Multidimensional Value Creation in Stakeholder Collaboration: A Case of Green Roofs in Finland

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Abstract: Current sustainability challenges, such as climate change, extreme weather events and rapidly increasing urbanisation, require novel solutions in cities. These solutions are needed to keep cities inhabitable, healthy and resilient. Green roofs, i.e. vegetated roofs and structures, are one such solution that is currently gaining legitimacy globally. The design and construction of green roofs occurs through collaboration among multiple stakeholders, such as city governance, local authorities, consultants, construction firms, environmental groups and citizens. Green roofs can provide multiple social, cultural, environmental and economic benefits to these stakeholders. However, this necessitates ongoing stakeholder collaboration and balancing stakeholder interests.

Research Questions: This case focuses on stakeholder collaboration and stakeholder value creation in green roof construction. The study asks: What kind of value is created in stakeholder collaboration in green roof construction?

Theory: This case builds on stakeholder theory. Specifically, the case connects to recent discussions on stakeholder collaboration and value creation.

Phenomenon: This is a phenomenon-based case focusing on value creation in stakeholder collaboration.

Type of the case: Applied decisional

Protagonist: Not needed.

Findings: The findings describe what kind of value is created in stakeholder collaboration focusing on green roof construction. The findings describe the value using five categories: associational value, transferred resource value, interaction value, synergistic value and innovation value.

Contributions: This study highlights the importance of stakeholder collaboration in the construction of green roofs and provides insights into value creation in stakeholder collaboration. This study contributes to the stakeholder value creation discussion within stakeholder theory and more broadly to understanding the role and importance of the stakeholder approach to solving sustainability challenges. This study offers managerial implications and discusses future research avenues.

Keywords: Sustainable development, stakeholder theory, value creation, urban environment, green roof

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Current global sustainability challenges, such as climate change, extreme weather events and rapidly increasing urbanisation, require novel solutions in cities (Collier et al., 2013). Acknowledging that the world's urban population is estimated to surpass six billion by the year 2045 (United Nations Department of Economic and Social Affairs, Population Division, 2014), solutions are needed to keep cities inhabitable, healthy and resilient. Green roofs, which refer to purposefully vegetated roofs and structures (Lundholm, 2015), are one such solution that is currently gaining legitimacy in many geographical areas globally. As the space in cities is already limited, green roofs have become a viable option for maintaining and increasing urban green areas (Djordjevic et al., 2018). Green roofs as multifunctional nature-based solutions (European Environment Agency, 2017; Jauni et al., 2020) have been argued to provide various benefits to urban areas and citizens, including water purification, air quality, climate mitigation/adaptation and places for recreation (Carter & Keeler, 2008; Oberndorfer et al., 2007).

The importance of stakeholder collaboration in the face of broad sustainability challenges has been widely acknowledged (Collier et al., 2013; Tapaninaho & Kujala, 2019). Indeed, the design and construction of green roofs takes place through collaboration among multiple stakeholders, such as city governance, local authorities, consultants, construction firms, environmental groups and citizens. Previous research on green roofs has focused on the influences and benefits of green roofs for stakeholders and the environment (Jaffal et al., 2012; Mesimäki et al., 2019; Shafique et al., 2018). Stakeholder collaboration has also gained considerable attention in environmental management and nature conservation research (Reed et al., 2009). Yet, there is little existing research focusing on stakeholder collaboration and value creation related to green roofs. Green roofs provide an interesting phenomenon; since

the roofs are a commercial product, the construction processes involve multiple stakeholders with varying interests, and the roofs provide various benefits and values to a wide set of stakeholders.

The purpose of this study is to examine what kind of value is created in stakeholder collaboration in green roof construction. In this article, a stakeholder is understood as any group or individual who can affect or is affected by the green roof construction as a focal phenomenon (Freeman, 1984; Roloff, 2008). Thus, we took an issue-centric approach (Roloff, 2008) to stakeholder collaboration and value creation instead of the traditional organisation-centric focus and approached the phenomenon at a meso level with multiple involved organisations and stakeholders. We conducted a case study on green roof construction in Finland. The empirical data consisted of 12 qualitative interviews with managers, entrepreneurs, experts and professionals involved in green roof construction.

