



Master's thesis for the Environment and Society Studies programme

EXCHANGING BEST PRACTICE KNOWLEDGE: AN
EXPLORATION OF DIGITAL PLATFORMS CONTRIBUTING TO
SUSTAINABLE URBAN DEVELOPMENT

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Colophon

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PREFACE

Before you lies the finalized product of the master's program Environment and Society Studies. I can honestly say that I never expected this day would come. This thesis has been five years in the making, or rather, four years of denying I could do it and a little over one year of realizing I could.

Finding the topic for my research was the first challenge. For my internship, I was tasked with performing a literature review, and while I was reading up on the literature for that project one sentence stood out to me. One of the first things we learned in this master program is how ambiguous the concept of sustainability is. Combining that difficulty with the difficulty of the concept of knowledge and knowledge transfer has resulted in this thesis. I hope that by performing this research, mapping the role of digital platforms in the process of knowledge transfer, lessons can be learned so that these processes can be optimized further and eventually contribute to sustainable urban development, however you would like to define it.

I would like to use this opportunity to thank everyone who helped me this last year. First, I would like to thank Nowella Anyango-Van Zwieten, for supervising the difficult process of writing this thesis. I felt able to come to you with any questions and you provided the perfect balance of useful feedback, strictness, and concern. Then I would like to thank my study friend Aafke, for all the feedback you have given me, not to mention all the complaining that I got to do with you but mostly for just being a partner in crime every day. For this corona-study year, in which we haven't met many of our fellow students, I am glad to have met you. Lastly, I would like to thank the interviewees without whom this research would not have been possible. Thank you for taking your time and talking to me about the organizations you all work for.

Also, a very special gratitude is reserved for my brother, one of my best friends, without whom I would not have started this master program in the first place. From the call that changed everything to the countless feedback sessions and supportive talks throughout the year. Thanks to my parents, who have supported me always and unconditionally. And thank you to my friends, specifically Iris, for providing distraction and relaxation and sometimes a shoulder to cry on. Without all these people the result would not have been the same.

I hope you will enjoy reading this thesis.

Jet Bakker

Utrecht, October 2021

SUMMARY

Urban sustainability has come to the fore in the debate in urban policies. New technical solutions in for example the built environment are increasingly being viewed as *the* solution to improve a cities' sustainability. Solutions and tools for improving the know-how to implement successful sustainable urban development policies are continuously being developed. A specific role is set aside for technology, specifically digital platforms, also a tool that is rising in popularity, contributing to extensive knowledge management practices. Best practices are the popular method for sharing knowledge and have been for some time. However, using best practices is also increasingly being critiqued for not being inclusive enough especially given the complexity of sustainable urban development.

Therefore, this research focuses on how digital platforms with a focus on sustainable urban development facilitate knowledge transfer processes and specifically the transfer of best practice knowledge. This leads to the following research question: *'How does a digital platform, aimed at contributing to sustainable urban development, facilitate the transfer of best practice knowledge?'*. Following a literature review, a conceptual model was created, identifying key elements in a knowledge transfer process. To find an answer to this research question, this research uses a case study approach, employing semi-structured interviews for the gathering of primary data. Four cases were selected: Het Versnellingshuis, Cirkelstad, HIER and Powerly.

The main answer to the research question is that digital platforms mainly function as a hub in a network, that facilitates the connections between the different types of actors that connect to the specific goals of the platforms. The strength of the connections facilitated by the platforms is a big success factor in achieving a successful knowledge transfer as the characteristics of this element of the knowledge transfer process are especially being facilitated by the platforms. A big point of added value of the digital platforms is the trust that they receive from both the knowledge senders and receivers. This is gained because of their key position in the network, receiving a lot of knowledge but they are therefore also able to offer a nuanced output, strengthening their position as a key hub.

In the perception of the digital platforms, best practices are very important elements of the knowledge that is being shared. But although the importance of best practices is emphasized by all platforms, it cannot be stated with certainty that the successful knowledge transfer consists of best practice knowledge. This failure to conclude the position of best practice knowledge is mainly explained by a lack of strong definitions and benchmarking processes by the platforms to establish best practices. Nevertheless, there is also a place for the failures and bad practices that are not to be overlooked, as there is a different added value in recognizing what should not be done.

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LIST OF ABBREVIATIONS

CE	Circular Economy
EU	European Union
KT	Knowledge Transfer
SDGs	Sustainable Development Goals
SUD	Sustainable urban development

1. INTRODUCTION

Progressive urbanization and related social and environmental problems have drawn significant attention to sustainable development (Deakin, Huovilla, Rao, Sunikka & Vreeker, 2002). In 2015, the Sustainable Development Goals (SDGs) were presented by the United Nations. They are seen as the goals and guidelines for a better and more sustainable future and are to be achieved by 2030 (Sustainable Development Goals, 2021). SDG 11 specifically emphasizes the goal of having *'sustainable cities and communities'*, and given that at least half of the world population lives in urban areas this is a goal not to be taken lightly. But cities are the stage for more of the SDGs (Dixon & Eames, 2014). This focus cities as the stage for change is increasing even further by the global trend of decentralization of power.

The (re)new(ed) stress on sustainability has resulted in many (urban) policy agendas focusing on sustainable development, resulting in sustainable urban development (SUD), which is:

'Perceived as improving the quality of life in a city, including ecological, cultural, political, institutional, social and economic components without leaving a burden - e.g. the result of a reduced natural capital and an excessive local debt, on future generations - and thus forming the sustainably city' (Yigitcanlar & Teriman, 2015, p. 341-342)

This definition is based on one of the initial and often used definitions of sustainability, as defined by Brundtland, Khalid, Agnely, Al-Athel & Chidzero (1987). SUD has proven to be a very complex concept given its multi-disciplinary character and involvement in political, economic, social, and technical dimensions (Deakin et al., 2002).

The dimensions which SUD touches can be challenging and in an ever-globalizing world, knowledge is key. Depending on size, complexity and responsibility, cities have attained vast amounts of knowledge, each specific to their own situation (Van den Dool, 2020). Given the number of cities prone to danger from climate change and the specific knowledge gained by each city implementing their own adaptation and mitigation policies, it can be argued that each city has developed their own expertise. What remains is sharing that expertise with the rest of the world.

A tool widely used in both public and private organizations for sharing expertise are best practices, meaning the experiences that set the highest possible standards for quality for a product, good or service (Bhutta & Huq, 1999). Best practices are the results of processes called benchmarking, which has the underlying notion that all should be able to critically reflect on one's shortcomings, recognize the strength of others on that topic and be able to learn from those others (Bhutta & Huq, 1999). Best practices are the popular method for sharing knowledge, and have been for some time (Birch, Wachter & Keating, 2011). However, using best practices is also increasingly being critiqued of not being inclusive enough. By actively promoting best practices there is a risk of snobbism, loss of quality of services and products (especially in public service organizations) and it also ignores the point that failure can teach valuable lessons (Gagnon, 2011; Radaelli, 2004).

Learning from another is called knowledge transfer or sharing knowledge. As is shown in many benchmarking-processes, sharing knowledge can be successful. However, the process of sharing knowledge is not necessarily an easy one.

To facilitate the transfer of knowledge, the digital possibilities in the current age are enormous and provide opportunities to share the best practices and gain best practice knowledge. Field visits, networking, critical evaluation of others' work are all examples that have been explored and are actively used to promote the exchange of knowledge for the benefit of successfully implementing SUD-strategies (Van den Dool, 2020). A

specific role is set aside for technology, which has had an essential role in the development of cities and continues to do so (Kutty, Abdella, Kucubar, Onat & Bulu, 2020). An example of such a technology is digital platforms, also a tool which is rising in popularity, contributing to extensive knowledge management practices (Cenamora, Parida & Wincent, 2019). This concept has its origins in the business world but has increasingly been applied throughout society. Teece (2017) states that *'a platform provides common standards, interfaces, and tools to leverage core technologies in order to increase the productivity and profitability of a company, a set of companies, or users'* (p.2).

The objective of this research is to explore the role of digital platforms, that are aimed at contributing to sustainable urban development, in the process of knowledge transfer, with a focus on the transfer of best practice knowledge.

1.1 PROBLEM STATEMENT

Within the field of information system (IS), much research into digital platforms has been done already, focusing on all different types of platforms and from different perspectives. Examples are, Chen, Pereira & Patel (2021), that focus on the governance of platforms, Esposito De Falco, Renzi, Orlando & Cucari (2017) also focus on governance of platforms but more with regards to the possibility of open collaborative innovation. And Asadullah, Faik & Kankanhalli (2018) offer an extensive literature review, identifying the ambiguity of the conceptualization of digital platforms.

When it comes to knowledge management multiple studies have explored the topic of knowledge transfer and knowledge management already, in all different spheres: the private sphere (both inter- and intraorganizational knowledge management; Van Wijk, Jansen & Lyles, 2008; Easterby-Smith et al, 2000), within educational systems (Becheikh, Ziam, Idrissi, Castonguay & Landry, 2010), knowledge transfer between the academic world and companies (Ankrah, 2013; Vick & Robertson, 2018; Alexander, Martin, Manolchev & Miller, 2020), the public sphere (Hunt & Shackley, 1999; Dolowitz & Marsh, 2000; Zahra & George, 2002; Birch, Wachter & Keating, 2011; Rashman, Withers, Hartley, 2009; Glaser, Blake, Bertolini, Te Brömmelstroet & Rubin, 2020).

Despite this extensive research on digital platforms and knowledge transfer, no clear empirical data can be found regarding the transfer process of when digital platforms focus on best practices and sustainable urban development. It is argued that digital technologies such as digital platforms are not singularly able to create benefits for its users (Cenamora, Parida & Wincent, 2019). This raises the question of why then digital platforms are used as extensively as they are. The objective of this research therefore is to find out if there is an added value in the use of digital platforms and identify which elements are necessary to guarantee a successful transfer of knowledge.

1.2 RESEARCH AIM AND QUESTION

While digital platforms are popular tools for knowledge transfer, the indistinctness of how the knowledge is transferred and what would guarantee a successful transfer gives rise to wondering why they are being used in the first place. This research builds on that note, and aims to understand how digital platforms that aim to contribute to sustainable urban development facilitate the exchange of knowledge and specifically best practice knowledge. This led to the formulation of the following research question:

How does a digital platform, aimed at contributing to sustainable urban development, facilitate the transfer of best practice knowledge?

To assist in finding an answer to this research question, the following sub questions were formulated:

1. In what way do digital platforms aim to contribute to sustainable development?
2. How are best practices used by digital platforms?
3. What is the role of digital platforms in facilitating knowledge transfer?

