy</td>
<td>-</td>
<td>2012</td>
<td>287,365</td>
<td>38,000</td>
<td>0.46%</td>
<td>13.22%</td>
<td>€11.81</td>
</tr>
</tbody>
</table>

**Table 2: BEUC members’ collective switching campaigns**

Sources:
Table 1 shows that the emergence of collective switching is not the same across the different countries. The first consumer association that decided to develop a collective switching campaign was Consumentenbond (Netherlands) in 2011, followed by Belgium, Denmark, UK, Austria, France, Italy, Portugal, Spain, Slovenia and Czech Republic. The first campaign is usually the most innovative, with a large number of consumers who sign up for the campaign. After the first auction, the number usually decreases and stabilises. The only exception was in Netherlands, where the number of consumers who signed up for the campaign increased after the first auction, but the percentage of consumers that switched decreased. The Netherlands is also the country with the highest total saving. Portugal is the country with the largest percentage of consumers who signed up for the campaign with respect to its population (at first the 5.61% of the population signed up for the campaign). The switching rate calculated as the number of consumers that switched compared to the number of consumers that signed up for the campaign is around the 26-27% for Austria, Belgium’s switching rate is not constant, it is between 20 and 30% the first two years, the third year is almost 50% and decreases drastically during the last campaign where the switching rate was only 17%. Italy is always around 20%, Netherlands shows a decreasing trend: in the first campaign the switching rate is around 40% and in the last 18%. Portugal and Spain show more or less the same trend: in the first year the number of consumers who signed up for the campaign was higher, but the number of consumers that switched was lower; for these reason, the switching rate is around 6-7%. The second year, the number of consumers who signed decreased with a consequent increasing of the switching rate that was around 13-16%. Finally, in UK the switching rate is 13%.

Austria, France and UK decided to not participate to the interview, however it was possible to rebuild the case studies thanks to the data provided by the BEUC.