Stakeholder research has introduced many concepts to discuss the relationships and influences between an organisation and its stakeholders. Most commonly used include stakeholder collaboration and cooperation (Sloan, 2009), stakeholder participation and stakeholder engagement (Greenwood, 2007). In essence, the stakeholder literature emphasises that long-term firm success requires active interaction and collaboration with the firm's stakeholders (Strand & Freeman, 2015). In this study, we utilise the concept of stakeholder collaboration to refer to those actions and processes whereby individuals and groups interact or work together to further a common interest or a goal – in this case, green roof construction.

Value creation is another main concept of the study. Stakeholder value creation is a dynamic process situated in stakeholder relationships (Austin & Seitanidi, 2012; Freudenreich et al., 2020). This means that value is created in the dialectic, reciprocal and typically collaborative stakeholder relationships and that the created value is defined by the

participants. Stakeholder value creation broadens the traditional value capture perspective, which focuses on economic value and emphasises financial returns received by financial stakeholders such as investors and shareholders (Freudenreich et al., 2019), with a multiple value perspective (Tapaninaho & Kujala, 2019). Stakeholder value can be defined as "anything that has the potential to be of worth to stakeholders" (Harrison & Wicks, 2013, p. 100), and it is tied to the ability of an organisation to create enduring relationships with its stakeholders (Kujala et al., 2019).

To categorise the value created in collaborative stakeholder relationships, we utilised Austin and Seitanidi's (2012) collaborative value creation spectrum, which has five types of value: associational value, transferred resource value, interaction value, synergistic value and innovation value. (1) Associational value refers to benefits received from being in a collaborative relationship with someone else (i.e., the collaboration with another organisation alone makes the company look good in the eyes of others). (2) Transferred resource value denotes benefits stemming from the exchange of resources between stakeholders. The significance of the value depends on the nature of the resources and how they are used; cash is depreciable, whereas know-how is a durable asset, but they can both be important for the collaboration. (3) Interaction value represents intangibles deriving from collaboration, such as reputation, trust, relational capital, learning, knowledge, joint problem solving, communication and transparency. (4) Synergistic value arises from collaboration where more is accomplished together than alone. (5) Innovation value can be created when the stakeholders collaborate and create novel solutions and outcomes.

Methods

Case Description

To address the research question, our case focuses on the green roof industry in Finland, specifically on stakeholder collaboration and value creation. In Finland, green roofs

have been increasingly used in private and public buildings in cities over the last decade. In effect, several cities in Finland have included a “green factor” indicator into their urban planning strategy to increase green areas in urban planning (Sucksdorff-Selkämaa & Nikupaavo-Oksanen, 2020). This has positively affected the growth of green roof construction. Moreover, a growing number of stakeholders are actively developing green roofs and the green infrastructure industry in Finland.

Data Collection and Analysis

We utilised qualitative interviews with green roof stakeholders to generate our empirical data. The data collection started by exploratively looking for projects related to green roofs in Finland and companies that had participated in these projects. The representatives of the companies were contacted by e-mail. The selection of the interviewees followed a snowball sampling method (Noy, 2008). After the first interview, the understanding of the main actors in the green roof business started to unfold. To create a comprehensive understanding of the phenomenon, 12 stakeholders were interviewed between December 2019 and March 2020. The interviewees represented nine different organisations that were actively operating in green roof construction. The positions of the interviewees included managers, entrepreneurs, specialists and researchers.

The semi-structured interviews focused on discussing green roof construction and the related industry as well as stakeholder collaboration. As the interviewees represented different industries, the interview guide was adapted to suit each interviewee’s background. Two out of nine interviews were group interviews involving more than one interviewee. Six interviews were held face to face, one via Skype and two over the phone. All interviews were recorded with a length varying between 33 and 128 minutes. In total, the verbatim transcribed material entailed 90 pages. Table 1 summarises the interview data.

Table 1. Interview data

Interview code	**Organisation**	**Industry**	**Duration**	**Transcribed pages**
I1	Landscaping company	Landscape management	128 min	19
I2 & I3	Landscape architect office	Community planning	54 min	9
I4	Landscaping and consultation	Wholesale business	81 min	10
I5	Landscaping and consultation	Retail business	33 min	5
I6	Green space management	Property maintenance	43 min	9
I7	University of Helsinki	Higher level education in universities	88 min	13
I8	Gardening and consulting	Landscape management	36 min	5
I9, I10 & I11	City of Tampere	Community planning	57 min	14
I12	Property management	Apartment renting	35 min	6

Source: Compiled by the authors

A qualitative content analysis was used to analyse the data (Elo & Kyngäs, 2008). The analysis process proceeded in two stages. First, we analysed the data inductively to identify the stakeholders, their interests, the collaboration and the activities of green roof construction. Second, to analyse stakeholder collaboration and value creation, a theory-driven deductive content analysis was deployed (Elo & Kyngäs, 2008) based on Austin and Seitanidi's (2012) theoretical model on the collaborative value creation spectrum. In the next section, we present the findings regarding the benefits of green roofs as well as stakeholder collaboration and value creation.