1.3 SCIENTIFIC RELEVANCE

The use of digital platforms has increased enormously in the last decade, and it is difficult to imagine daily life without them. Nevertheless, including or focusing on a digital platform in research has proven difficult and it differs per discipline. Digital platforms are technologies that go beyond more traditional forms of ICT (Cenamora, Parida & Wincent, 2019). But because digital platforms are more spread-out in character this results in increased difficulty when using having digital platforms as a research object (De Reuver, Sørensen & Basole, 2018). Also, while increasingly being expected to provide added value, many organizations struggle to gain these optimal advantages from digital platforms (De Reuver, Sørensen & Basole, 2018). It is here that this research aims to contribute to the current body research. By combining current conceptualizations of digital platforms with knowledge management theories for optimal knowledge transfer (as conceptualized by Gul & Jamal, 2020). It is expected that by combining the two and identifying the individual elements of knowledge transfer processes, it can also be more explicitly evaluated where the added value of digital platforms is to be gained. This also follows the recommendation by De Reuver, Sørensen & Basole (2018) to study digital platforms in different industry settings, especially since it was also shown that while much knowledge transfer research has been done, research on using digital platforms for knowledge transfer on topics related to sustainable development is currently lacking (Birch, Wachter & Keating, 2011).

1.4 SOCIETAL RELEVANCE

The societal relevance of this research rests on the notion that urban development trends and the efforts to steer those trends towards sustainability is a central point on the agendas everywhere. Cities are seen as the *'laboratories for innovation and mutual learning'* (Van den Dool, 2020, p. 60), but in practice SUD-initiatives fall short (Waas et al., 2014). By researching if and how digital platforms can facilitate the transfer of knowledge on topics related and contributing to sustainable urban development, the results can add to the current insights on why certain platforms, strategies or simply knowledge transfers might not have an optimal effect and whether it is smart to continue using best practices as evaluation criteria. This is expected to result in recommendations on how to improve these processes, so that (new) digital platforms can adjust swiftly.

2. LITERATURE REVIEW

This section will discuss a selection of concepts central to this research, derived from the current body of academic literature. First (2.1), attention shall be paid to what can be considered as sustainable urban development. This provides a better understanding of how this process and the individual components are to be understood, and eventually add to the understanding on how the digital platforms do or do not contribute to this process. In section 2.2, theories on knowledge transfer are elaborated on, as they can be complicated processes. The in section 2.3 attention shall be paid to how digital platforms are conceptualized in the literature and what reflects the aim of this research. Lastly, a conceptual framework will be proposed in section 2.4, which includes the selected concepts and their operationalization and how they are connected. This is then also visualized.

2.1 SUSTAINABLE URBAN DEVELOPMENT

Sustainable urban development is a topic that has increasingly been a goal of policy makers and appears to be a central topic in society. But that also results in different perspectives on how sustainable urban development can be defined. To offer more in-depth insight in the different dimensions it can be viewed from, the scope shall be narrowed to the definition of the individual concepts of which SUD consists, starting with sustainability, expanding it to sustainable development and finally sustainable urban development.

2.1.1 SUSTAINABLE DEVELOPMENT

The definition most widely used to describe sustainability is *'development that meets the needs of the present without compromising the ability of future generations to meet their needs'* (Brundtland et al., 1987, p.41). Within the studies on sustainable urban development, both SUD and sustainability are used simultaneously. However, Dixon & Eames (2014) point out that a distinction between the two can be made, as *'sustainability implies a desirable state or set of conditions whereas SUD implies a process by which sustainability can be attained'* (p. 4). They also follow the definition of SUD by Wheeler (1998, cited by Dixon & Eames, 2014): *'development that improves the long-term social and ecological health of cities'* (p.4). This implies no end goal, but the continuous character of SUD.

Whereas sustainability appears to be a goal society would like to achieve, sustainable development provides more direction to do so and can be viewed more as a process. Waas et al. (2014) have defined key characteristics of what sustainable development is. The first principle is equity, which refers to the part of the definition of sustainability by Brundtland et al. (1987) that the wishes and desires of the current world should not compromise the possibilities for future generations. This characteristic includes different types of equity, such as inter- and intragenerational equity, interspecies equity, geographical equity, and procedural equity (Waas et al., 2014). The second characteristic is dynamics, indicating that sustainable development is a continuous process whereby society and the environment constantly influence each other. This characteristic is supported by the argument that SUD can be and is viewed more and more as a relative concept as opposed to absolute concept (Deakin et al., 2002). The third characteristic is integration, indicating the *'integration of the different sustainability principles in an harmonious manner to reconcile development objectives with environmental ones'* (Waas et al., 2014, p. 5513). The fourth and last characteristic is normativity, *'sustainable development is a social construct and basically amounts to making normative decisions and choices, which are ultimately based on the values we maintain about the way we develop, now and in the future'* (Waas et al., 2014, p.5513).

2.1.2 SUSTAINABLE URBAN DEVELOPMENT

It is the central characteristics of sustainable development that make the concept difficult to operationalize and analyze in practice. Since these characteristics can arguably also be applied to SUD, the same difficulties are present for this concept. Sustainable urban development is a complex concept given its multi-disciplinary character and involvement in political, economic, social and technical dimensions (Deakin et al., 2002).

The institutional dimensions of SUD are broad and far reaching, and five critical success factors (CSF) for implementing SUD-policies in cities have been suggested by Dixon & Eames (2014). CSF 1 advocates for *'stronger governance systems and strategic planning regimes at all scales'* (Dixon & Eames, 2014, p. 21). This addresses the issue that often arises, having no apt governance systems at the city scale, especially those that address longer term systemic problems. CSF 2 calls for *'better integration across the built environment'* (p. 22) since there often is a lack of integrative thinking in the built environment (Dixon & Eames, 2014). Because of this, opportunities to learn from failures and knowledge transfer for sustainability are missed. CSF 3: *'an integrated approach to sustainable development which recognises the importance of social and economic issues alongside environmental issues'* (p. 23). This is mentioned since it is suggested that the ecological urbanism agenda has often been prioritized at the cost of social sustainability. CSF 4: *'access to innovative 'green' finance and ability to use 'green' taxes at a city level and nationally'* (p.23), and CSF 5: *'effective and innovative partnerships between private and public sectors'* (p.24), since they offer possible advantageous benefits as well as a better spreading of risks (Dixon & Eames, 2014).

Besides the holistic and multi-disciplinary character of sustainable urban development, De Waas et al. (2014) also emphasize the uncertainties and risks to play a key role in the difficulty of measuring SUD. However, Niestroy (2008) introduced the so-called Sustainability Impact Assessment, a tool used to assess the extent to which the impact of a policy or strategy is sustainable. The assessment can be performed both *ex ante* and *ex post*, although usually the process then called a Sustainability Analysis (Radaelli, 2004; Niestroy, 2008). The tool is viewed as a policy integration tool, rather than a cost-assessment. The approach to both types of assessment also differs per sphere; the private sector often favors valuation through costs and benefits, while the public sector increasingly focuses on procedures, institutions and the role of networks (Niestroy, 2008).

While SIA is recognized to be useful for assessing policies, it is not developed to view the added value of possible public-private partnerships and their efforts for sustainable urban development. Monetization, often used in cost-benefit analysis in the private sphere, is difficult given that it poses ethical questions of the trade-offs that are being calculated (Niestroy, 2008). While it is difficult to assess the sustainability-impact, Waas et al. (2014) have provided an overview of the characteristics of an ideal-typical sustainability assessment, incorporating the characteristics of sustainable development introduced earlier.

2.2 KNOWLEDGE TRANSFER

To know how knowledge can be transferred, first the concept of 'knowledge' itself should be defined. The Cambridge dictionary provides the following definition: *'understanding of or information about a subject that you get by experience or study, either known by one person or by people generally'* (Knowledge, 2021). While this is a good base, multiple authors take it a step further and view knowledge on a spectrum, making a distinction between knowledge that is known subconsciously and consciously, also known as tacit and explicit knowledge or (Bhutta & Huq, 1999; Hunt & Shackley, 1999; Leonard & Sensiper, 1998). The tacit knowledge is gained through experience and simply held in someone's head, whereas explicit knowledge is clear, structured, and accessible (Leonard & Sensiper, 1998). Stenmark (2002) even goes a step further and argues that all knowledge is tacit, and everything that can be exchanged outside of the mind is just information.

A specific type of knowledge which is widely used to sharing experience are best practices (Birch, Wachter & Keating, 2011). They are generally recognized as the experiences used to set the quality standards of a product as high as possible (Bhutta & Huq, 1999). In specific contexts they can refer to levels of efficiency, productivity, and effectiveness, but as they are used in many different disciplines the perception differs (Löffler, 2000). They are the result of scoring mechanisms called benchmarking-processes, through which the ability to reflect critically on one's work and adapt accordingly is judged (Bhutta & Huq, 1999).

While best practices are actively used for knowledge dissemination, they are also increasingly being critiqued. One difficulty that arises is the identification of best practices, especially when different types of organizations are compared (Löffler, 2000). Also, what is regarded as a best practice changes over time, which diminishes the value attached to the concept of best practices (Löffler, 2000). When focusing on best practices, a risk of snobbism can arise, as well as a loss in quality (Radaelli, 2011). Lastly, a strong focus on best practices loses sight of the value of failures (Gagnon, 2011)

2.2.1 DEFINING KNOWLEDGE TRANSFER

Knowledge transfer is the process whereby knowledge of a certain topic is moved from one context to another (Glaser et al., 2020). As can be expected, it gets complicated because of the division between tacit and explicit knowledge, as both types of knowledge require a different approach for successful transfer. Knowledge transfer is conceptualized in different ways, and it is important to introduce other concepts that are also used often. Knowledge exchange appears to work in more directions than one, as it is more often used in network-context (e.g. in De Jong & Edelenbos, 2007; on networks of experts; Verwaal, 2016; on knowledge exchange in a supply chain and between partners on horizontal levels of this chain).

Diffusion is used to talk about the spreading of something, in this case knowledge. It is defined by Gagnon (2011) as *'those efforts that are passive and largely unplanned, uncontrolled, and primarily horizontal by peers'* (p.26). In the social sciences it is often used to refer to *policy* diffusion and diffusion of innovation, which, in a way, can be viewed as knowledge diffusion (Radaelli, 2004; Dolowitz & Marsh, 2000; Holzinger & Knill, 2005; Minkman, Van Buuren & Bekkers, 2018; Zahra & George, 2002). A synonym for 'diffusion' is 'dissemination', which mostly communicates research results by customizing the findings for a specific target audience (Gagnon, 2011; Knott & Wildavsky, 1980). In comparison to diffusion, this implies more direction and management of knowledge. Gagnon (2011) argues that 'dissemination' is also known as 'knowledge transfer', but Knott and Wildavsky (1980) argue *'beyond the transfer of knowledge, dissemination is often proposed as a change agent strategy to right wrong policies, and thus becomes a mask for policy advocacy'* (p. 539).

'Knowledge transfer' and 'policy transfer' appear to go hand in hand, and therefore worth mentioning. De Jong & Edelenbos (2007) argue that the concept of policy transfer can be used as an approach in different disciplines when they talk about knowledge transfer. It can be defined in a similar way as knowledge transfer but for the added aspect of policies and knowledge on policies. It is a process that happens between people from various departments and organizations, and, arguably, specifically covers the communication of explicit knowledge (specific problems and procedures; Glaser et al., 2020).

