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Sustainable Business Models for Circular Economy in Urban Ecosystem

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Abstract: On one hand, sustainable business models have been recognized has facilitator to foster the transitions towards sustainability. On the other hand, politics and the scientific community have identified circular economy as the most promising mean to reach sustainability. While challenges regarding sustainability and climate change in urban area will increase, the development of Sustainable Business Model for Circular Economy (SBMfCE) in urban ecosystem is considered as crucial. Although pioneers created SBMfCE in different sectors, scaling up and business case reproductions are still lacking to insure the transition toward sustainability at urban level. The focus is made on one sector in a specific urban area: the built environment in Brussels. In order to give a new momentum to the SBMfCE, this paper analyses through a qualitative research based on institutional isomorphism why SBMfCE are developed at urban level and highlights barriers and enablers faced by actors. Then, it gives some insights linked to normative, coercive and mimetic pressures that could foster SBMfCE.

Keywords: Sustainable Business Model, Circular Economy, Sustainability, Urban Ecosystem, Built Environment, Business Model Innovation, Sustainable Transition, Institutional Isomorphism.

1. Introduction

One of the most burning questions today is about how urban areas will tackle the different challenges linked to their increasing population and climate change such as resources scarcity or air pollution (Intergovernmental Panel on Climate Change, 2018). Consequently, the transition toward Sustainability appears as

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crucial. Latest politics at European and national level as well as academics have identified the Circular Economy (CE) as one of the most promising possibilities to give an answer to those challenges to reach sustainability. However, the implementation of Circular Economy represents a long-term transformation, including a systemic switch from linear to CE. Today organizations within urban ecosystems need to accelerate the implementation of innovative solutions. Some organizations have started to innovate through what we will call Sustainable Business Models for Circular Economy (SBMfCE). However, the SBMfCE development is facing several barriers (social, technical, cultural, legal, organizational, etc.) that have been partly highlighted in recent literature (Evans et al., 2017; Bocken and Geradts, 2019; Hart et al., 2019; Tura et al., 2019). As a partial answer, the importance of acting as an ecosystem is recognized (Konietzko, Bocken and Hultink, 2019) but still challenging regarding SBMfCE. Although those different findings, SBMfCE are still identified as niche innovation and seem to take some time to become part of a broader system. Using the Institutional Isomorphism as theoretical framework, this paper aims at differentiating the pressures experienced by organizations implementing SBMfCE and at understanding what prevent them to consider the ecosystem possibilities.

2. Literature

Sustainable Business Models for Circular Economy

CE is often identified as one path to develop or one kind of SBM (Geissdoerfer, Vladimirova and Evans, 2018a; Nosratabadi *et al.*, 2019). Some papers talk about circular business model but SBMfCE is used herein. As mentioned above, the concept of SBMfCE has been selected in this paper to include significant features of both sustainability and CE. Following these latest trends – sustainable development and CE as opportunity to reach sustainability – the current environment boost literature on Sustainable Business Model. Since the switch to sustainable development and CE induces a need for change and so innovation. '*Business model innovation is emerging as a potential mechanism to integrate sustainability into business (Schaltegger et al., 2012; Jolink and Niesten, 2015)*' (Evans *et al.*, 2017, p.598). Recognized as emerging field of research (Lüdeke-Freund and Dembek, 2017), there is no consensus either on a definition for Sustainable Business Model(SBM). However different elements are recurrent such as the triple bottom-line approach intrinsic to SBM, an open notion of value creation (Bocken *et al.*, 2014; Schaltegger, Lüdeke-freund and Hansen, 2016; Press, Robert and Maillefert, 2019) linked to the involvement of multi-stakeholders. After having analyzed several definitions (Geissdoerfer, Vladimirova and Evans, 2018b) summarized it as "A business model that incorporates pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and which holds a long-term perspective" (Geissdoerfer *et al.*, 2018, p.409). His review defined also Sustainable Business Model Innovation as "The analysis and planning of transformations to a more sustainable business model or from one sustainable

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business model to another. This comprises both the development of an entirely new business model and the transformation of an existing business model"(Geissdoerfer et al., 2018, p.409), meaning that innovative SBM could happen in start-up or existing businesses. In this context, sustainable entrepreneurship has a real significance in SBM development (Schlange, 2006).

