Public Private Collaboration in the Context of Zero Emission Neighbourhood

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Abstract

Purpose – This study aims to gain an understanding of success factors and barriers to public private collaboration in the context of zero emission neighbourhood.

Design/Methodology/Approach – Qualitative research method: narrative literature study.

Findings – On the basis of the identified success factors and barriers, a model with the following five interconnected themes is developed: (1) supportive public policy, (2) stakeholder management, (3) creation of a common ground for understanding, (4) knowledge sharing and learning and (5) uncertainty management.

Research Limitations/Implications – The model can be further developed and tested. In-depth conceptual/empirical study on the five themes can shed more light on the topic.

Practical Implications – This model is one of the several ways to understand, structure and simplify the reality (of public private collaboration in the context of zero emission neighbourhood). These five themes are arranged in the model in such a way to represent strategic, tactical and operational levels. This model can be useful to identify measures (steps, concrete actions, etc.) To address issues related to the five themes in a given organisational context. Focusing adequately on these five themes can contribute to successful public private collaboration in the context of zero emission neighbourhoods.

Originality/Value – This study/model provides an overall, holistic approach to address/improve public private collaborative endeavours in the context of developing zero emission neighbourhoods.

Keywords Zero emission neighbourhood, Construction, Public private collaboration, Energy efficiency, Stakeholder management, Knowledge sharing, Uncertainty management

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1. Introduction

Several initiatives have been taken by the research community to address carbon emission in construction and infrastructure development. One such initiative is the Research Centre on Zero Emission Neighbourhoods in Smart Cities (ZEN Centre) in Norway. ZEN's goal is to

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develop solutions for future buildings and neighbourhoods with no greenhouse gas emissions and thereby contribute to a low carbon society. ZEN is an eight-year initiative from 2016 to 2024. The study related to this paper is connected the ZEN initiative.

This paper aims to present a model by addressing the following research question through a literature study:

> What are the key drivers of success and failure when it comes to public private collaboration in a zero-emission context?

2. Research method

This study is based on a narrative literature review. The search terms shown in Figure 1 were used to identify relevant articles, published between 2010 and 2018. Eight articles were selected after going through 56 articles from 27 relevant scientific journals.

The funnel-approach of focusing on the most central issue of the paper (factors of success and failures) would explain the limited selection of relevant articles.

The selected articles are shown in Table 1.

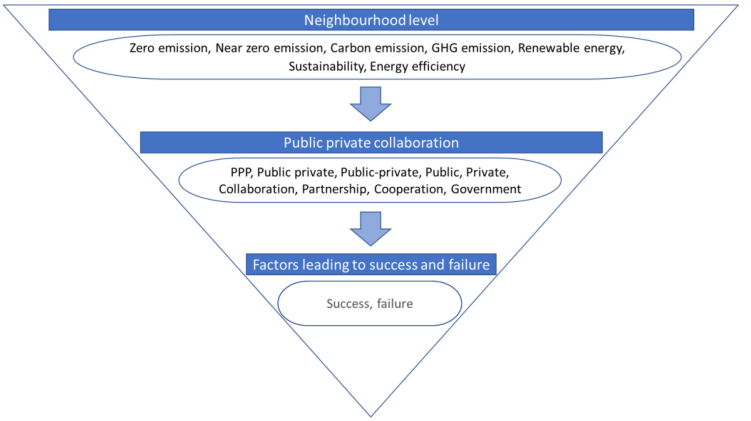

Figure 1.
Search Process and Terms

Case number	Case	Reference
1	The SUN project – neighbourhoods The Netherlands, Germany and Belgium	Valkering *et al.*, 2013
2	Challenges of developing sustainable neighbourhoods in China	Shi *et al.*, 2016
3	Cooperative-led development of a sustainable neighbourhood in Switzerland	Purtik *et al.*, 2016
4	The Masthusen pilot project in Malmö, Sweden	Oliver & Pearl, 2017
5	A low-carbon settlement in Trondheim, Norway	Gansmo, 2012
6	The Annex 63 project that involves Austria, Canada, Denmark, France, Germany, Ireland, Japan, the Netherlands, Norway, Switzerland and the United States of America	Strasser *et al.*, 2018
7	Social housing scheme in Turin, Italy	Copiello, 2015
8	Massimina Co_Goal project in Rome, Italy	Palumbo *et al.*, 2017