A concept related to knowledge transfer is the notion of translation. This concept can be defined as a process whereby actors are defined between something is translated, the connection is made and that which is translated is adapted from one context to another. (Meyer, 2010). Comparing this with the definition of knowledge transfer, it has an added dimension. To illustrate the difference more clearly, the definition of policy translation is also included here, as it is a concept often used in the public domain. Policy translation can be defined as *'a conceptualization that emphasizes modification of policies rather than linear transplantation from A to B'* (Minkman, 2021).

2.2.2 TOOLS AND METHODS

A multiplicity of environments and techniques exist to facilitate learning and the optimal transfer of knowledge. Field labs and urban living labs are viewed as laboratories for innovation and interactive learning (Van den Dool, 2020). Visits to cities contribute to the participants' emergence in a different environment and enable the participant to draw their own lessons (Van den Dool, 2020). These visits are critiqued, being typed as 'policy tourism', but still appear to have a positive effect on learning experiences (Glaser et al., 2020). A more creative technique is the development of urban gaming and gaming development, which can be used for learning in urban settings, or experimenting freely with urban development (Van den Dool, 2020).

A tool which has been very popular for knowledge transfer are best practices. They are the practices that achieve the highest possible standards of quality for a product, good or service (Bhutta & Huq, 1999). These best practices are especially featured in a process called benchmarking. The underlying idea of benchmarking is that all should be able to critically reflect on one's shortcomings, recognize the strength of others on that topic and be able to learn from those others (Bhutta & Huq, 1999). The process aims to provide actors with an external focus, but in practice, the wheel often gets reinvented time and time again, as actors are hesitant to share their inside knowledge in fear of losing their advantage.

This process originated in the private domain of large-scale companies, it has also transferred into the public domain (Yasin, 2002; Triantafillou, 2007). Critics mention that using benchmarking and best practices as standards in the public domain can have unwanted effects: a potential undermining of the quality of public services, and the potential risk for a power imbalance due to misuse of performance measurements (Triantafillou, 2007). Benchmarking can be approached as a governing technology, aimed at improving capabilities of self-governing by creating normalizing knowledge (Triantafillou, 2007). But even when measures have been taken to prevent these effects, the main crux of this methodology is that a best practice cannot simply be transplanted from one situation into the next (Bhutta & Huq, 1999).

2.2.3 CONDITIONS FOR TRANSFERRING KNOWLEDGE

The transfer of knowledge takes place on multiple different levels and between all types of spheres and actors. It starts with the norms that are used for knowledge production: for scientists it is scientific validity that drives the process, policy usefulness is the top priority for bureaucrats, and other stakeholders are mostly motivated by social validity (Edelenbos, Van Buuren & Van Schie, 2011). As suggested by the introduction of policy transfer in the previous paragraph, knowledge transfer is often viewed as the exchange of policies in the public domain. The process of knowledge can be divided into four steps or categories, each with individual conditions that need to be met to achieve an effective transfer of knowledge. Gul & Jamal (2020) distinguish between: knowledge holder and sender, the knowledge that is being transferred, link/relationship between the sender and receiver, and lastly the knowledge receiver. With each part of the knowledge transfer process, they identified necessary conditions for successful knowledge transfer.

2.2.4 CRITIQUES

While knowledge transfer and using best practices are popular tools and trends to increase competitiveness, they can also have negative effects, or simply a lack of expected effects. It was already in 1980, that Knott & Wildavsky asked the critical question whether there is too little or too much knowledge being transferred. They warn of the side effects of ignoring the 'simple' questions, in favor of more complex ones. Similarly, given the complexity of the process, often decisions can be made for selection of certain factors, and ignoring other factors, leading to an incomplete perception of the process (Goh, 2002).

Besides the possible implications of knowledge transfer practices, there is the risk of the concept becoming a catch-all term (Knott & Wildavsky, 1980). Already, many different concepts are in use to describe similar-but-not-the-same processes. It can lead to the assumption that all knowledge is simply out there, if there is only a way to connect the sender with the receiver (Knott & Wildavsky, 1980). Also, the constant emphasis on the necessity that everything needs to be transferable, can lead to a decrease in the quality of the knowledge production in the first place. Gagnon (2011) uses researchers as an example, who are encouraged and sometimes required to develop knowledge transfer plans for the grant proposals.

Radaelli adds to this by critiquing best practices as a knowledge transfer tool. Firstly, knowledge receiver(s) only *'see(s) the tree, not the forest'*, indicating the lack of context (Radaelli, 2004). And, perhaps most importantly, by focusing on best practices the possibility of useful contributions from failures are ignored, which in turn might result in inefficient adoption of the knowledge that is provided, it is the extent of contextualization which is crucial (Radaelli, 2004).

2.3 DIGITAL PLATFORMS

Digital platforms and their use have grown significantly over the last twenty years. Up until the point that most daily lives cannot live without them anymore (De Reuver, Sørensen & Basole, 2018). Two types of platforms can be distinguished: transaction platforms (such as Ebay, Paypal) and innovation platforms (Apple's app-center; Teece, 2017; De Reuver, Sørensen & Basole, 2018). In the public sphere, the use of platforms has also increased. The concept of platform urbanism has arisen, in response to the trend of the increasing number of platforms. This concept encompasses all platforms that are used to identify and tackle problems related to urbanization, using open data and collective knowledge (Repette, Sabatini-Marques, Yigitcanlar, Sell & Costa, 2021).

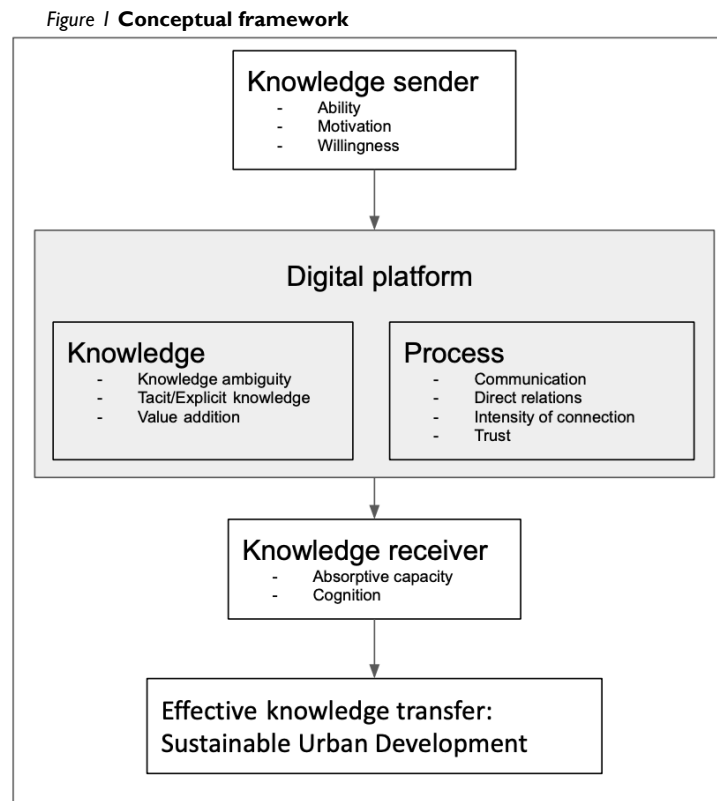
Digital platforms are conceptualized in different ways. One way to view a platform is as a purely technical tool, consisting of individual modules that contribute to the usefulness of this tool (De Reuver, Sørensen & Basole, 2018). Another conceptualization views a platform as a sociotechnical system, consisting in the one hand of the technical tools and on the other hand the organizational processes and decisions (De Reuver, Sørensen & Basole, 2018). It is this conceptualization that supports the argument that digital platforms can be seen as a transfer agent in a process of knowledge transfer. In the process of knowledge transfer, several authors have pointed out the role of 'transfer agents'. They are academic and/or policy experts operating in communities in different policy arenas (De Jong & Edelenbos, 2007). Given both the technical and social element of a digital platform, assuming that a platform and its demarcations are set up by experts, it is argued here that a digital platform takes up the role of a transfer agent in the process of knowledge management.

The role of platforms can be described as follows: *'digital platforms utilize an ecosystem of autonomous agents to co-create value'* (Hein et al., 2019). Due to their unique character, they provide added value to more conventional tools for knowledge transfer, they are relatively accessible and might connect knowledge senders and receivers that would not have connected otherwise. They are a more encompassing type of ICT, assisting interconnections between different actors (Cenamor, Parida & Wincent, 2019)

Nevertheless, their unique character can also have a reverse effect; if the assumption of the role of experts at setting up and demarcating a platform is proven to be wrong, then the knowledge provided might not be as trustworthy. Also, the scope of a digital platform might be too broad, so that the involved actors might not be able to provide or obtain the knowledge they seek. Lastly, in a business context, setting up a platform requires significant investment which does not guarantee performance improvements (Cenamor, Parida & Wincent, 2019).

2.4 CONCEPTUAL FRAMEWORK

Based on the previous literature, the frameworks by Dolowitz & Marsh (2000), Goh (2002) and Gul & Jamal (2020), a conceptual framework has been developed. It highlights the different elements of the process of knowledge transfer and the relationship to digital platforms and its expected relation to sustainable urban development (figure 1). Four necessary elements of knowledge transfer are introduced from the elements highlighted by Gul & Jamal (2020).



Source: adapted from Gul & Jamal (2020), Goh (2002) and Dolowitz & Marsh, (2000).

2.4.1 KNOWLEDGE SENDER

In this research, the knowledge sender refers to the actor who has provided the knowledge that can be found on the platform. Lin, Geng & Whinston (2005) refer to the senders as knowledge sellers, but this supposes the knowledge transfer process to be a market, whereby the knowledge is viewed as a good to be sold to knowledge buyers. Knowledge sellers can be individuals, teams, or firm(s) (Lin, Geng, Whinston, 2005). For this research, knowledge senders can also be any other type of organization such as municipalities and other governmental organizations, companies, associations, and unions.

The necessary conditions here are first the motivation and willingness to share knowledge, both of which are behavioral attributes of the sender (Gul & Jamal, 2020). In their research, Martin Cruz, Pérez & Cantero (2009) focus on the motivation of employees within a company to share knowledge, pointing out that differences in motivation can be found in different types of organizations. For example, in non-profits it is found

that a strong intrinsic motivation to share knowledge is present, while employees in companies are driven more by extrinsic motivation. For this research, the motivation encompasses both intrinsic and extrinsic motivation. The willingness can connect to the motivation, but one does not automatically include the other. Experience is another necessary condition, for without experience there is no knowledge to be transferred. Goh (2002) dives deeper in the underlying processes that result in the experience and knowledge, such as leadership and problem-solving behavior. For the purpose of simplicity, that is left out here. Lastly, the ability to share knowledge should not be overlooked. This condition is about the possibility of sharing knowledge, for if knowledge is difficult to share, e.g. collective knowledge, where a whole team is involved, or the technicalities limit the possibility, the process is cut off.