5. Case studies

5.1 Application of 6C framework

Table 3 provides a summary of the case studies analysed taking into account the six dimensions: context, cooperation, construct, configuration, capability and change. Looking at the context macro area, it is possible to observe that the countries analysed have a highly concentrated energy market: there are few big retailers and the competition is low (with the exception of the Chez Republic). In the first stage of the collective switching campaigns organisation, all countries had the PrizeWise support for the technical platform, some of them availed themselves with external partners also for communication (Austria, Belgium, Chez Republic and Denmark). However, Denmark is the only country that asked the technical and communication support by LM Delivery. The construct macro category is the same for all the countries, in this paper, in fact, it was decided to consider as intermediaries only the consumer associations that are BEUC members. Configuration, capability and change present some differences. The configuration macro area takes under consideration consumers, media and interest by politicians (strong interest in Austria, Slovenia and UK), big suppliers participation (in France, Portugal and Spain the big suppliers decided not to participate), consumer association marketing strategy (Belgium, Chez Republic and Netherland invest in communication) and consumer association relation with the territory (strong in Belgium and Slovenia). The second macro category, capability, tries to figure out if special teams have been assigned for the management of the collective switching campaign, if the consumer association internalised the technical platform and if it is used also for campaign organisation in other sectors. All the consumer association under analysis created a special team, Belgium, Italy and Portugal
internalised the technical platform and the Chez Republic and Italy used the platform in other sectors. Finally, the change macro category investigates: if collective switching campaigns are organised by other intermediaries (Belgium, Italy, Netherlands, UK), if there are collective switching campaigns on renewables (Austria, Belgium, France, Italy, Netherlands) and if the market share of the main retailers decreased and the competition increased (common to all countries).
<table>
<thead>
<tr>
<th>Context</th>
<th>Cooperation</th>
<th>Construct</th>
<th>Configuration</th>
<th>Capability</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>High market concentration; VKI active from more than 50 years.</td>
<td>PrizeWise (home page, CRM/back office, negotiations with suppliers)</td>
<td>Non-profit organization BEUC member.</td>
<td>Big consumers interest, but structure not ready for more customers. Hired additional HR. No marketing strategy.</td>
<td>Internal special team. Not internalised any process.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Few retailers with high market share; Test-Achats active from 60 years.</td>
<td>PrizeWise (technical support, communication and negotiations with the suppliers)</td>
<td>Non-profit organization Executive Board of BEUC, CI (Consumers International) and ICRT (International Consumer Research and Testing).</td>
<td></td>
<td>Internal special team.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>High number of retailers, high concentration; high level of competition; dTest active from 25 years.</td>
<td>PrizeWise (Technical support) External PR agency</td>
<td>Non-profit organisation BEUC member.</td>
<td>Is still at the beginning.</td>
<td>Internal special team. Platform used also for other sector (mobile tariff)</td>
</tr>
<tr>
<td>Denmark</td>
<td>Lower competition and high concentration; consumers usually do not change supplier.</td>
<td>LM Delivery (Technical and communication support)</td>
<td>Non-profit organization BEUC member.</td>
<td>Closed business Ecosystem, strong criticism from media and politician. Switching rate low. Partner left them, no capability to internalise the process.</td>
<td>Internal special team.</td>
</tr>
<tr>
<td>France</td>
<td>Discrete number of suppliers, high concentration; UFC-Que Choisir active from 66 years.</td>
<td>PrizeWise (Technical support)</td>
<td>Non-profit organization BEUC founding member</td>
<td>Focus on gas market. Scepticism of the market who refuses the competition.</td>
<td>Internal special team.</td>
</tr>
<tr>
<td>Italy</td>
<td>High number of retailers and cumulative market share of main suppliers less than other countries; Altoconsumo active from 44 years.</td>
<td>PrizeWise (Technical support)</td>
<td>Independent, non-profit organisation BEUC founding member.</td>
<td>Business Ecosystem not ready, lack of knowledge and trust of the consumers.</td>
<td>Internal special team.</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Less number of suppliers, high concentration; Consumentenbond active from 64 years.</td>
<td>PrizeWise (Technical support)</td>
<td>Non-profit organization BEUC founding member.</td>
<td>They overcome the consumer concerns. Large investment in communication. Collective switching as “standard activity” Business Ecosystem closed, low economic benefit, big companies not participated.</td>
<td>Internal special team.</td>
</tr>
<tr>
<td>Portugal</td>
<td>Recent energy market liberalization; high concentration; DECO active from 43 years.</td>
<td>Technical and organizational support</td>
<td>Independent, non-profit association with charity status. BEUC member.</td>
<td></td>
<td>Internal special team.</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Few retailers, market concentrated ZPS active from 27 years</td>
<td>PrizeWise (Technical support)</td>
<td>Oldest consumer NGO; Member of BEUC ANEC and ICRT</td>
<td>Marketing investments, attention to the media, trust of the consumers.</td>
<td>Internal special team. Investments to replicate into other sectors. Offline consumers campaign.</td>
</tr>
<tr>
<td>Spain</td>
<td>High concentration; OCU active from 42 years.</td>
<td>PrizeWise (Technical support)</td>
<td>Oldest consumer organisation. BEUC member.</td>
<td>Business Ecosystem closed, five big companies not participated, problem to obtain a good price.</td>
<td>Internal special team.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Big 6 dominate gas and electricity market; Which? active from 60 years.</td>
<td>PrizeWise (Technical support) 38 Degrees campaigning organisation</td>
<td>Non-profit association with charity status. BEUC member.</td>
<td>Business Ecosystem open even if at the beginning the Big 6 had less interest. Strongly interest at governmental level.</td>
<td>Internal special team.</td>
</tr>
</tbody>
</table>

Table 3: summary of case studies
### 5.2 Results

From the analysis of Table 3, it is possible to see common patterns of the energy business ecosystem. These patterns are presented in Table 4. This business ecosystem has been classified into four different categories: closed energy business ecosystem, medium-open energy business ecosystem, open energy business ecosystem and energy business ecosystem under construction.

The Czech Republic and Slovenia have been considered separately for two reasons: they are smaller and more recent compared to other consumer associations and they organise collective switching campaigns from two years ago, so the business ecosystem is still evolving. The case studies analysis shows that even if the Czech Republic and Slovenia consumer associations are smaller and their campaigns are more recent compared to other countries, there are the right conditions for the development of the business ecosystem toward an open configuration.

Denmark, Portugal and Spain are in a closed energy business ecosystem. In Denmark this very closed system has led to the failure of this policy innovation. Portugal and Spain, even if they continue to organise collective switching campaigns, the results are not encouraging. They have the least amount of total savings, the consumer participation is drastically decreased and they have not stimulated market interest, in particular the main retailer interest.

Austria, France, Belgium and Italy have been classified in the “medium-open energy business ecosystem”. However, this category could be further subdivided: Austria and France show the same pattern, such as Belgium and Italy. Austria and France, after a declining trend, continued to invest and made the last campaign that recorded the second best result in terms of total saving. Belgium and Italy, instead, have slightly abandoned the organisation of collective switching campaigns, but have activated virtuous circles that allowed the diffusion of this policy innovation through other intermediaries and in other sectors.