Table 1.
The Selected Articles

3. Results, analysis and discussion

The eight cases/articles provide adequate information on factors of success and failures – a summary of which is presented in Table 2. Before each success factors and barriers, a specific identification is given; for example, when it comes to 1.S.2, the first digit 1 denotes the case number, S means success factor, and the last digit (e.g. 2) means the second success factor found in the case.

Success factors
1.S.1 Diversity among members of a learning network (LN)
1.S.2 Action oriented nature of joint learning
1.S.3 A broad mix of implemented activities and tools
1.S.4 Learn4SUN portal that facilitates learning interactions among academic partners operating in different Euregional territories
1.S.5 An integrated and area-based approach
1.S.6 The role of individuals in stimulating and facilitating learning interactions across specific boundaries
1.S.7 Language translation and interpretation
1.S.8 Sufficient common ground
3.S.1 The cooperative network and external parties involved in the project (participation of member cooperatives and the broad member base)
3.S.2 Common understanding of the vison and goal
3.S.3 Cooperative culture of dialog (cooperative culture of dialog and consensus)
3.S.4 Self-organized groups with a very high degree of independence and freedom
3.S.5 Strong belief in the participatory process: trust in participatory formats and in the skills and capabilities of the citizens (the cooperative background of the MAW personnel and people who helped developing positive attitudes toward participation)
3.S.6 Efficient decision-making body
3.S.7 Reflection and learning
4.S.1 BREEM-Communities framework – effective in sparking dialog (that led to creating common ground for understanding and sharing of information and knowledge)
5.S.1 Continuous dialogue
5.S.2 Inter-disciplinary meetings
5.S.3 Building enthusiasm within and beyond the planning team
5.S.4 Reflection, learning and knowledge sharing
6.S.1 Two-way exchange of information between stakeholders
6.S.2 Meaningfully engaging stakeholders
6.S.3 Adequate time resources for coordination, exchange of information and networking
6.S.4 Commitment of several stakeholders on an early stage
6.S.5 Involvement of local businesses
6.S.6 Exchange of knowledge
7.S.1 A strong stakeholder involvement
8.S.1 The role of municipality as a vital stakeholder
8.S.2 Ensuring incentives / supporting policies for energy efficient measures
Barriers/challenges
1.B.1 Lack of overarching theme (lack of integrating power) that hampered creating common learning interests among learning network (LN) members on different "sides" of knowledge boundaries
2.B.1 Lack of supporting policies
2.B.2 Difficulties to coordinate various stakeholders and their interests
2.B.3 Poor project management capabilities – specially related to uncertainty management
3.B.1 Consensus-based culture (group thinking etc.): lean decision-making processes did not mitigate the strong consensus-based culture