2.4.2. DIGITAL PLATFORMS

For this research, the conceptualization of De Reuver, Sørensen & Basole (2018) is used, which regards platforms as sociotechnical systems, whereby organizational processes combined with technical tools form the platform.

2.4.3 KNOWLEDGE

The second element concerns the knowledge itself, with the first condition being knowledge ambiguity. What is meant here is the extent or lack of coherence between the sources and the individual components of the knowledge (Gul & Jamal, 2020). This can be explained by the nature of the knowledge, which is simultaneously the second condition here. When knowledge is tacit, the personal and uncoded-ness of it makes it much more difficult to share than when the knowledge is explicit. The third condition is the value addition of knowledge. If some benefits are to be gained, both for the sender and receiver, it can be stated that more caution is taken both in the sending and the receiving process (Gul & Jamal, 2020).

Best practices moving from one context to another are viewed in this research as a form of knowledge. However, it is important to emphasize that best practices are a form of knowledge, knowledge does not necessarily equal to best practices. Best practices result from benchmarking processes and are therefore a value added to the knowledge. In this research, these two concepts are used simultaneously, due to the objective of this research, but it should be noted that when discussing knowledge, information other than best practices are meant.

2.4.4 PROCESS

The connection between the sender and receiver can be crucial for successful transfer of knowledge (Goh, 2002). Closer and more frequent communication, through direct relations, might improve the transfer, as any disparities between the two situations can be overcome quickly (Gul & Jamal, 2020). The last condition is trust, which can be beneficial in multiple ways and stimulated by the previous conditions. It is the reason networks can play a significant part in a knowledge transfer process. Within firms, it is increasingly being seen as a strength to be embedded into knowledge networks, since it is being related to their innovative and therefore economic success (Broekel & Boschma, 2017). It is expected that the role of digital platforms in the process of knowledge transfer especially becomes visible with this element, since it could act as an extra barrier between communications or perhaps a facilitator, where this would have been more difficult without digital platforms.

2.4.5. RECEIVER

The receiving party of knowledge also requires some conditions. The first one is the absorptive capacity of the receiver. This is defined as the ability to recognize, adapt, and apply new knowledge (Cohen & Levinthal, 1990).

In businesses, the absorptive capacity of a firm directly relates to the innovative capabilities (Cohen & Levinthal, 1990). The second and last condition for this element is the receiver's cognitive ability, referring to the ability to process the knowledge (Gul & Jamal, 2020). Without proper processing, the original knowledge loses its value.

3. METHODOLOGY

This chapter discusses the ways in which the research answers the main research question: *How does a digital platform, aimed at contributing to sustainable urban development, facilitate the transfer of best practice knowledge?* First, attention is paid to the philosophical background of this research (3.1). It continues with providing information on the chosen research strategy (3.2), the used methods (3.2.1), and the analysis (3.3). The chapter ends by elaborating on the validity and reliability of this research (3.4)

3.1 RESEARCH PHILOSOPHY

Every academic research is guided by the researcher's understanding of the world and the development of knowledge. This understanding is often implicit and is referred to as research philosophy (Moses & Knutsen, 2012). Generally, a continuum of different types of philosophies exists, ranging from positivism to constructivism (Guba & Lincoln, 1994). All paradigms aim to answer three different questions: an ontological, epistemological, and methodological question. Ontology wonders about what reality is, what exists in the world that we can gain knowledge on (Guba & Lincoln, 1994; Moon & Blackman, 2014). Epistemology wonders about the question of how knowledge is created, or the relationship between the (would-be) knower and possible knowledge that exists (Guba & Lincoln, 1994; Moon & Blackman, 2014). Methodology considers the process of gaining knowledge, what procedure can be used, or the process the inquirer can go about finding out the knowledge they think is out there.

Knowledge and its conceptualization have been important discussions for scientists and philosophers for a long time. From an objectivist perspective, it is assumed knowledge is an objective entity that can be possessed by humans (Guba & Lincoln, 1994). Furthermore, it prioritizes explicit over tacit knowledge, the dichotomy being introduced in the literature review earlier (Guba & Lincoln, 1994). However, as this research views knowledge and knowledge transfer as something that is inductive and dependent on the context, it can be argued that this research fits in a constructivist paradigm. This assumes that no one singular reality exists, rather multiple realities exist as mental constructions (Moon & Blackman, 2014). The ontological question of this research fits into a relativist view, where the knowledge is dependent on the person or group that holds the construction (Guba & Lincoln, 1994). In this research, this implies the characterization of the knowledge transfer process is dependent on the context as well as the involved individuals and how they operate. The epistemological question of constructivism is typed as transactional and/or subjectivist, which views the findings of the research as created results through the interactions between the investigator and the investigated (Guba & Lincoln, 1994). The role of digital platforms is the location and means through which these interactions take place and are hence expected to influence how the knowledge is created as well as the interaction between the researcher and the interviewees. A transfer of knowledge is an interaction, either direct or indirect.

3.2 RESEARCH STRATEGY

To perform this research and answer the research question, qualitative research was conducted. This type of research aims to involve all factors that might play a role in the research problem (Van Thiel, 2014). As was deduced from the reviewed body of scientific literature and existing research, the process of knowledge transfer was expected to involve a significant number of different factors that might influence the process and were important to involve in the research, making qualitative research the most suited to the task.

For the research strategy, a case study was selected. Case studies are increasingly being used in social science research, primarily because of their flexibility in comparison to other approaches such as grounded theory (Hyett, Kenny & Dickson-Swift, 2014). As Harrison, Birks, Franklin & Mills (2017) stated: *'the essential*

requisite for employing case study stems from one's motivation to illuminate understanding of complex phenomena' (p.12). The intrinsically difficult character of defining knowledge, let alone defining knowledge transfer, argues for the use of a case study (Hislop, Bosua & Helms, 2018; Goh, 2002). The strategy is characterized by taking a holistic approach, researching the objects of study in an everyday setting (Van Thiel, 2014). Furthermore, it provides the opportunity to research a complex issue in-depth, including the many variables that may prove to be of influence (Harrison, Birks, Franklin & Mills, 2017).

Therefore, in this research, the case study approach was chosen since every digital platform has its specific characteristics. Also, given this context-boundedness, the complexity of knowledge transfer and the intention of case study research to include this complexity argues in favor of this choice. Lastly, the case study is characterized by having an applied nature, contributing to a specific social issue (Van Thiel, 2014), which for this research is the contribution to sustainable urban development.

3.2.1 CASE SELECTION

Case selection is an important element of the research and data collection. In this research, digital platforms are the unit of study. Digital platforms have the geographic advantage of being able to function globally, which makes the options for the case extensive. However, geographical distance can have a significant effect on a knowledge transfer process (Broekel & Boschma, 2017). Also, internationally operating platforms face an extra layer of difficulty for successful knowledge transfer, given that more barriers exist than just distance such as language, and political, geographical, and cultural context (Broekel & Boschma, 2017). Therefore, the scope of this research was limited to the Netherlands, to limit the existence of these barriers and optimize comparability. An added argument was the practicality, as the researcher is Dutch, it was expected to connect more easily to the selected cases and offer more opportunities to gain more nuanced insights.

Another criterium was that the digital platforms somehow had to be aimed at a goal that is equal to or contributes to sustainable urban development. The cases were selected in two ways. Firstly, a digital platform of the European Union was used for the digital catalog it provides of digital platforms that exist and operate throughout Europe (CESP; <https://circulareconomy.europa.eu/platform/en>). The platforms that operate solely in the Netherlands were selected, which were seven. Of whom three responded and two eventually participated in the research, which were Het Versnellingshuis and Cirkelstad.

Important to note here is that CESP and therefore the selected cases are aimed at circularity, which relates to the concept of circular economy (CE). This is a goal of reducing waste and making use of what raw materials are already sourced (Johansson & Henriksson, 2020). This goal is actively being promoted by for example the European Union since it is especially seen as an opportunity to include the private sector (Mantalovas & Di Mino, 2020; Johansson & Henriksson, 2020). Recently, conformity has emerged upon the view that CE could be a tool for economic growth that connects to the definition of sustainable development. (Mantalovas, & Di Mino, 2020; Schroeder, Anggraeni & Weber, 2018). It is therefore viewed here as a subsidiary process of sustainable development and included in this research.

Since CE does not singularly contribute to sustainable development, a second way of selecting the cases was used, which was through the researcher's internship organization, which had some connections with digital platforms that facilitated knowledge transfer. The participation of and connection to the last two cases, Powerly and HIER, came about through this indirect personal connection.

The final cases that were selected can be found in table 1, with the corresponding dates the interviews were held. Below, a short overview is provided of each digital platform. With each platform one interview has been held. Het Versnellingshuis, or 'the acceleration house' in English, is an organization that helps

entrepreneurs in making steps, or ‘accelerating’, towards a circular economy Their work consists of actively connecting and informing entrepreneurs and chains (www.versnellingshuisce.nl). Powerly is a company mainly aimed at homeowners seeking to make sustainable changes to their homes (www.powerly.nl). HIER is an association that helps its users to make smart choices that simultaneously contribute to the climate (www.hier.nu). Cirkelstad is a cooperative aimed at the building sector and sharing knowledge on experiments and new techniques to increase circularity (www.cirkelstad.nl).

Table 1 *Overview interviewed platforms*

No.	Name platform	Date interviews
1.	Het Versnellingshuis	June 8, 2021
2.	Powerly	June 1, 2021
3.	HIER	June 11, 2021
4.	Cirkelstad	June 11, 2021

While the cases are all digital platforms, they are quite contrary to one another, making this a most dissimilar systems design (Van Thiel, 2014). All platforms have different organizational structures, goals, approaches, and focusses, but that is what makes them interesting cases for this research. The publicly accessible websites of the digital platforms, together with the closed environments that were available with some websites were used as a secondary data source to ensure triangulation, which will be described in more detail later on.

3.2.2 RESEARCH METHODS

Using case studies as a research design offers the possibilities of many types of data collection and therefore different types of methods (Gorard, 2013). A case study is not only a research strategy but can also be a method of collecting data. It largely is a catch-all term for all types of elements that contribute to qualitative data, but can not necessarily be grouped as other (categories of) methods (Hyatt, Kenny & Dickson-Swift, 2014). In this research, the choice was made to use semi-structured interviews as the selected method to collect the primary data. Interviews, and especially semi-structured interviews, are a method that offers an adaptable way of collecting data because the interviewer has the possibility to ask additional questions for a better understanding (Van Thiel, 2014). Given the complexity of the research topic, this method was expected to best capture most data.

