

Sustainable Coworking Space

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Contributor: Kolja Oswald

Coworking is a trend that is becoming increasingly popular and is often associated with sustainability. However, a lack of consensus exists on what a sustainable coworking space is. This study addresses this by investigating what is currently understood by a sustainable coworking space. Q-methodology is used to analyze 27 participants' subjective ideas about what a sustainable coworking space is, resulting in four distinct perspectives. The four perspectives are identified as follows: 1. "New Work", 2. "Resourceful Society", 3. "Incubator, and 4. "Environmental". These perspectives have distinct opinions on what important sustainability aspects in the context of coworking spaces are. Whilst some prioritize environmental and community factors, others have a mixed focus. Additionally, the four perspectives share some common beliefs. All of them believe in the importance of sustainable mobility, as well as in the moderate importance of encouraging their members to be socially responsible. These findings offer insight into the different understandings of coworking space sustainability. This is important because currently this field is under-researched, and a more systematic approach to sustainability in this field is needed. This research lays the foundation to do so and helps work toward a better understanding of coworking in a sustainability and innovative context.

Keywords: coworking space,sustainability,sharing economy,Q-methodology,open innovation

1. Introduction

Over the past decade, coworking has become increasingly popular. At present there are about 20,000 projected coworking spaces worldwide, and this number is expected to double by 2024 ^[1]. The rising trend of coworking shows a shift in the way humans work and is supported by the Fourth Industrial Revolution, that is changing how companies conduct business ^[2].

Coworking is known as being a practice within the sharing economy, as it encourages the sharing of office space, social space, and office infrastructure ^[3]. New technologies are creating more efficient consumption patterns whereby resources are shared ^[4]. As we move toward smart cities, the growth of coworking has the ability to shape industries and cities as a whole ^[5]. The transformational shift toward coworking may have the ability to increase economic welfare in a sustainable way ^{[6][7]}. Proponents of coworking often claim that sustainability is one of the core values of coworking, with a major global community of coworking spaces including it as a core value within its coworking manifesto ^{[8][9]}. It is believed that coworking spaces can be sustainable in their design and practice sustainable business models ^[10]. However, there is no consensus on what a sustainable coworking space entails.

It is reasonable to assume that a coworking space may not be inherently sustainable, and that there are certain factors that are especially relevant when creating a sustainable coworking space. Researchers have identified factors that may be important to a sustainable coworking space, such as environmental sustainability, sustainable mobility, and economic sustainability ^{[11][12]}. Yet, there is no clear answer or framework that constitutes what a sustainable coworking is. Thus, there is a clear need to establish an understanding of what a sustainable coworking space is to establish a better understanding of the industry and its sustainability.

This paper contributes to this effort by elaborating on what a sustainable coworking space is believed to be. Using Q-methodology, this paper addresses the research question "What is a sustainable coworking space?" to develop four distinct perspectives on what a sustainable coworking space is. By uncovering these perspectives, the understanding of sustainability in the context of coworking spaces is expanded upon, offering a contribution to understanding the what and how of sustainable coworking spaces. The understanding of sustainability in the context of coworking is particularly important, as the Fourth Industrial Revolution is changing production and consumption. Whilst entrepreneurship has seemingly been in decline in the recent past, new phenomena such as coworking spaces may offer the ability to encourage an open innovation economy, potentially fostering new business ^{[13][14]}. As such, it is important to assess the sustainability of the coworking space phenomenon.

Q-methodology is suitable here because this research is exploratory in nature and seeks to uncover the subjective perceptions of the individuals that manage, own, and work with coworking spaces, and to understand their views. This investigation is therefore of an exploratory nature, and as such Q-methodology is applied. Q-methodology is a research methodology that is used to gather people's subjective perceptions on a certain topic ^[15]. This method was deemed applicable, as sustainability is a popular topic among coworking space owners and managers, whilst the current research on this topic is lagging behind. Unravelling these perspectives can help advance academia's understanding. As Q-methodology is a mixed qualitative and quantitative approach, giving the researcher a systematic framework to conduct research with, this methodology was seen as a suitable method with adequate academic rigor ^[16].