Table 2. Summary of Success Factors and Barriers Found in the Cases/Articles

Barriers/challenges
4.B.1 Colliding interests (stakeholders' varying interests)
4.B.2 Cumbersome means to share information (reading thick document in English) – not user-friendly means to share information and knowledge, which would lead to lack of engagement that would, again, result in a lack of motivation to find common interests and common understanding
4.B.3 Collaborative efforts on the Masthusen project can nevertheless be criticized regarding quality and depth. This can mean that the collaboration was not at the expected level – from which it could have delivered the expected results. Inadequate collaboration can primarily be linked to lack of communication and lack of common understanding. This lacking can negatively affect sharing of information and knowledge among the involved actors, and thus delivering the desired results
4.B.4 Community consultation took place too late
4.B.5 Ineffective conduct of community participation meeting. The community consultation component in Masthusen did not yield the results it could have done, and in the end the feedback from the community consultations and focus groups had minimal, if any, impact on design
4.B.6 It employed a limited definition of 'community': One important challenge in the Masthusen pilot project is that it is a new development, and so future inhabitants are undefined. This makes defining the community for the purpose of community consultation very difficult
4.B.7 Inadequate framing of the framework
5.B.1 Lack of knowledge: The building industry is known to be very conservative and dominated by small and medium-sized enterprises (SMEs) which have very limited budgets for research and training (van Bueren and de Jong, 2007). In the construction phase, lack of knowledge may be a problem regarding new building codes, materials and procedures
5.B.2 Government legislation and policy: Norwegian legislation may also present a barrier and representatives from Norway's Ministry of Environment admitted that there is a long list of barriers that require change in the legislation

Table 2.
(*Continued*)

All these factors were analysed to identify common themes among them. This analysis is of qualitative nature. After going through iterations of grouping the success factors and barriers under themes, a final categorisation was made:

(1) Supporting policy and legislation
(2) Stakeholder involvement, engagement and management
(3) Creating common ground of understanding, communication and work-culture
(4) Knowledge sharing, learning and competence development
(5) Managing / dealing with uncertainty

It is important to note that these themes are interconnected, at least to a certain extent. Now, we will look more into the five themes. In the following discussion, it is important to note that the cases are merely referred, not presented – owing to the word limit of this paper.

3.1. Supporting public / government policies and legislation

Supporting public policies and legislation encourage private organisations and citizens to participate actively in the public efforts and projects that focus on developing zero emission neighbourhoods. Public policies, in this regard, vary from country to country. In our opinion, public policies and legislation include a framework for economic assistance / guidance. Two of the cases mentioned in this paper point out that policy / legislation related issues created challenges (Cases 2 and 5). And one of the cases mentions that government policy and legislation contributed significantly to the project success (Case 8).

As we can see from the results of the study conducted in Case 2, having a supportive public policy and legislation is one of the two pivotal elements in developing sustainable

neighbourhoods. Some of the other cases mentioned in this report also point out the important role of public policy and legislation in creating zero emission neighbourhoods. For example, even though the study conducted in Case 1 does not mention explicitly the role of public policy, when we read the case, then we can understand the positive influence of public policy on the energy efficient efforts in those neighbourhoods.

3.2. Stakeholder alignment and engagement

As we have seen from Case 2, public policies can influence stakeholder (private sector) involvement in developing sustainable neighbourhoods. Cases 1 and 3 specifically mention the importance of having diversity of stakeholders (identifying all relevant stakeholders) to successfully carry out their project. On the other hand, Case 4 had some difficulties in identifying all relevant stakeholders. The cases suggest the significance of looking at the process of stakeholder identification.

Three elements –

(1) the need that starts the project,

(2) the project's results (project delivery) and

(3) the project's effect after the delivery – can function as an overall / general guiding framework for identifying stakeholders (Rolstadås et al., 2015).

Cases 2 and 4 describe difficulties of aligning stakeholders' interests. The above description (mentioned in the above paragraph) can also be used as a guideline for aligning different interests of stakeholders – both primary and secondary stakeholders.

Aligning different stakeholders' interests effectively, and communicating and involving them in appropriate ways, the project can ensure commitment of stakeholders from the beginning. In this regard, it is relevant to refer two of the success factors mentioned in Case 6: commitment of several stakeholders on an early stage, and meaningfully engaging stakeholders. In addition, strong stakeholder involvement mentioned in Case 7 can also be considered here.

3.3. Creating a common ground for understanding

Cases 1, 3 and 5 explicitly mention that creating a common understanding is one of their key success factors.