An important limitation of using semi-structured interviews in this research is that no concrete data can be collected on what the knowledge handled by the digital platforms consists of. This means that when speaking of knowledge and best practices and their conditions, this is solely from the perspective and experience of the interviewee. Moreover, additional interviews could have taken place, ideally, to provide more in-depth analysis on each platform as added perspectives can give new insights. However, upon invitation for an interview the response rate of the recipients was limited

A case study research has a relatively high risk of weak validity and reliability. Triangulation is viewed as a tested method of enhancing both (Gorard, 2013). In this research, triangulation was applied by using different data sources, which is one of multiple different options to reach triangulation (Van Thiel, 2014). The semi-structured interviews were used to gather the primary data, for which the websites and available documents of each digital platform were studied elaborately as part of the preparation. After the interviews were held, the websites and available documents were used as a secondary data source, verifying statement made during the interviews made during the interviews where possible.

3.2.3 DATA COLLECTION

This research is deductive, having based the conceptual framework on the body of existing literature and theories. The operationalized concepts in the conceptual framework provided the basis for the interview guide. Included was an overview of all the different elements and topics involved in a knowledge transfer process as outlined in the conceptual framework. Also, questions were added to gather background information on the platforms, the interviewees, and other topics that were identified as important in the literature review. Practical topics such as the request for recording were included to guarantee the interviewees were given the opportunity to give their informed consent. The topic list was first compiled in English, to ensure proper use of the selected concepts. Since some conditions are difficult concepts, the topic list was peer-reviewed twice. First in English and after translating the list in Dutch it was reviewed again to check continuity.

The estimated time set out for the interviews was one hour, including the opening and closing remarks. The interviews were held digitally, as it was still recommended by the Dutch government to limit contact to necessary contact only. Also, for the scheduling of the interviews, this proved to be beneficial as the interviewees were more flexible in their time. During the interviews, Dutch was spoken, as it is the native language of all interviewees, and it increased the flow of conversation and level of comfort for the interviewees. The interviews were held via Microsoft Teams and recorded, the video file was deleted immediately, the audio file was transcribed. The recordings were deleted after the research was completed.

3.3 DATA ANALYSIS

All interviews were audio-recorded with the permission of the interviewees and transcribed afterward. Firstly, using a transcribing tool provided by Microsoft, the first transcriptions were made. In two next rounds, all errors were manually corrected, ensuring readability and understandability. Things such as stutters, uhms and ahs, and double words were removed.

A tool often used for analyzing interviews is coding, which is simply labeling a meaning to the information that is collected (Miles et al., 2014). This coding was done in Atlas.ti, software specifically developed for this type of analysis. For most of the analysis here inductive coding was used, implying that the coding was done while going through the data. However, to facilitate the process, the concepts defined in the conceptual framework were used and new codes were added throughout the process. This structure provided for a fairly easy comparison between the different interviews. Anecdotal data from the interviews was used to substantiate points and arguments on the topics researched. To be consistent in language, the interview quotes used in the result section have been translated from Dutch to English by the researcher. Next, all the codes were connected and categorized, which is called axial coding (Van Thiel, 2014). Axial coding serves the purpose of finding patterns in the codes that have been assigned. In the result section, the themes and codes derived from the analysis were elaborated on, supported by quotes from the interviews.

3.4 RELIABILITY & VALIDITY

An important topic to discuss in the methodology is the reliability and validity of this research, as an important limitation of case studies is that it is often difficult to test hypotheses statistically (Van Thiel, 2014). A high establishment of both increases the believability of the research.

Reliability can be viewed as the absence of random mistakes in the research process (Boeije, 't Hart & Hox, 2009). Reliability is dependent on two factors, namely the accuracy and the consistency of how relevant variables are measured in the research (Van Thiel, 2014). It is relevant for all types of research, but how it is to be determined and interpreted differs. Consistency revolves around the idea of whether a result can be replicated continuously under the same circumstances (Van Thiel, 2014). Reliability can be improved by making sure the tools used for the research are sound (Van Thiel, 2014). This research tried to achieve high reliability by using semi-structured interviews, for which the topics were set up previously to the interviews in a peer-reviewed interview guide. This provided a structure throughout all the interviews, as well as some freedom for the interviewer or interviewees to go beyond the confines of the question when relevant. In the analysis, the reliability was ensured by coding carefully in multiple different rounds. The accuracy of the results was further improved by using the platform's websites as the secondary data source and cross-referencing the results gathered from the interviews.

Whereas reliability indicates the absence of random mistakes, validity ensures the absence of systematic measurement errors (Boeije, 't Hart & Hox, 2009). It translates to the question: is what was measured that which was intended by the researcher? (Van Thiel, 2014). Many different types of validity exist, what is mentioned here is often referred to as internal validity (Boeije, 't Hart & Hox, 2009; Van Thiel, 2014). Optimizing the validity was done in this research by letting other researchers check the interview guide to make sure the operationalization of the central concepts has been done correctly. Also, the first interview was used as a pilot after which adaptations were made to the interview guide. External validity is the extent to which the results can be generalized. This is especially important for statistical research (Van Thiel, 2014). Nevertheless, external validity was optimized by carefully keeping track of the research process.

4. RESULTS

This chapter presents the results of the performed analysis of the data collected in the held interviews, verified by examining the websites and available documents of the digital platforms. The conducted research provides the opportunity to better understand the role digital platforms take within the process of sharing knowledge. Section 4.1 starts with a case description on each case, to provide some background information. This part is followed by a summarizing part on the goals and aims of the platforms and to what extent they differ or overlap. Next, is a section (4.2) that focuses on how the different elements of successful knowledge transfer, as defined in the conceptual framework, occur within each digital platform. The chapter ends by answering the research questions (4.3).

4.1 CASE DESCRIPTIONS

All four cases researched here are different in the way they are organized, financed and in terms of how they approach their goals and ambitions. To provide some background information, all cases are introduced below with a short history of how they have come about, what they want to contribute to and a short overview of how they pursue their goals.

4.1.1 POWERLY

Powerly is a company that aims to help mainly home-owners with making sustainable changes to their home, such as solar panels, insulation and more. It is a subsidiary company of NN-Group, an international financial service provider most known in the Netherlands for their company Nationale Nederlanden (www.powerly.nl). The company came about because of the increasing pressure on the environment and the Dutch Climate Agreement, *'an organization such as Nationale Nederlanden also has a societal interest of course, and we wanted to contribute to the societal goal of greening the Netherlands', 'it was really the goal to help those people that were stuck in between the desire to green their home, but that got lost in all the different stories and possibilities'* (interview 2).

The start-up was founded 2019, and they pride themselves in having helped 15.000 customers with their individual solutions. They offer knowledge through different methods. For example, on their website they offer a range of information, differing from solutions that might be applicable to customers, to subsidy-programs out there to support these changes and information to keep up to date. One tool they take great pride in is the free home check they offer to every website visitor through which the visitors and users get a *'a nice insight into sustainability'* (interview 2). In this tool, basic characteristics of the home are verified, such as household size, what sustainable solutions are already in place in the home, but also how much is being spent on for example heating. Complementary to the free home-check, they offer customers a free consultation over the phone. But they also take it a step further, in addition to informing people of the possibilities out there, they also aim to support in actually achieving the changes they advocate, which is done by connecting the users to providers that offer the solution best suited to the specific situation.

4.1.2 CIRKELSTAD

Cirkelstad is a cooperative aimed at increasing circularity in cities. It presents itself as a movement of private and public partners working collaboratively on finding solutions for decreasing waste, making this both an environmentally and economically sustainable goal (www.versnellingshuisce.nl). The building sector is the focus of the cooperative, *'Our main goal is to make sure 15 percent of all houses that are being built in the coming years, that that is being realized in a circular way'* (interview 4).

The cooperative operates in 30 different 'circle cities'. These circle cities do not necessarily correspond to municipal borders, but sometimes cover a collection of municipalities or simply an entire area. No clear demarcations are in place to determine how big a circle city geographically is. The platform is structured by a national overseeing team in combination with the so-called 'spinners' that work at a local level, who determine the focus of the platform. The spinners are the link between the national team and the partners in each city. The cooperative is built upon the network of actors involved. These consist of both private companies, public organizations, and some educational institutions. The platform itself uses the terminology of partners and friendships, partnerships being the most actively involved with more benefits but also more responsibilities (they pay contribution). Friendships are connections with no obligations of payment whatsoever, but stem from the idea of sharing networks and benefiting each other's knowledge and experiences.

The way Cirkelstad realizes its goals and ambitions is extensive: *'we as Cirkelstad organize so incredibly much, they say it takes about six months before you understand how it all works'* (interview 4). On their website Cirkelstad offers the academy, a closed environment where all the knowledge provided by partners is stored and where all partners are able to consult this knowledge. Currently, the academy offers around 185 articles consisting of experiences with certain topics, guidelines on how to implement certain strategies, knowledge gained through research and many more. They are organized in four courses, which you can filter for the phase a project or experience applies to.

Furthermore, Cirkelstad organizes large national projects in which the partners can participate. On a more local level, every circle city organizes the so-called community of practice, four times a year where all regional partners are expected. They are sessions where partners can speak and ask attention to certain questions and issues they struggle with. In turn the other participants have the possibility to respond and offer their knowledge and experience. Furthermore, a national partner day is organized annually where many of the partners participate. And throughout the year, lectures are coordinated, some with a more practical focus while others pay attention to new possibilities.

4.1.3 HET VERSNELLINGSHUIS

Het Versnellingshuis, or 'the acceleration house' in English, is an organization that helps entrepreneurs in making steps towards a circular economy. They do so by informing and connecting these entrepreneurs as well as coaching the more complex or difficult issues entrepreneurs bring up over a longer period, all free of charge: *'we are a kind of conduit'* (interview 1). This initiative was launched early February 2019 by the Ministry of Infrastructure and Water management, MVO Nederland (a network of sustainable entrepreneurs), Het Groene Brein (a science and scientist-led network for circularity and inclusiveness), and MKB-Nederland (an association aimed at supporting small and medium-sized companies and entrepreneurs; www.versnellingshuisce.nl).

The work Het Versnellingshuis does is roughly organized into three groups: matchmaking, customization ('maatwerk') and moonshots. Matchmaking is when entrepreneurs ask a question, the case managers try to connect them with the specific party they need to answer their question. Customization comes in play when the issue the entrepreneur has is bigger or more complex and not easily solved, the organization then starts a longer project throughout which the entrepreneur is supported. Moonshots are projects aimed at sector-wide breakthroughs. Also, a website is hosted whereby best practices and solutions are collected, as well as offer the possibility to present challenges for users. When it comes to events, roundtables, webinars and networking meetings are organized in order to provide all interested parties with opportunities to get to know one another.

4.1.4 HIER

Summarized: *'HIER is a foundation which has as its main objective to make the Netherlands carbon-neutral, and we try to do that by mobilising people, such as individual inhabitants, but also connecting parties such as ministries, municipalities, residents, residents' initiatives and every stakeholder that floats around'* (interview 3).