Sustainable Business Model for Transition toward Sustainability

Although SBMs are recognized as a key element in the transition toward sustainability, (Bocken *et al.*, 2014; Schaltegger, Lüdeke-freund and Hansen, 2016), a broader approach including ecosystem and their actors is more and more requested especially for CE and thus, for SBMfCE (Konietzko, Bocken and Hultink, 2019; Lüdeke-Freund, 2019; Fehrer and Wieland, 2020). Indeed, for an organization developing CE having partners with similar value is nearly mandatory (Govindan and Hasanagic, 2018). In this context, the need for more organizations recognized as SBMfCE is even more important. Bidmon et al. (2018) demonstrated as well the role of niche business model as non-technological niche innovation in the transition toward sustainability at higher level such as ecosystem. The latest review on sustainability Transition Research (Köhler *et al.*, 2019) highlight different points such as the importance of research on "business models for sustainability include flexible business models in rapidly changing environments, business models in the sharing economy, business models based on sufficiency, or servitisation and sustainability" (Köhler et al., 2019,p.13) . They highlight as well the fact that "sustainability transitions may threaten the economic positions and business models of some of the largest and most powerful industries such incumbents are likely to protect their vested interests and contest the need for and speed of transitions"(Köhler et al., 2019, p.3) Therefore, this underlines the need of the support from the regime and landscape via government and policymakers to allow the development of SBMfCE.

Hence, CE development relies on ecosystem support (Konietzko, Bocken and Hultink, 2019) and multi-stakeholders involvement (Ghisellini, Cialani and Ulgiati, 2016). Besides the absence of the right supportive ecosystem, SBMfCE niche are developed at urban level without the perfect supportive ecosystem thanks to innovative practices. As a first step, those pioneers, incrementally, mobilized others stakeholders which allow the development of further organizations with SBMfCE. Those organizations are playing an important role in transition to sustainability (Bidmon and Knab, 2018). However, society would need more SBMfCE which would implicate a certain homogenization among organizations within the ecosystem.

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Theoretical framework – Why Institutional Isomorphism

Literature (Rizos *et al.*, 2015; Evans *et al.*, 2017; Kirchherr *et al.*, 2018; Bianchini, Rossi and Pellegrini, 2019; Bocken and Geradts, 2019; Hart *et al.*, 2019; Tura *et al.*, 2019; Zvirgzdins, Plotka and Geipele, 2019) has already highlighted several barriers and drivers to SBM, Sustainable Business Model Innovation, CE or Circular Business Model development. However, no research has explained which mechanisms are pulling or pushing the spread of SBMfCE and why practices specific to SBMfCE would or not become common across society. In other words, why, there is no or low homogenization among organizations even if pioneers are observed. Therefore, Institutional isomorphism is suggested as the appropriate theoretical framework to understand this phenomenon.

As a part of the wider Institutional Theory, the term isomorphism was the one chosen by DiMaggio & Powel in 1983 to describe homogenization across organizations (DiMaggio and Powell, 1983). It is specifically, the difference between the three mechanisms "1) coercive isomorphism that stems from political influence and the problem of legitimacy; 2) mimetic isomorphism resulting from standard responses to uncertainty; and 3) normative isomorphism, associated with professionalization" (DiMaggio and Powell, 1983, p. 150) that might help to understand why SBMfCE are becoming mainstream or not and how to sustain the implementation of new SBMfCE defining the different kind of barriers and enablers. Institutional Isomorphism takes the risk to say that "we should expect a trend toward conformity and isomorphism, not toward greater diversity, independency, change and entrepreneurial behaviour"(Aksom, Zhylinska and Gaidai, 2020, p.145). However, once that there are some pioneers developing innovation such as SBMfCE, it would be normal to expect homogenization among actors.

3. Research design

This qualitative research (Yin, 2013) is based on 21 semi-structured interviews, one workshop and background documents analysis conducted from June 2019 to January 2020. The sample was selected after a deeper research performed on one organization which developed a SBMfCE from the Built Environment in Brussels. The organization were identified thanks to its participation in regional public programs encouraging circular and sustainable initiatives. Its SBMfCE was then confirmed through its match with most criteria given above in the literature section.

The scope was limited to Brussels to guarantee consistency through data collection (same legislative framework, cultural environment and urbanistic context). In addition, Brussels is recognized beyond borders regarding the development of a more sustainable and circular built environment. For this first step, we focused on organizations developing SBMfCE linked to the Built

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Environment however, a third of the total interviewed ecosystem's actors are general stakeholders as part of governmental agencies or financial institution. Furthermore, the Built Environment is recognized as one of the most problematic sectors in term of sustainability transition and embraces multiple industries and practical fields (Circle Economy, 2020). Therefore, results are expected to be more specific to urban ecosystem.