One of the ways to creating a common ground is to have an idea or theme that integrates the different actors who are involved in a collaborative endeavour. Lack of such an integrating theme can become a barrier to achieve success. In this regard, the challenge that Case 1 had is worth mentioning here: Lack of overarching theme (lack of integrating power) that hampered creating common learning interests among learning network members on different "sides" of knowledge boundaries. Even though Case 1 had success in creating a common ground for understanding through other means, the overarching theme – which had been chosen to facilitate and strengthen common understanding and a collaborative culture – did not yield the desired result. This means that it is important for the leadership to design and implement strategies (such as this overarching, integrating theme) that connect directly to the very purpose of the stakeholders (at least the primary stakeholders).

Another barrier that is associated with creating a common ground for understanding is too much of commonness. That is, the issue of "group think" resulting from consensus-based culture; everyone agrees to everything, and not necessarily giving adequate attention towards critical thinking. Case 3 identified this issue and pointed out that their lean decision-making processes did not mitigate the strong consensus-based culture.

3.4. Knowledge sharing and learning

Creating a common ground for understanding and effective communication is important for learning and knowledge sharing in collaborative settings.

Three of the eight cases mentioned in this paper have their success factors primarily connected to learning and knowledge sharing (although the other projects have a positive influence from learning and knowledge sharing). The three cases are Cases 1, 3 and 5.

Case 1 mentions that both single-loop and double-loop learning took place, contributing to its success. Case 3 also points out that double-loop learning (higher order learning) occurred in its collaborative endeavour. Argyris & Schön (1996) are prominent researchers on single- and double-loop learning within the context of organisational learning.

Case 4 has its challenges in connection with knowledge sharing and learning – especially with respect to the questions, how and when.

- How: Large documents written in a foreign language (English) is not always a motivating / preferable source of knowledge for a non-English-speaking person. This can negatively affect not only sharing of knowledge, but also motivation to know what other involved-actors have done in the collaborative endeavour and hence hamper creating a common ground for understanding. In other words, work culture and stakeholder relations can suffer and thus will lead ultimately to affect the project result.
- When: Community consultation took place too late in the Masthusen project. Knowledge that is relevant for the project seems to be lost in this case because of involving certain stakeholders late in the process. This says something about the importance of stakeholder identification and management. In this regard, one of the success factors of Case 6 is worth mentioning here: involving stakeholders at an early stage.

3.5. Uncertainty management

There is a connection between uncertainty management and learning and knowledge sharing (Loch et al., 2006).

In general, any inter-organisational collaboration has to deal with uncertainty. Projects related to developing zero-emission neighbourhoods are not exceptional in this regard. A sound uncertainty management can make a positive difference in projects. Poor project management capabilities – especially related to uncertainty management – is one of the challenges mentioned in Case 2.

Uncertainty can emerge in different manners. Colliding interests of stakeholders – which Case 4 mentioned – can be seen as a source of uncertainty. If varying interests are not properly addressed and aligned, then it can affect communication and collaboration between the involved actors, and hence generate uncertainty in the collaborative work. If there is no adequate common ground for understanding and collaborative culture in the project, then it is difficult to carry out activities that are interlinked and to tackle possible changes that emerge internally and externally to the project. The following barrier mentioned in Case 1 can also be considered here, at least to a certain extent: Lack of overarching theme (Lack of integrating power) that hampered creating common learning interests among learning network members on different "sides" of knowledge boundaries.

It is also interesting to see the self-organised groups mentioned in Case 3. The freedom that this group had was understood negatively by some of the other involved actors. They considered that the group had too much freedom and the group was not working in a structured manner. It seems that they perceived the working style of the self-organised group was a source of uncertainty. But the group itself considered the working style as an opportunity.

There are several measures that can contribute to manage uncertainty effectively. Case 6 presents two such measures as its success factors: (1) having adequate time resources for coordination, exchange of information and networking, and (2) obtaining commitment of several stakeholders at an early stage.