The foundation has launched several projects, aimed at different audiences (such as municipalities, private companies, neighborhoods and individuals) and with different goals and ambitions (www.hier.nu). One of these projects is 'smart neighbour', a platform that wants to connect neighbours so they can exchange their experience, tips and tricks on implementing sustainable changes to their homes. Their climate-subscription service helps municipalities with the communication towards residents regarding the switch to electricity as opposed to gas by supplying information, in practical ways. Additionally, regular separate sessions are being hosted where different actors have the opportunity to offer and learn new knowledge as well as connect to others. On the website, news overviews are provided, there is a blog with information on options that individuals can implement in their daily lives, but also a climate dictionary is offered, with explanations on commonly used words and concepts.

4.1.5 SUMMARY

Powerly aims to contribute to 'greening' The Netherlands, emphasizing the societal responsibilities companies such as their mother-company have and follow the national goals set by the Dutch government. Cirkelstad focuses more on circularity, creating no waste in a way where the social elements of these processes are not forgotten. Their focus is nation-wide, but specifically on the building sector. The Versnellingshuis, has a little more indirect role, but still make efforts that the work that they do contributes to a circular society. The foundation of HIER strives for a carbon-neutral society.

4.2 ROLE OF THE PLATFORMS IN TRANSFERRING KNOWLEDGE

In this part of the chapter the results of the analysis will be discussed. As a guideline, the individual elements of the research questions and the conceptual model are used to structure this part, starting with the knowledge senders (4.2.1), the knowledge (4.2.2), the process (4.2.3), and the knowledge receivers (4.2.4). Per element it will be elaborated on what conditions are present in the researched cases and what explanations are possibly provided by the interviewees and the desk analysis. Also, section 4.2.5 is included, which elaborates how the digital platforms are evaluated by the users.

4.2.1 KNOWLEDGE SENDERS

IDENTIFYING THE SENDERS

In the process of knowledge exchange, an important element is the knowledge senders, for it establishes where the knowledge comes from that is being transferred. This establishment and the condition in which it happens helps give insight into why a knowledge transfer process is or is not successful. To dive deeper into the conditions that play a role in the knowledge sharing process in the researched digital platforms, first the knowledge senders are identified, which can also be found in table 2.

Table 2 Overview of knowledge senders per digital platform

Digital platform	Knowledge senders
Powerly	Companies that offer the eventual products to the customers of Powerly
Cirkelstad	Partners: mainly companies in the building sector, municipalities Friends: interested companies, educational institutes
Versnellingshuis	Entrepreneurs
HIER	Municipalities Private companies Research organizations

The senders from Powerly can be identified as being the companies they have their partnerships with, which are the suppliers of the technologies to the households. Examples are companies specialized in insulation or solar panels. They provide their knowledge through individual personal communication, but also organized sessions where for example big updates on technologies are explained. It can be argued that each partner-company is expert in their own field regarding the possibilities and limitations of their products and techniques. While it is pointed out that the knowledge is mostly provided by the partnerships, through the constant interaction between the platform, knowledge senders, and receivers, the platform and its employees gain their own experience. While all the knowledge senders have their own specialization, the referral goes through Powerly. In time, a feedback loop can occur, whereby the employees adapt their knowledge transferring ways according to the receiver they connect with.

For the other three platforms it appears that the knowledge senders are more structured in a network or circular form of knowledge transfer rather than a linear one. This means that the involved partners are often committed to both offering and receiving knowledge. Cirkelstad very clearly has a structure where the partners are equal, as all have the opportunity (and sometimes obligation) to participate in the cooperative and insertion of knowledge. Specifically for the academy, which can be characterized somewhat as a digital library consisting of the knowledge provided by the knowledge senders. All partners can contribute to the academy to read and learn from. The events that are organised offer a physical setting where knowledge can be sent and received by the participating partners, although distinction can be made between different events since each have their own specific target audience within the whole of the partners, such as events focused more on practical knowledge versus events targeted at managers.

Similarly, the knowledge senders and receivers at the Versnellingshuis also are often interchangeable, especially since the companies and entrepreneurs that are being connected through the matchmaking processes can learn from each other's experiences. The entrepreneurs are defined as pioneering entrepreneurs, searching for circular solutions.

The last researched platform, HIER, is similar to the Versnellingshuis in the sense that it also connects actors. They are often in contact with partners such as TNO (independent research organization, www.tno.nl), but also municipalities, each having their own expertise and research they perform. Hence, the knowledge senders here are mostly companies, municipalities and other actors they partner with.

CONDITIONS

The conditions that need to be met for the element of knowledge senders, are the ability, motivation, and willingness to share. It appeared quickly that across all platforms, knowledge senders are very motivated to share. It was viewed as unlikely to have knowledge senders not motivated to share: *'I think that if you are not convinced of circularity, you won't become a partner'* (interview 4). Which therefore is not the case here. All platforms are structured in ways that the knowledge senders receive something in return. For most, this is the connection to other interested parties in their field, but for example for the partners of Powerly this is different. They can receive commissions, when knowledge is provided to the customers and these customers then decide to install the solution that specific knowledge sender is offering. In this case the participation in sending knowledge to a platform such as Powerly, it could be argued that this is part of their marketing strategy.

What is also a very important element of the participating actors, is that they often are very willing to share. They do so out of the pride they take in their work, *'the people that have delivered something so far were very enthusiastic about the fact that their projects were being used. People are proud of what they have done and when they are put in the spotlight, they very much like that'* (interview 4). Most interviewees mention that the actors the platforms work with are frontrunners in their field. They take pride in what they have achieved and how they have achieved it, and therefore want to share and inspire others to contribute to these changes.

What was also noted by the interviewees is that people often do not realize that they can help others with their knowledge. It is here where the digital platforms can have a crucial role of actively finding and pursuing these actors. However, also an often-heard point is that the competitive position of companies and organizations is a big argument not to share knowledge, *'companies do not want to endanger their competitive position, because that is simply where they get their revenue'* (interview 1). For some companies the sustainability-related decisions they make are small components, while for others, often smaller companies, most of the business models are built upon their sustainable or circular goals. Sometimes this strategy backfires: *'what I hear a lot is that entrepreneurs don't dare to share their idea for a business model...which makes it difficult for supporting parties to provide useful feedback'* (interview 1). But often entrepreneurs are more driven by their ideals: *'a lot of entrepreneurs, they just want to realize a circular economy and they are not that aware of their own competitive position. They want to help the entire market forward'* (interview 1), *'I think that when it comes to circularity, when people actually start researching circularity, they soon realize that they cannot do it alone... you do it together or you don't do it at all'* (interview 4).

When it comes to the ability to share, not much was mentioned during the interviews. Only Cirkelstad pointed out that while partners often are very willing or enthusiastic about the idea of sharing their knowledge, they never appear to have the time to write an article about their experiences for the academy or participate in live event. Although live events appear to be prioritized in comparison to writing an article.

4.2.2 KNOWLEDGE

In the next section, first attention shall be paid to best practices, how they are perceived and used in the platform. Then, the conditions that are important for the knowledge element shall be discussed.

BEST PRACTICES

When it comes to best practices, all platforms appear to make use in their role as knowledge facilitators, but how they are being used differs. On their website, the Versnellingshuis provides a map with an overview of best practices throughout the country, as well as articles where some of these practices are being featured more prominently. However, the way this knowledge is selected lacks clarity: *'The point of departure is often an obstruction or hindrance...It's just regular entrepreneurs that have found a good solution which can serve as an example to other entrepreneurs. So we don't really have a definition of best practices'* (interview 1). Of all the platforms researched, Cirkelstad is the only one where it is explicitly mentioned they are running an audit-program where they try to select the members that become the 'new normal', in other words a sort of benchmarking tool where they set the bar for the possibilities that are out there.

An important side-note is that offering best practices to those who seek solutions comes with a cautionary warning, *'best practices are really important for entrepreneurs, but what we see is that they find it important that everything is directly translatable to their own situation. So I think it is important that we don't provide them with best practices from a company like Philips. We really focus on the smaller companies and new initiatives'* (interview 1).

While this process may be beneficial to the actors that are being matched and therefore are highly likely to gain the most practical knowledge possible, it is more difficult to determine whether the examples given are actually the *best* practices out there. What was mentioned often and by almost all platforms is that the actors involved are the pioneers of the transitions, which connects to the statements that the best practices are still being created.

Similarly, Cirkelstad does not explicitly define when examples or articles are viewed as best practices: *'we call them references, but theoretically 99 percent of the time they are best practices'* (interview 4). And they plan on continuing to use these best practices: *'Cirkelstad really focuses on best practices simply because they are very needed. We need to go through a transition for which people first need to be convinced of... and you need to be able to prove that. They want something tangible. And it should be implementable tomorrow, so'* (interview 4). And even more so than being needed, it was also argued by HIER that the best practices that are needed are sometimes still not even clear: *'It is really being invented right now, what the best practices are in this area. It is also partially why testing ground neighbourhoods exist of course'* (interview 3).

Despite best practices having a prominent role in the platforms, being it knowingly or not, they are not without their criticisms. It was pointed out that looking at the failed projects might be even more interesting, so that the actors can learn from the mistakes the others have made in the past. But, as was pointed out: *'people are never very enthusiastic to share those'* (interview 4). Also, simply offering best practices is often not enough. As was mentioned earlier, the best examples of what the platform users would like to see as best practices are those examples that are easy to understand and directly usable in their own situation: *'if you just put the best practices online it could be a source of inspiration, but subsequently questions may arise on how situations were handled'* (interview 1). As a solution to these criticisms, Cirkelstad for example hosted the so-called 'fuck-up nights' where the failed ideas and projects were discussed. This way, they provided an environment where lessons could be learned.

An argument given by the platforms as to why best practices are disagreeable is one from the perspective of the knowledge sender. The Versnellingshuis received feedback from actors that have been dubbed best practices. Given their 'position' as best practice they are often approached with the request to share, but they get frustrated by the processes. This frustration exists because while they sometimes are a success story, no changes are made to the barriers they had to face. This frustration is especially geared towards

systems with inflexible structures and strict rules. Also, being put in the foreground constantly takes a lot of time and effort, while they do not always experience an exchange of benefits. This is especially the case when these best practices are being approached by researchers, but afterward never really get something useful for them out of the research. This partially goes back to the willingness that was mentioned earlier.

CONDITIONS

The conditions that lie with the knowledge element of the knowledge transfer process are knowledge ambiguity, the type of knowledge, meaning tacit or explicit knowledge, and value addition. Because the subject of knowledge translation was recurring topic in the interviews and it can influence these conditions, this is also included here.

A large part of the knowledge that is being sent and received through the digital platform requires a translation of some sorts, which means that the content of the knowledge needs to be adjusted to the intended knowledge receiver. This is the case with the work that Powerly does: *'we notice that people use the internet to read about solutions, but by themselves they often end up with the wrong solutions'* (interview 2). This also relates to the work that HIER does: *'There are also knowledge institutions such as TNO for example. They have a lot of knowledge, and they share a lot of knowledge, but it is not necessarily understandable. Just for the average Dutchman, they just aren't versed enough in the subject to understand the way it is being communicated. I think it helps that we bring it back to everyday language and that way we try to convey what precisely a solar water heater or something does'* (interview 3). This also applies to the other platforms since none of the interviewees had previous work or educational experience on the topics that are being transferred through the platforms.