Findings

Environmental and Social Benefits of Green Roofs

The findings showed that there were various reasons for building green roofs. Environmental reasons were the main driver for green roof construction. Green roofs are used for stormwater management as they delay, prevent and purify runoff water in cities. Green roofs support biodiversity by providing habitats and resting places for various plants and animals. In addition, the roofs contribute to air quality by filtering dust and other impurifications.

The social benefits referred to opportunities for people to relax and enjoy the roofs either personally or from a distance. In many cases, green roofs are built for decorative purposes without public access to the roofs. The interviewees highlighted the aesthetic pleasure of green roofs. Aesthetic pleasure refers to the appearance of the green roofs, including beautiful plants and colours. These may delight people as they look at them and bring joy to those passing by. Stakeholders agreed upon the importance of having nature near living areas and being able to see greenery. Having a piece of nature in the neighbourhood allows one to see the changes in the colours of the plants throughout the four seasons. Thus, green roofs can offer an opportunity to connect with nature and its cycles, even in a city centre. In addition, green roofs offer multiple opportunities for citizens to establish social and environmental connections, from relaxing on a green roof area to growing vegetables and organising celebrations. Another social benefit is that green roofs can work as noise abatement as the vegetation soaks in noise, allowing the building inside to remain peaceful.

Although the interviewees agreed that stormwater management was one of the main benefits, the priority of the benefits varied. Some stakeholders saw stormwater management as the most important function of green roofs and claimed that all the other aspects of green roofs were just additional perks. Others prioritised some other aspects, but overall, the interviewees agreed on the benefits of green roofs.

Stakeholder Collaboration and Value Creation

Stakeholder collaboration is necessary in green roof construction, as the industry in Finland is still in the early stages of development, and best practices or guidelines are scarce. Due to a small group of experts in the green roof industry in Finland, the stakeholders often know each other, which facilitates collaboration. Stakeholder collaboration is typically based on extensive and continuous communication, which includes brainstorming sessions; negotiations; and consulting and sharing information, ideas and recommendations. The stakeholders involved consult and support each other at different stages of the process, and ideally, a continuous open dialogue takes place throughout the process. The interviewees emphasised that trust and mutual encouragement are crucial in collaboration. In addition, the interviewees mentioned that stakeholder collaboration has had a significant influence on the development of the green roof industry.

As green roofs are complex structures, the interviewees acknowledged that compromises are necessary. Sometimes stakeholders are excluded from critical stages of the green roof construction process, which may lead to a situation where some parts of the process are not fully considered or understood. This can cause problems later when the green roof has been in use for several years. For example, critical stages in the planning process might be ignored due to a lack of certain competences. Consultants and researchers especially shared this concern and wished to be included in the planning process from the start to have the ability to influence decisions at an early stage.

Value is created in every step of green roof construction, including the planning, building and finishing phases. The value perceived by the stakeholders was subjective and mostly immaterial. Utilising the value categories presented by Austin and Seitanidi (2012), the created value can be described as encompassing five categories: associational value, transferred resource value, interaction value, synergistic value and innovation value.

Associational value is created when one stakeholder is associated with another. In the case of green roof construction, associational value relates to the benefits received from collaboration and from being able to use collaborators as references. As the industry is in the early phases of development, credibility and references are significant for those working in the industry. Potential public and private customers look for construction workers, consultants and experts who have been involved in previous successful projects and who are well-connected in the field. Thus, associational value is significant for all stakeholders in the green roof industry.

Transferred resource value refers to value derived from the exchange of resources. In green roof construction, there is a constant flow of know-how and materials between the stakeholders. As a result, transferred resource value is created for all involved stakeholders during their transactions and exchanges. Economic value can also be viewed as a transferred resource value; when a company sells a green roof, materials and know-how are exchanged for money. Thus, this is an example of transferred resource value received from green roof construction.

Interaction value relates to intangible benefits received from collaboration, and thus it is closely linked to associational value as well. The interviewees emphasised such intangibles as learning, knowledge and joint problem solving as they discussed the possibilities of making changes in the urban environment, influencing other stakeholders and fulfilling their vision of a more sustainable world. These were enabled by the collaborative relationships established and maintained among the green roof stakeholders. Trust was also seen as an important outcome and a prerequisite of collaboration, as it enabled further projects and innovation.