4. A holistic view based on the five themes

The above discussion points out the following aspects:

- the three themes: (1) creating a common ground for understanding, (2) knowledge sharing and learning and (3) uncertainty management are interconnected and
- there is a logical connection between (a) the three themes mentioned above, (b) Stakeholder management and (c) Supporting public policy.

These connections are illustrated in a model (see Figure 2).

As the model shows, the theme "Supporting policy" can be placed at strategic level as it influences significantly to determine (1) the very establishment of the collaboration between public and private actors and (2) frame conditions.

The theme "Stakeholder management" is placed at the tactical level as it determines an overall collaborative condition that is necessary to ensure effective conduct of the project / endeavour. It can be seen as an underlying layer on which the collaboration is built.

The other three themes ("Creating a common ground for understanding", "Knowledge sharing and learning" and "Uncertainty management") represent the operational level. There are several tools, methods and processes that are available and applied to deal with these three themes in practical work-settings.

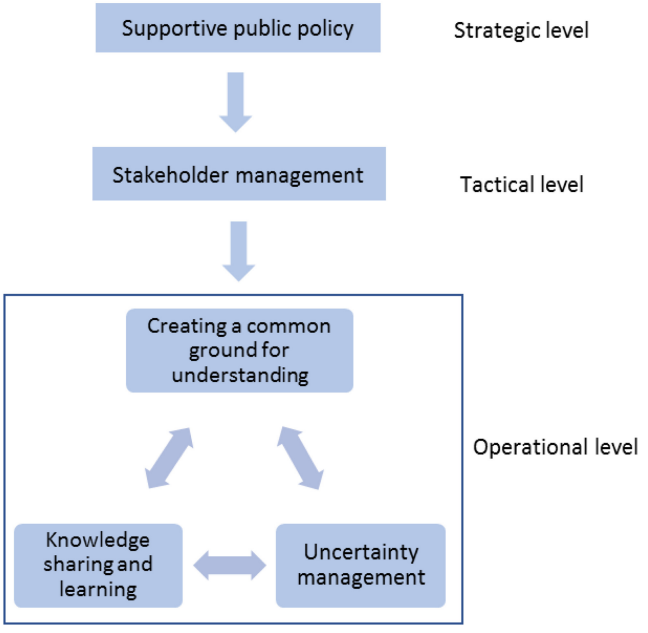

Figure 2.
A Model for Public Private Collaboration in Zero Emission Neighbourhoods

This model is one of the several ways to understand, structure and simplify the reality (of public private collaboration in the context of zero emission neighbourhood). A model such as this (Figure 2) can help to grasp the total picture (holistic understanding) of the situation, at least from one perspective. The understanding can trigger more reflection and learning, and hence will become the fundamental blocks for devising actions to ensure – in our case – an effective public private collaboration in developing zero emission neighbourhoods.

5. Conclusions

This paper aims to present a model through addressing the following research question:

What are the key drivers of success and failure when it comes to public private collaboration in a zero-emission context?

This model is one of several ways to understand, structure and simplify the reality – a reality that is complex. The themes mentioned in this model can be useful to delimit the focus – that is, setting a boundary and thus helping to focus on a limited number of important themes and their inter-connections, as oppose to getting overwhelmed by considering many incoherent themes. This model, along with the summary of success factors and barriers, can be useful to identify measures that can be taken to address issues related to the five themes in a given organisational context – at strategic, tactical and operational levels.

Limitations: It is to be noted that the placement of these themes in the model at different levels is of subjective nature. There can be other ways of categorizing success factors and barriers, identifying themes and developing a model for public private collaboration.

When it comes to future research, there are several suggestions:

- in-depth conceptual /empirical study on the five themes that were identified, for example, choosing to look mainly at the role of knowledge management (or stakeholder management) in public private collaboration in a zero emission context; and
- the model presented here can be developed further and tested.

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