All platforms appear to be aware of their role as translator and each have their own strategies to perform these translations in the best way possible. For example, in Cirkelstad: *'It is part of the reason I was hired because I am not from the building world. They noticed that there is a big difference in levels of knowledge. Some people that are new still have no clue, while others really have in-depth knowledge in the matters. So I sometimes got complaints that the content was too in-depth and that people dropped out. So why I'm here now is with the idea: if I can write it down in a way that is understandable, then everyone should be able to understand it'* (interview 4).

Knowledge ambiguity is about the clarity of the knowledge and the sources. Since most of the platforms gain their knowledge from companies and experts they work with, it can be stated that the ambiguity is high. However, proof is not easy to establish here. For the knowledge receiver establishing the ambiguity of the knowledge might even be more difficult, for example in the cases where the knowledge is offered in an explicit manner such as through written articles on the websites. This is especially the case for all the knowledge that is being translated. As was pointed out in the paragraph above, most of the knowledge that travels through the platforms is translated to some extent. However, the platforms also organize several types of connections where the knowledge senders and receivers are connected directly, with the opportunity to exchange the knowledge directly and find the right translation, if necessary, at that moment. Also, the trust the involved actors have in the digital platform, in combination with the actual results arguably contribute to the fact that the ambiguity is less in the scope of the research here.

With regards to the condition of tacit and explicit knowledge, not much can be stated. The knowledge offered on the websites, reports and summaries offered by the platforms are by default explicit forms of knowledge. It cannot be established whether tacit knowledge is being transferred through the platform, but it is expected that the activities organized offer a suitable setting that can provide the opportunity to exchange the tacit knowledge possessed by the involved.

It was also found that when there are benefits to the knowledge exchange process for both the sender and receiver, more caution is taken resulting in what is called value addition. An example is being more careful in how information is formulated. While there are obvious benefits to be gained for both the receiving party and the sending party, such as was mentioned in the chapter where the knowledge senders were identified, it cannot be stated specifically how this has influenced the process and formulation of the knowledge that has been transferred.

4.2.3 PROCESS

CONDITIONS

The conditions that influence the process are communication, direct relations, intensity of connection and trust. When it comes to direct relations, this is especially being emphasized by Powerly as being an important element to their whole knowledge process. While the customers usually start exploring their website and making use of their housing-check tool, it is the personal communication or getting the people on the phone that is viewed as the success factor of establishing a solid relationship with the customer. Similarly, in Cirkelstad, each city has an allocated spinner who is the personal contact for all the partners that are situated in that region. These direct relations arguably are a strength in the communication process, but regarding the frequency of contact the intensity remains unclear. Nevertheless, while the frequency of the personal contact is unclear other events are hosted regularly, such as the quarterly partner-day per region and the annual national partner day. Given the fact that these events are attended actively and also very much appreciated it can be stated that the communication is perceived to be experienced as positive.

Direct relations between the senders, the platform and the receivers are perceived to be of added value. For the Versnellingshuis, this is especially relevant in the matchmaking processes: *'It just feels less real when you just see it somewhere. When you talk to an entrepreneur that has been through it, then it instantly becomes a person who has also just done it'* (interview 1). In the matchmaking processes, different actors are connected after which they themselves are responsible for the nature, intensity, and frequency of the knowledge process. So, the platform then takes a step back in facilitating the knowledge transfer, but it shows that the added value lies in the connecting itself and the approach of how it comes about, since it is less likely that these actors would otherwise have encountered each other.

At HIER, which operates more project based, it appears that there also is a frequent communication present with both the knowledge senders and receivers. The events and lectures organized offer the knowledge receivers to connect and network with each other. While this is a good opportunity for actors to connect, the following frequency and intensity of the connection is therefore known to a lesser extent. The platform often receives feedback of successes that they have directly or indirectly contributed to.

According to all platforms, a very important condition in the process element of a knowledge transfer is the trust between the knowledge senders, the digital platform, and the knowledge receivers. It is here that the platform holds a responsibility, for if the knowledge sender does not trust the platforms' capabilities and integrity of transferring the knowledge it can lead to a loss of knowledge senders and therefore new knowledge input. The knowledge receivers in turn need to be able to trust the digital platform in a similar way, so to what extent they need to question the knowledge that is offered.

This trust is something in which pride is taken by almost all platforms. Powerly prides itself on being independent from the companies they partner with. But it was also added that it is crucial to be so to remain in business: *'we won't offer solutions to the customer that are not the best in our eyes, or else we kill our own*

business model before we can be leading' (interview 2). Although the other platforms are different in their set-up, this argument still also applies to them: a loss of trust would result in a loss of knowledge senders and receivers and eventually defeats the purposes that were introduced at the beginning of this chapter.

That trust is an important, but also a very complicated condition in the knowledge transfer process is illustrated by the following example from HIER: *'For example, the issue around the biomass discussion. What you saw is that when heating companies tries to tell a nuanced story on biomass then the immediate response was that they were just defending their own business. But if we try to offer the nuanced story, based off all different kinds of research, then it is taken a lot more serious than if it were offered by the commercial sector...'* (interview 3). This example follows a similar argumentation as to why Powerly operates and markets itself as an independent advisor.

In the case of the Versnellingshuis, the trust the knowledge receivers have in the knowledge that is being offered in the matchmaking processes is perhaps less relevant since the platform does not have an actual role as translator of the knowledge. However, since the Versnellingshuis also operates as a conduit and not only as a matchmaker, trust is very important, as the misinformation can indirectly contribute to failure of the entrepreneurs that approach the Versnellingshuis for help. The direct contact in the customization processes are what offer the added value, for the solutions are adjusted to the knowledge receiver while changes are being made.

4.2.4 KNOWLEDGE RECEIVERS

IDENTIFYING THE RECEIVERS

Like the knowledge senders, the knowledge receivers play an important part in the knowledge transfer process. For if the conditions that are dependent on the knowledge receivers are not met the knowledge transfer process might not take place (successfully). Whereas in a simplified model of knowledge transfer the sender and receiver of the knowledge are separate, this is not necessarily the case in this research. Table 3 provides an overview of the knowledge receivers per platform. In the case of Powerly, it is straightforward to identify the knowledge receivers. Here, the customers, or the people that the platform helps to make sustainable changes, are the knowledge receivers. The home-owners receive their knowledge on the relevant subjects by the articles offered on the website and through the personal contact that the employees of Powerly have with them. Similarly, HIER operates with clear target audiences for each project they organize, such as municipalities for their neighborhood monitor and private companies for their CO₂-ladder. So, although the target audience differs per project, they are clearly identifiable.

When it comes to the other digital platforms, Cirkelstad and Het Versnellingshuis, the knowledge receivers are more difficult to identify. As was pointed out in the section where the knowledge senders were identified, these two functions often overlap within the network of actors that the platforms are involved in. Specific events the different platforms host do have a target audience and therefore somewhat of a more detailed group of knowledge receivers. For example, in Cirkelstad: *'we also organize a series of lectures targeted at the people that have more executive work in a company. Just very practical'* (interview 4). During these lectures one or a few of the actors within the network offer their knowledge as knowledge senders, and the rest of the invited actors in this situation are the knowledge receivers. Nevertheless, when a conversation takes place between all involved actors, it can once again be argued that the distinction between sender and receiver once again becomes vague.

Table 3 Overview of knowledge senders per digital platform

Digital platform	Knowledge receivers
Powerly	Individual homeowners
Cirkelstad	Partners: mainly companies in the building sector, municipalities Friends: interested companies, educational institutes
Versnellingshuis	Entrepreneurs
HIER	Municipalities Private companies Research organizations

CONDITIONS

The two conditions that were identified in the conceptual model, the absorptive capacity and cognition, are difficult to identify in this research. In platforms such as Het Versnellingshuis, HIER & Cirkelstad, since they are (partially) aimed at companies and entrepreneurs, it is expected similar levels of cognition exist, since all companies then operate in a similar space and on similar topics. However, the levels of absorptive capacity can differ significantly: *‘what you see, is that there are a lot of smaller companies with a lot of ambition, so they really want to contribute. And then there are the bigger companies that are slower, but they are the companies that can make an impact’* (interview 4). This translates into the understanding that the smaller companies are more viable and appear to have a bigger absorptive capacity than the larger ones, but to still achieve an optimal impact it is important to also include the larger companies given their influence on a larger part of the market.

For Powerly, where the knowledge receivers are the customers, it can be pointed out that many of Powerly’s customers are homeowners that move to their next homes after their starter home or are in their 40s and older, until about retirement age. This might indicate that the customers have at least some levels of experience of houses, renovation and they might have some expectations, which can translate to their absorptive capacity. However, to know for sure further research is needed. Similarly, the cognition of the customers was not approached here in this research, and it is therefore not possible to make statements about that.

4.2.5 EVALUATION AND IMPACT

This paragraph dives into how the different platforms are evaluated by their users and to what extent they contribute to the aims they want to contribute to. The results appear to be divided in the short-term and long-term effects, and it becomes clear that there is a distinction in the focus of the platforms on the two differences. Some platforms evaluate by sending their users an evaluation form when the processes are done. Others, also

given the character of the organizations, perform surveys and analyses periodically. In the short term, the platforms receive positive feedback from their users, given that they are pleasant partners to collaborate with: *'in general the evaluations are positive, as in they are happy with the help'* (interview 1), *'the value we offer is that we can make an independent choice of a certain provider, of a certain solution for a certain customer, and that is very much being appreciated'* (interview 2). The platforms generally aim to engage in meaningful conversations with everyone who is interested, even the ones with doubts. However, sometimes they receive hate mail, which was jokingly called 'fanmail' by an interviewee.

When asked about the long-term effects and impact, it became clear that the platforms currently do not focus very much on the actual effects they help contribute to in society. It was recognized that partially, the data in terms of numbers can be collected, for example how many people attend certain types of events, how frequent the website is visited, and which number of those visits are return visits. Nevertheless, measuring the effect of these visits remains unclear for the platforms.

The digital platforms did all report to have plans of incorporating the feedback they receive, but besides that, more plans exist for example researching more in-depth on what the long-term impact is of the knowledge exchange processes they have facilitated. It was mentioned several times that the platforms were (thus far) unaware of the changes they contribute to *'I think it would be interesting if we, in a next phase, could ask about what actually has been the result, because for now it is just 'oh yeah, we are connected, thanks for the help', but that leaves you without the concrete result of that connection'* (interview 1). As an explanation for this lack of insight thus far was given the argument that the actual results are very difficult to see, chart and quantify: *'What I find interesting is that all these processes are invisible...You notice some things, you hear some things and you get a feeling for it, but I find that part interesting, the not knowing'* (interview 3).