The Netherlands and the UK are the only two countries where this policy innovation has evolved and spread. The two cases are different. The Netherlands case could be considered the “case of success” in the consumer association environment. It overcomes consumer concerns and has made possible to spread of the collective switching throughout Netherlands; it organises more than two campaigns every year with very impressive results. Also other intermediaries organise collective switching campaigns and this policy innovation has become a standard and alternative activity to changing energy supplier. The same is true also for the UK, but with a different assumption. The UK consumer association does not play a crucial role as Consumentenbond for Netherlands. The key of its success was the growing government interest, which led the Department of Energy and Climate Change (DECC) to support the development of collective switching in the country. A common denominator is the big change in the energy market. From the years of the introduction of the collective switching, a large number of small retailers has grown; most of them are focused on renewables. The cumulative market share of the main retailers decreased and the competition increased.
Table 4 provides aggregate results in order to understand energy business ecosystem. As asserted by Rong et al. (2015) the 6C framework can be clusterised into three groups.

The first group includes context and cooperation. The context takes into consideration the environmental setting for the business ecosystem development and the cooperation with regard to the partner relations in order to reach the strategic objective. This cluster reflects the industry life cycle of the driver subject, its mission, the barriers, the identification of the external partner useful for the development of this policy innovation. Looking at the table, it is possible to see that with the exception of the last business ecosystem, other consumer associations are in the maturity stage. They have a company reputation and have previous experience that could help for the dissemination of the business ecosystem. As the consumer association, they pursue the same mission: consumer protection. As external partner they collaborated with PrizeWise, which provides the technical support, and 5 of them (Austria, Belgium, Chez Republic, Denmark and UK) required collaborations for the communication part.
Barriers are one of the most important aspects in these business ecosystems. Each country is characterised by a high market concentration. Both market barriers and social barriers affect the closed energy business ecosystem and the medium open business ecosystem. In the closed business ecosystem there are few retailers who have a large part of the market share, the competition is low and for this reason a “big company” has no interest to participate in collective switching campaign. In addition, there are also social barriers: in Denmark, for example, the switching rate is really low because consumers are not inclined to change energy supplier. The medium-open business ecosystem is characterised by a larger number of energy suppliers (with the exception of Belgium). However, even here, large retailers share the market share. In addition, they encounter social and cultural barriers. In Italy, for example, there is a lack of trust: consumers are afraid to lose their surplus by switching supplier and this is only partially overcome by the trust that consumers have in Altroconsumo. Austria highlights also the existence of internal barriers: the consumer association in fact was not ready to handle a large number of consumers. The open energy business ecosystem and the energy business ecosystem under construction at the moment present the same specificity. Nevertheless, the Chez Republic and Slovenia markets are smaller than in the UK and the Netherlands. Except Chez Republic, they have few retailers; the concentration is high and consumers welcome policy innovation.

The second group is made by construct, configuration and capability. This group is more static; the study has considered the structure, the infrastructure, the internal capability and the platform adaptation capability. The driving forces of this policy innovation are consumer associations, non-profit organisations - some of them with charity status. For the first campaign, no one had the technical expertise to develop a collective switching campaign. In the closed business ecosystem, the platform used for the collective switching campaign was not used in other sectors, with the exception of Portugal, which organises other campaigns for tablets, oil, diapers, pets food, health plans, solar panels, bank deposits, air conditioning, baby seat and tires. In the medium-open energy business ecosystem, only Italy used the platform for fuel, mobile telephony, two-wheel drive and, low-impact motorcars campaigns. In the open energy business ecosystem the platform is used also for other sectors and in the energy business ecosystem under construction the Chez Republic organises collective switching campaigns for mobile tariffs. Some consumer associations, after the first auction, decided to internalise the process is the case of Austria, Belgium and Italy (in the medium-open business ecosystem) as well as the Netherlands and the UK (in the open business ecosystem). In order to professionalise the entire process and its strategic development, each consumer association allocated dedicated human resources to each auction. Belgium and Slovenia are the only two countries that organise campaigns for the offline consumer. Regarding the external relationship, in the closed business ecosystem, the media and the politicians look with criticism at this policy innovation; the same is true in France (medium-open energy business ecosystem), where the market looks with criticism at this policy innovation and refuses the competition. The open business ecosystem and the business ecosystem under construction show a growing consumer and market interest. In the UK there was a large interest also at the governmental level.