The literature review, little information was collected at academic level regarding SBMfCE in Built environment. However, several interesting publications have been found and helped the context comprehension. The papers address for instance water collection in urban area (Petit-Boix *et al.*, 2018), waste management (Conlon et al., 2019), or urban agriculture (Corcelli *et al.*, 2019). Christis et al. (Christis, Athanassiadis and Vercalsteren, 2019) studied in a quantitative research the impact of CE strategy on production and consumption in Brussels. Ghisellini et al. (Ghisellini, Cialani and Ulgiati, 2016) talks about eco-cities and collaborative consumption model. Cohen and Muñoz (Cohen and Muñoz, 2016) tackle sustainable production and consumption together with sharing cities. All those papers are treating part of the concept of CE using the BM perspective as secondary aspect. In addition, there are few papers tackling Built Environment and CE at large (for instance: Ness and Xing, 2017; Pomponi and Moncaster, 2017). However, there is no research found looking at SBMfCE at urban level.

After a first case based on an organization identified as developing a SBMfCE, a list of important actors allowing the development of SBMfCE in the built environment were established (see table 1). The interviews were conducted from June to December 2019. The list grew during this period following recommendation of interviewed actors. The semi-structured interviews were conducted with a guide built on concepts defined above and criteria developed in the Institutional Isomorphism Theory (Paul J. DiMaggio and Powell, 1983). The interviews lasted between 1 hour and 1 hour and 30 minutes. Then, the records were transcript and tagged through vertical and horizontal analysis.

Based on existing literature on Sustainable Business Models, CE and Built Environment (Rizos *et al.*, 2015; Evans *et al.*, 2017; Kirchherr *et al.*, 2018; Bianchini, Rossi and Pellegrini, 2019; Bocken and Geradts, 2019; Hart *et al.*, 2019; Tura *et al.*, 2019; Zvirgzdins, Plotka and Geipele, 2019), a matrix was compiled containing the factors categories of the main drivers and barriers. Even if the literature was not on SBMfCE, the matrix was built on the assumption that the driver and enablers to the development of SBMfCE would be similar. Afterward, the results analysis confirmed the different factors categories. The set of categories is the following: financial, cultural/social, technical/knowledge, governance, regulatory, market, supply chain, resources/environment, internal process and external support/recognition. First, interviews results were sorted in the matrix. Then, the results were analysed and discussed under the lens of the institutional isomorphism (coercive, normative and mimetic) (DiMaggio and Powell, 1983) to understand better the impact on SBMfCE. As there is no direct

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application found of Institutional Isomorphism on CE or business model, the literature linked to sustainability (Amran and Haniffa, 2011) inspired the theoretical framework (figure 1).

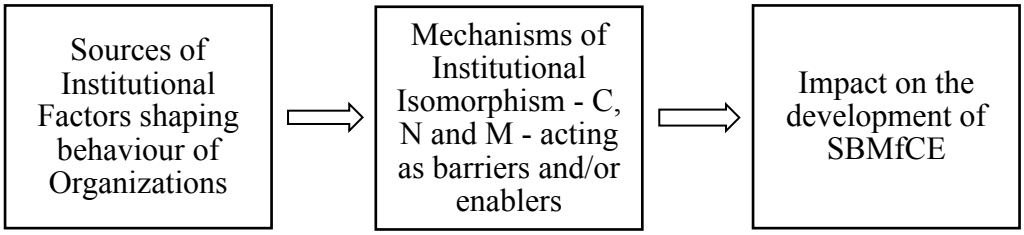

Figure 1: Theoretical Framework inspired from Amran and Haniffa (Amran and Haniffa, 2011).

4. Findings

This section will review the barriers and/or enablers through the three mechanisms of isomorphism and look at the impact on SBMfCE. As this paper is a short version, it will expose for each isomorphism mechanism only one or two examples of barriers and/or enablers from the case of SBMfCE in Brussels built environment. All references to SBMfCE in this section are drawn from the qualitative research introduce above.

Coercive isomorphism

Coercive isomorphism is the homogenization mechanism due to rules, procedures, structures and systems formal or informal (DiMaggio and Powell, 1983). Through the interviews coercive pressures were noticed different times especially for specific categories of barriers/enablers. The regulatory framework is per se a coercive pressure. Indeed, all actors evolving on a specific territory has to follow the legal framework. When it comes to SBMfCE, regulation on CE are still at early stage and for most not yet entered into force. However, there are already legislations meant for sustainability on Brussels territory. For instance, the legislation on building energy efficiency, called PEB, shows how a sector could change once a law is enforced. Today, the homogenization happened among all actors in the built environment. All new or refurbished buildings meet 'PEB standards' or even more. The PEB legislation is considered beyond Belgian borders and has transformed Brussels as an example in term of sustainable architecture and building. However, the standards set by the regulations have induced the use of multi-layers insulations which are not always long lasting and are highly difficult to recycle. The constructors have actually respected the regulation enforced but are working against circular economy and its principles such as flexibility and design for re-use.