2. Theoretical Background

Sustainability research in the context of coworking spaces is still in its infancy. It has been acknowledged that, from an entrepreneurial and economic perspective, coworking spaces need to be sustainable ^[11]. It seems clear that internal factors within coworking spaces determine their economic sustainability ^[17]. From an economic perspective, the sustainability of a coworking space is partly determined by the level of continuous demand and occupancy of the space ^[18]. Furthermore, whilst business sustainability has been somewhat investigated, there is little existing research on other sustainability factors within coworking spaces. Environmental sustainability is an aspect that has been mentioned, yet no major findings have been reported ^[19]. Similarly, some research shows links between the climate of a coworking space and the sustainable business model outcomes of its member firms ^[12]. On the other hand, another study finds no causal relationships between the coworking space community and sustainability ^[19]. Another sustainability aspect that has been discussed in the context of coworking spaces is sustainable mobility. In theory, the creation of coworking spaces reorganizes the way people go to work. As this often occurs in urban environments, it may reduce the use of less sustainable means of transport and encourage the use of bicycles and public transport. Thus, Lejoux et al. identify sustainable mobility as a promising topic in this context. They also state that whilst there is a suggested link, there are no clear findings yet ^[15].

Thus, as of now there is a clear lack of understanding as to how coworking spaces can be sustainable. So far there are only fragmented findings, and there is no framework showing what a sustainable coworking space is. This is an important research gap to address because currently there is an inability to assess the sustainability of coworking spaces. Whilst coworking spaces have been discussed as generally having sustainable business models, no further analysis has been made in regards to different sustainability aspects of coworking space business models ^[20].

In order to identify what a sustainable coworking space business model is, it is important to define the term sustainable business model. Geissdoerfer et al. reviewed existing literature on sustainable business models and aggregated eight selected definitions, to define them as "business models that incorporate pro-active multi-stakeholder management, the creation of monetary and non-monetary value for a broad range of stakeholders, and hold a long-term perspective of stakeholders, and hold a long-term perspective." ^([21], p. 403–404). Additionally, a sustainable business model may be viewed from a triple bottom line perspective, including an economic, an environmental, and a social layer ^[22]. This is important to consider, as coworking spaces may emphasize these layers differently, potentially resulting in various sustainable business models.

To further understand different types of sustainable business models, it is helpful to look at Bocken et al.'s eight archetypes of a sustainable business model framework ^[23]. This model gives insight into the theoretical and practical context of a sustainable business model. The eight archetypes are categorized into technological, social, and organizational groupings, and each archetype has multiple examples of sustainable business models ^[23]. Moreover, it gives a comprehensive overview of sustainable business models, suggesting that multiple archetypes may apply to coworking spaces. This framework was found to be particularly applicable to coworking spaces, as they may exhibit a range of different business models, potentially creating different sustainability implications ^[24]. Thus, Bocken et al.'s framework is considered particularly applicable in this context and is in part used as a theoretical foundation for this research ^[23].

Moreover, as coworking is a practice belonging to the sharing economy, sustainability aspects of the sharing economy may be relevant to coworking spaces' sustainability aspects ^[25]. The sharing economy consists of activities "where economic agents share economic objects together to create values" ^[13]. It is commonly accepted that business models within the sharing economy have the potential to create more sustainable consumption patterns, as they may have a positive economic, social, and environmental impact ^[26]. Whilst it is argued that sharing economy businesses may shift global production and consumption patterns toward a more sustainable future, Laukkanen and Tura found that, from a sustainability perspective, the sharing economy cannot be discussed as a whole, but a fragmented discussion is

necessary [27][28]. They found that different business models within the sharing economy had distinct sustainability aspects, once again illustrating that there may be multiple types of sustainable business models within the context of coworking spaces.

Collaborative consumption, a major sharing economy phenomenon that is also observable in coworking spaces, is said to reduce unnecessary consumption, by reducing resource use, and creating a more sustainable system that addresses human needs [29]. It has been reported that collaborative consumption is in part motivated by the sustainability aspect itself, meaning that consumers choose this practice mainly because it seems more sustainable [30]. Similarly, technological openness and open innovation may boost technological innovations, which can increase the economic sustainability of coworking spaces [31]. This is because knowledge sharing is understood to be key in facilitating open innovation, which means that the sharing economy fosters open innovation as long as it facilitates knowledge exchange [32][33]. However, it is often unclear to what extent business models within the sharing economy are sustainable. At times, certain sectors of the sharing economy may have exhibited non-sustainable practices [34]. It is thereby clear that not all sharing economy practices are by default sustainable [35]. Whilst the direct economic transaction effects caused by the sharing economy are bound to be positive from a sustainability perspective, indirect economic effects and environmental effects are more complex and harder to assess [36]. It is therefore impossible to state whether a sharing economy phenomenon such as coworking is categorically sustainable or not, and a nuanced analysis is necessary. The fashion industry is an example of an industry where direct effects of collaborative consumption and resource sharing have been observable, yet where the sustainability effects of the sharing economy have been complex and hard to generalize [37]. Something similar may be observable in the coworking industry, where it may not be possible to assess sustainability on a meta level.