The third group shows the changes that the business ecosystem made in the market. In the closed business ecosystem, no other intermediaries decided to organise collective switching campaign; they decided also to not organise campaigns for renewable energies. In Denmark, the ecosystem collapsed because the partner left them and they do not have the capability to internalise the
process. In the medium-open business ecosystem, other intermediaries start to organise collective switching campaigns, Belgium France and Italy organise campaigns on renewables energy and only Italy also in other sectors. In the energy open business ecosystem, collective switching has become an alternative way to change energy supplier; in the UK it is also internalised at the governmental level. In the Chez Republic there are other intermediaries connected to municipalities and campaigns in other sectors (business ecosystem under construction). Finally, in each country, with different intensity and in different ways, collective switching puts some pressure on the market and its players. In these years, in fact, the number of energy retailers has increased, the competition has increased, and the cumulative market share of the main retailers has decreased. In addition, in some countries small retailers start focusing on renewable energy.

6. Discussion and conclusion
The business ecosystem concept is always related to digital or technology sectors. This contribute is the first that adapts the business ecosystem model to the energy sector. Its adaptable nature, its aptitude to take into consideration different variables and its ability to describe the actors’ interaction has led to the decision to use it for the energy sector. In addition, there is a need to carry out an empirical work that merges the literature related to the innovation intermediaries to the one related to the business ecosystem. This paper underlines the crucial role played by consumer associations for the development of a policy innovation, in particular their effort to overcome social and culture barriers and their ability to interact with other actors of the business ecosystem.

From this paper, the intermediaries’ key role identified by (Geels and Deuten, 2006) has been confirmed. Intermediaries play an aggregator role in the first phase of collective switching, create structures and infrastructure useful for the development of policy innovation (technological platform, relationship with external partners) and transform a supranational need (consumer protection) in a guide for local projects.

Using a case study approach, the study has analysed the key variables that, in different ways, influence the development and the dissemination of an energy policy innovation in a business ecosystem. To do that, the 6C framework was used, in order to study different levels of the system. Deconstructing the business ecosystem into six different macro areas (context, cooperation, construct, configuration, capability and change), it is possible to understand how a business ecosystem works. Analysing the case studies, it can be seen that the context and the cooperation are the basis for an energy policy development in a business ecosystem. The life cycle industry, its mission, the internal and external barriers and the external partners create the prerequisites for a policy development. The BEUC statement “a collective switching works well when the electricity and gas prices are high, the competition is high and also if consumer association have the ability to support the campaign. If these factors are not met, less interesting tariffs are the result”, has been confirmed through the case study analysis. The second area composed by construct, configuration and capability is more static but crucial to achieve change: the marketing investment (necessary to overcome social and market barriers), the supplier and the demand side interest, the “post switching” management (how the switching process is handled) and the company’s ability to replicate the acquired expertise in other sectors are the main drivers of change. Finally, changes achieved taking into account the business ecosystem were explored. A closed business ecosystem has limited the policy innovation
dissemination; the opposite is true for the open business ecosystem, where virtuous contamination involves other intermediaries and other sectors appear. Nevertheless, it was interesting to study the market behaviour because, as explained by the BEUC Senior Economic Officer, “also in the closed business ecosystem even if the major supplier decided to not participate, something happened. They, in fact, adjust their offers taking into account the winner tariff. The collective switching campaign has the power to rebalance the companies position in the market; this could happen not only in the energy market but also in the telecommunications or in the financial service sectors”.

This policy innovation reflects the European Commission: with the “Clean Energy for all European” package, in fact, the European Commission tries to improve the consumers’ condition within the energy market. Collective switching aims to improve the customer experience and the competition within the energy market. As said previously, even if the collective switching campaign has no success in a Country, “something happens”: the market share is redistributed. Finally, as it emerges in the case study analysis, intermediaries export this policy innovation into other sectors, activating virtuous contamination aimed to protect consumers.

A limitation of this paper lies in the fact that it considers as intermediaries only BEUC consumer associations’ members. For structural reasons, in fact, it was decided not to take into consideration other intermediaries that organise in their countries collective switching campaigns. This decision was taken for a data availability problem; however, it could be interesting to analyse also other intermediaries’ behaviours with the aim to investigate analogies and differences regarding the way to reach consumers and manage partners. In future researches, additional information will be collected to better understand the context: interviews with energy suppliers and consumers will be conducted. The analysis will also include the role of other stakeholders that contribute to the business ecosystem development. Finally, a comparison with other sectors will be structured.
References