Synergy value is often achieved in green roof construction. Reaching the potential for synergy value requires that stakeholders share a common interest in making a change in their society. The analysis indicated that many stakeholders were inspired by the “bigger

picture": to contribute to the creation of a sustainable planet through the construction of green roofs. This was seen as an ambitious aim that requires relentless effort and contributions from many stakeholders – yet this was described by the interviewees as something that they strove for. Thus, stakeholders perceived value from cooperation and the feeling of belonging to a group doing something good for the whole planet.

Innovation value was frequently mentioned as green roof construction requires new thinking, and there is potential for extraordinary creations that have never been accomplished before in Finland. Thus, there are endless possibilities and potentials related to green roofs. A clear vision of the future enhances the creation of necessary solutions and acts as a catalyst for further innovation.

To summarise, in addition to monetary value, green roof construction provides an opportunity for the stakeholders to create something extraordinary. Interestingly, for some stakeholders, value was only created when they felt that they were understood and respected. In addition, having linked interests with other stakeholders increased the depth of collaboration and allowed it to continue in the future.

Discussion and Conclusions

This study highlights the importance of stakeholder collaboration in the construction of green roofs and provides insights into value creation in such collaboration. The findings of the study show that the created stakeholder value was multidimensional, referring to value that conjoins multiple aspects deemed important by various stakeholders. First, the stakeholders perceived both environmental and social benefits from green roof construction. All stakeholders agreed upon the environmental benefits, including stormwater management, biodiversity enhancement and air quality improvement. While some stakeholders rated environmental benefits over social benefits, our findings support previous research claiming that an important advantage of green roofs is the experimental benefits they offer (Mesimäki

et al., 2019). Social benefits consist of relaxation opportunities, aesthetic pleasure, the possibility of connecting with the nature, noise abatement and opportunities for organising social events. Green roofs offer a place to rest and enjoy nature, and they bring joy to people who see them.

Contrary to previous research (Alexandri & Jones, 2006; Oberndorfer et al., 2007), none of the stakeholders in our study prioritised the economic benefits of green roofs. There can be many explanations for this. First, most of the interviewed stakeholders were involved in small green roof projects, which do not achieve significant financial benefit through energy savings or maintenance and replacement cost savings. Second, the economic value of bringing elements such as farming to green roofs or their advantages for public health are difficult and time consuming to measure.

This study contributes to the stakeholder value creation discussion within stakeholder theory and more broadly to understanding the role and importance of the stakeholder approach to solving sustainability challenges. Stakeholder collaboration is a key in stakeholder value creation in the green roof business. In line with Sloan's (2009) control and collaboration model, our findings highlight that stakeholder collaboration is vital in the green roof business as firms embrace their relationships with their stakeholders through collaboration, listening and partnering. The findings indicate that there is often an ongoing open dialogue between stakeholders, allowing every stakeholder to join the conversation and be aware of the progress of the green roof projects. Stakeholder cooperation is essential in the green roof business as no stakeholder can have all the resources needed, such as knowledge, understanding and materials.

The findings of the study show that stakeholder collaboration in the green roof business is continuous and intense and creates different types of value as presented in previous research (Austin & Seitanidi, 2012). First, associational value is created through collaboration

and from being able to use collaborators as business references. Second, transferred resource value unfolds as a constant flow of know-how and materials between the stakeholders. Third, interaction value materialises in intangibles such as learning, knowledge and joint problem solving. Fourth, synergistic value is received from cooperation and the feeling of belonging to a group that is doing something good for the whole planet. Finally, innovative value enhances the creation of novel solutions and acts as an impulse for further innovation. To summarise, the findings show that value is created and captured at many phases of the green roof construction process, from designing to finishing the roof. By delivering multidimensional value, green roof construction serves several stakeholders simultaneously, and stakeholder synergy is often achieved.

To conclude, green roofs can provide multiple social, cultural, environmental and economic benefits to the involved stakeholders, which necessitates ongoing stakeholder collaboration and balancing of the various stakeholder interests. The future of human society is linked to maintaining ecosystems that retain ecological and social resilience. Moreover, public health is linked to quality of life, green spaces and environmental conditions, requiring long-term planning with multiple stakeholders. Thus, involving different stakeholders around sustainability challenges helps meet the goals of urban development and ensures a safe and healthy environment for the future.

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