Curtis and Lehrer give insight into five semantic properties of the sharing economy that signal a sustainable approach. Firstly, the sharing economy is mediated by Information and Communications Technology. This means that technology offers the opportunity for the sharing economy to be scalable. Secondly, there is a motivation for non-ownership of the products. Thirdly, consumers only get temporary access to the products. Fourthly, the consumption of goods is rivalrous in nature. Lastly, the goods within the sharing economy are tangible [38]. These five semantic properties are useful in assessing the sustainability of parts of the sharing economy. Moreover, a large sustainability emphasis within the sharing economy is reported to be of environmental nature, with the majority of sustainability aspects being environmental [39]. Other reported sustainability dimensions within the sharing economy include the social, economic, spatial, and temporal dimensions [40]. Similarly, Daunoriene et al. identify the four major sharing economy sustainability perspectives as economic, environmental, societal, and technological [41].

Altogether, it is clear that sustainability is a commonly discussed theme within sharing economy research, yet there does not seem to be a homogenous approach [39]. Whilst coworking spaces commonly show key sustainable practices such as resource sharing, a consensus on homogenous sustainability aspects does not exist. This makes a sustainability analysis difficult. As the case-by-case assessment of sustainability is complex and nuanced, it is as of now impossible to objectively define a sustainable coworking space business model. Thus, exploratory research is needed to better understand the sustainability aspects of coworking spaces and to move toward an objective sustainability assessment of them.

This exploratory Q-methodology study uses Bocken et al.'s framework along with Q-methodology to develop a greater understanding of the interpretations of what sustainable coworking spaces are [24]. The analysis of subjective opinions of what a sustainable coworking space is will result in a greater understanding of the sustainability aspects emphasized within coworking spaces, helping us move closer to a transparent sustainability assessment of coworking spaces.

3. Discussion

This study offers an insight into how coworking spaces view sustainability, particularly coworking spaces that put an emphasis on the topic of sustainability, as participants of this study felt strongly about the importance of sustainability in the coworking space context. The four perspectives identified in this study give an insight into four distinct perspectives on what a sustainable coworking space is. The "New Work" perspective embodies coworking spaces that view sustainability as a result of sharing resources as well as a thriving community. In a sense, this may be the perspective that is rooted in functionality, in the sense that this perspective prioritizes key sharing economy functions such as resource sharing and flexible access. The "Resourceful Society" perspective places a greater focus on environmental factors such as using sustainable energy, whilst still placing an importance on the social aspect of encouraging a sufficient use of resources as well as placing the coworking space close to public transport. The "Environmental" perspective, on the other hand, views sustainability from a strictly environmental perspective. This perspective seems to focus heavily on reducing the carbon

footprint as a means to achieve a sustainable coworking space. On the contrary, the “Incubator” perspective views sustainability from an organizational perspective, whereby a coworking space is sustainable when it creates a long-term oriented community that helps each member grow.

As the research methodology applied investigates the subjective understanding of participants, it is important to state that none of these views are incorrect, they merely show a different emphasis. These findings suggest that each of these four perspectives offer insight into four different approaches to creating a sustainable coworking space. Simply because the “New Work” and “Incubator” perspectives show no strong emphasis on environmental factors within this research does not mean that they do not value the environment. Instead, their prioritized sustainability aspects may be ones that are crucial for them to thrive as a business, whilst environmental aspects may still be addressed.

What this research indicates is that it is important for coworking spaces to consider their business model and their identity in regard to sustainability. Whilst a coworking space may be able to address sustainability aspects holistically with a triple bottom line approach, addressing economic, social, as well as environmental issues, it seems clear that a specific business model requires certain sustainability aspects more than others. For instance, a coworking space that identifies with the “Incubator” perspective should focus more on fostering a community than a coworking space that identifies with the “Environmental” perspective.

Nonetheless, focusing on certain sustainability aspects does not simplify sustainability in general. Existing research shows that sustainability is often claimed, but not always implemented. This means that whilst various coworking spaces may prioritize certain sustainability aspects over others, there is still a need to comply with standard sustainability aspects. The issue here is the lack of a unified framework when it comes to urban sustainability, and any effort may best be centered around the three sustainability pillars: environmental, social, and economic ^[42]. The 35 statements identified within this study, grouped into technological, social, and organizational categories, may also offer some value.

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