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From one side, regulations are supporting SBMfCE development but from the other side a large part of the interviewees reported the need for 'thoughtful regulation overcoming' to develop SBMfCE. Some of them realized that through experiences abroad where there was no legal framework. As a consequence, coercive isomorphism would impact positively SBMfCE and be an enabler only if there is a change in the set of rules and that the rules applied are right for SBMfCE. The interviews highlight also the need for flexible legal framework with possibilities for exceptions. It would allow pioneers to test the best for SBMfCE before the homogenization process. Lastly, the regulatory category could be related to coercive pressures within governance category for instance regarding public tender including (or not) specifications pushing SBMfCE development. The interviews highlighted also other coercive pressures especially in financial, market and technical categories.

Normative Isomorphism

Normative Isomorphism refers to norms, values, habits and beliefs that prescribe how an actor should behave (DiMaggio and Powell, 1983). The interviews underline such mechanism especially in the social/cultural category but also internal process, market, supply chain and external support/recognition categories. In Brussels (and probably in other locations), when a new building or refurbishment is made, there is this habit to make the last layer with gypsum plaster. It seems that the population is expecting those white walls and nothing else. Nevertheless, there are other technics and materials such as clay plaster which are more sustainable, circular and have better thermoregulation properties. Although some pioneers started to use that kind of bio-sourced/circular materials, the sector is far from homogenization. At this stage this normative isomorphic pressure is acting as a barrier. To overcome it, several pioneers have developed hybrid models and/or alternative forms such as cooperative that allows for coupling their main activities with population and customers sensitization and help to attract unconventional funding's. If this initiative is promising, we are today far from homogenization since most of the actors in the built environment are still conventional firms. Besides some tricks built by pioneers, normative isomorphism is mainly operating against SBMfCE development. This is mostly explained in interviews by the important inertia specific to the built environment and the construction sector.

Mimetic Isomorphism

The third mechanism, the mimetic isomorphism occurs when actors and organizations are facing uncertainty in the environment and then imitate other organizations as a self-protection mechanism (DiMaggio and Powell, 1983). If the pioneers developed SBMfCE, it was most of the time because of a personal motivation coming from uncertainty regarding resources depletion, social inequalities and environmental concerns. Consequently, mimetic isomorphism was mainly found in the environment/resource category. However, we found it as well in market, external support/recognition, supply chain and financial

categories. Indeed, as sustainability, CE and environment protection are becoming 'mainstream' among most actors, it is included in their strategy. Most of the time interviewees referred to those practices as 'greenwashing' or sometimes CE concept misunderstanding. Pouder (Pouder and St John, 1996) suggested that when organizations are faced with uncertainty, they save money on research and imitate others. Some actors actually have initiated a change thanks to the pioneers' influence even though there is little homogenization in practices proper to SBMfCE in the built environment.

5. Discussion and Area for future research

The findings exposed above are just a part of the results obtained from the 21 interviews. The final version of the paper will probably contain a table with the summary of the main barriers and enablers related to each isomorphism mechanism. However, some suggestions for future research or synergies with other field of research have already emerged.

Regarding coercive isomorphism and regulation, it would be probably useful to understand better the role of legal framework in supporting SBMfCE development and when choices should be left to organizations/professionals or enforced.

Considering normative isomorphism, pressures were mainly found in the social/cultural categories. Therefore, literature on cognitive biases and nudging might help to understand SBMfCE evolution. In addition, the interviews results suggest that research on SBMfCE linked to hybrid models or alternative models such as cooperative, social enterprise and/or social innovation should be considered as well.

Then, the mimetic isomorphism analysis unlocked the possibilities for bridging SBMfCE with conceptual literature (maybe specific to the built environment) as well as marketing literature tackling 'greenwashing'.

Finally, as this paper answers more the 'why' of SBMfCE development (or non-development), it might be interesting to understand the 'how' and 'by whom', who are those pioneers. In addition, research conducted in other fields than the built environment or in other cities could also confirm or infirm the tendency of this research.

6. Conclusion

While the initial goal of the research was to understand why SBMfCE are not (yet) spreading at ecosystem level, this paper initiates the possibility to understand the type of mechanisms behind each barriers and enablers to SBMfCE development in the built environment. This would be the first step

versus a homogenization of SBMfCE. Further research would be needed as mentioned in the section before to evaluate which actions should be taken for each barrier and enabler regarding the mechanism explaining their occurrence.

From a broader perspective, the paper enriches research on SBM and CE at ecosystem level but also, literature on transition toward sustainability and Institutional Isomorphism.

The results are relevant for managers, entrepreneurs developing SBMfCE but also other actors of the ecosystem as governments, incubators and the education sector working on sensitization toward sustainable development and CE.

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Areas for feedback & development

- How could I leverage better the application of Institutional Isomorphism theory on the results?
- Should we include interviewees' citations in the findings section (here, as a short paper version it was not possible)?
- Which other research areas/fields could SBMfCE be linked with?
- Any other remark would be more than welcome.