Besides delving into the long-term effects of the platforms, there is also a desire to expand, gain more knowledge and partner up with more knowledge senders. *'We always speak of a partner network, and that network currently is not that big, but we want to make that very big in terms of installers, so that is something we are working on'* (interview 2). Also analysing internally how processes work is on the schedule: *'I am going to do customer journeys [through the academy], to take others through the process and find out 'what do I need now', what way they are searching so that we can respond better to that'* (interview 4).

4.3 ANSWERING THE RESEARCH QUESTIONS

This final section shall summarize the findings and answer the research questions posed in the introduction of this research.

The first sub question was 'In what way do digital platforms aim to contribute to sustainable urban development?' It was found that the digital platforms aim to contribute to different elements of sustainable urban development, but also the way they go about this differs per platform. Cirkelstad and Het Versnellingshuis have a general focus on circularity and the circular economy. The target audience of Het Versnellingshuis are entrepreneurs and their work mostly consists of helping individual entrepreneurs finding answers to their questions and making the relevant connection. Cirkelstad has a slightly bigger focus, including not only entrepreneurs but also bigger companies and actors from the public sector, so that the possible contributions can be achieved through different spheres. Powerly and HIER have a different focus than the previously mentioned platforms. The goal of Powerly is to contribute to 'greening' The Netherlands and they do so by focusing on individuals that seek to improve their home. HIER has the goal of carbon-neutrality and focusses on the most diverse target group (such as residents, neighborhoods, municipalities & private companies), specifying each project accordingly. While a summary can be provided on the aims of the platforms, it cannot with certainty be stated they contribute to sustainable urban development.

The second sub question was 'How are best practices used by digital platforms?'. All platforms emphasize the importance of best practices. Especially given the pioneer and frontrunner function the users often have; it is seen as the crucial and very necessary way to learn the most valuable lessons as quickly as possible. In terms of the selection of best practices, for all platforms except Cirkelstad no clear definition or guideline on how to select relevant best practices are in use. Cirkelstad runs a benchmarking audit-program to select the best practices to establish what the 'new normal' is.

An explanation offered by the platforms as to why best practices are perhaps not the ideal form of offering and selecting knowledge is due to the translatability of the knowledge. When a best practice differs too much from the situation of the possible knowledge receiver, it is not best practice best suited for that knowledge receiver. It is here that the knowledge facilitating role of the platforms collides with the desire to focus on best practices. Another clarifying reason offered for a lack of focus on best practices is because of how the target audiences are seen. Due to their pioneering role, it was stated that the best practices are still being invented.

While the lack of concrete focus on best practices can be explained, another important result is that the opposite of best practices, here called 'bad practices' are not without their added value. Instead of following a guideline on what steps to take, which might not be applicable to a new context, telling what not to do makes it easier for knowledge receivers to carve their own route to their best practice. It does however come with more barriers related to the conditions of a knowledge transfer process, such as the willingness to share.

The last sub question was 'What is the role of digital platforms in facilitating knowledge transfer?'. From the results it appears the main function how digital platforms contribute to knowledge transfer is by being a hub in a network and offering the space to that network to be used, for example in the events they host, connecting people together, but also the possibilities on their open and closed websites. Most often the knowledge exchange through direct contact between the knowledge sender and receiver in an offline or physical. In these cases, the main facilitating role of the digital platforms is connecting function. They do however offer an added value of providing translation between the knowledge senders and receivers when it is necessary, thereby optimizing the chances of a successful knowledge transfer.

A transfer of both implicit and explicit knowledge can be realized through the network functions of the platforms, but the infrastructure present in all platforms is aimed more at explicit knowledge. This was however to be expected given the nature of explicit knowledge versus implicit knowledge. Cirkelstad perhaps is the most elaborate in terms of their explicit infrastructure, with their closed environment for partners. It is here where a lot of tools are available. Powerly connects the most through personal contact, and the whole strategy is aimed at getting the interested users on the phone and adapting the knowledge to the person. HIER has a more extensive offer of projects, some are aimed at municipalities, the private sector, but also at inhabitants. However, they have existed longer than the other platforms, and have therefore been able to develop these projects over time. The Versnellingshuis works different in that they focus mainly on the networking part and really coach and accompany entrepreneurs through their process of becoming more circular.

The answering of the sub questions above helps answering the main research question: 'How does a digital platform, aimed at contributing to sustainable urban development, facilitate the transfer of best practice knowledge?'. When looking at *what* the platforms want to contribute to, it can be summarized into greening the Netherlands (Powerly), circularity (Cirkelstad & Het Versnellingshuis) and carbon-neutrality (HIER) which all touch on elements of SUD. How each organization goes about this differs in terms of what goal or segment they are aimed at. It differs from individual inhabitants, specific groups in society, municipalities, small entrepreneurs, large companies, and complete sectors. This focus expresses itself in the way the events and activities are structured, in the actors that become involved in the networks and in the selection of knowledge senders.

With regards to the facilitating role of the platforms, it is found that the digital platforms mainly function as a hub in a network, that facilitates the connections between the different types of actors that connect to the specific goals of the platforms. These connections are mostly made but also reinforced through direct contact between involved actors, be it in a physical setting or through for example phone calls. The strength of the connections facilitated by the platforms is a big success factor in achieving a successful knowledge transfer as the characteristics of this element of the knowledge transfer process are especially being facilitated by the platforms. A big point of added value of the digital platforms is the trust that they receive by both the knowledge senders and receivers. This is gained because of their key position in the network, receiving a lot of knowledge but they are therefore also able to offer a nuanced output, strengthening their position as a key hub.

In the perception of the digital platforms, best practices are very important elements of the knowledge which is being shared. But although the importance of best practices is emphasized by all platforms, it cannot be stated with certainty that the successful knowledge transfer consists of best practice knowledge. This failure to conclude the position of best practice knowledge is mainly explained by a lack of strong definitions and benchmarking processes by the platforms to establish best practices. Nevertheless, in the perception and experience of the platforms, the knowledge that is being transferred is largely best practice knowledge. But to add to that, there is also a place for the failures and resulted bad practices that is not to be overlooked, as there is a different added value in recognizing what should not be done.

5. DISCUSSION

This research has examined in what way digital platforms aimed at contributing to sustainable urban development facilitate the transfer of best practice knowledge. The objective was to find out what the added value of such digital platforms is and what elements of a knowledge transfer processes are strengths and weaknesses so that current and future platforms can learn and develop new strategies accordingly.

As an answer to the research question, it was found that the strength of the digital platforms lies in the network function that is built and strengthened by organizing direct connections between all the involved actors. This role is further intensified by the trust they gain by all involved actors. The researched digital platforms all have incorporated that they want to contribute to some form of sustainable development, even if the approaches and foci might differ. However, none have a specific focus on the urban environment.

These findings can be positioned in a broader debate. As was introduced at the start of this research, the concept of sustainability is very difficult to define. While the definition provided by the Brundtland commission offers a generally accepted definition, it has proven difficult to determine how this end goal should come about (Dixon & Eames, 2014). Dixon and Eames (2014) also suggest viewing sustainable development as a process, not a state of being. And a process that operated in different dimensions, such as political, economic, social, and technical dimensions (Deakin et al., 2002). What this shows is the complexity of the matter and it raises the question of whether the digital platforms contribute to sustainable urban development or merely sustainable development.

Except for Cirkelstad, where 'city' is incorporated into the name, which would suggest an urban focus, none of the researched platforms have an explicit focus on the urban. And even with Cirkelstad it is questionable if its urban focus is pure, given that some circle cities consist of multiple cities and municipalities. This is justifiable for the platform, as it could stretch resources and possible partners thin when solely focusing on singular municipalities, as well as the argument that some regions are sparsely populated relatively little change can be incorporated in the first place. Nevertheless, the approach does not propagate what the name of the organization at first glance would suggest, and therefore also lacks a clear focus on sustainable urban development.

So while there is less of an explicit focus on sustainable urban development, that does not imply a lack of possibilities to contribute to sustainable urban development. Firstly, all platforms operate in multiple spheres, as well as connecting actors from all different spheres to each other that might not have connected elsewhere which is in line with the findings of Cenamor, Parida & Wincent (2019). Also, another important argument is the general character of the urban environment as a hub. A majority of the global population lives in cities, businesses are established and active in cities, and the largest part of economic activities takes place in cities (Dixon & Eames, 2014). It can therefore be derived that while the foci of the platforms is not explicitly targeted towards sustainable urban development, the goals and approaches that have been formulated do contribute to (elements of) sustainable urban development.

What is important to note is that while on the one hand the aims of the platforms all somehow (indirectly) contribute to SUD and on the other hand the knowledge transfer processes are experienced to be successful, none of the researched platforms have an insight on the long-term effects their activities have. It could prove beneficial to evaluate thoroughly what effects the knowledge receivers bring about and how this connects back to the value added by the digital platforms.

5.1 DIGITAL PLATFORMS & KNOWLEDGE TRANSFER

Based on the results it can be stated that the role of the digital platforms mostly limits to a relatively passive role. In the theoretical framework, it was argued that digital platforms take up the role of transfer agents, defining transfer agents as academic and/or policy experts (De Jong & Edelenbos, 2007). While the platforms appear to have a distinct function between the knowledge senders and receiver, this does not necessarily imply that they are academic and/or policy experts. Especially given the fact that not all researched platforms operate in the academic and/or policy sphere. Cenamor, Parida & Wincent (2019) warn that when the role of experts is assumed and proven wrong, it can damage the levels of trust in the platform. However, the trust was found to be a condition that was experienced and valued as positive. Important here is to address that this evaluation was a result solely provided by the perspective of the platforms, the experience of the involved actors, both knowledge senders and receivers might prove to be more nuanced or more negative.

Instead of using transfer agent to describe the role of the platforms, it is suggested that knowledge broker might be a term better suited to the role found in this research. A knowledge broker can be defined as persons or organizations that serve as an intermediary of knowledge transfer (Meyer, 2010). Additionally, Meyer states the importance of the role of these knowledge brokers given their task to translate the knowledge which is being transferred (Meyer, 2010). What would be the most added value to define digital platforms as knowledge brokers is the fact that the knowledge that eventually ends up with the knowledge receiver is recognized as an individual type of knowledge, namely so-called brokered knowledge (Meyer, 2010).

When recognizing the end-product of the knowledge transfer process to be brokered knowledge, it can then also be argued that the role of the platform in the transfer process goes beyond the definition of knowledge transfer. An alternative is suggested in the form of co-creation, which is used to define the value an actor, here the digital platform, adds to the original knowledge (Chammas et al., 2020). This research identified the knowledge senders, receivers, and the knowledge itself as being separate from the platforms, but it can be argued that the role of the platforms is one that adds to the knowledge, which would imply an added perspective to the role of digital platforms originally conceptualized. This is supported by the findings that suggest the platforms view themselves as a knowledge sender as well as receiver and intermediary, and the result of offering nuanced information to its users.

The self-perceived role as knowledge sender by platforms in combination with their expected role as mediator and facilitator is supported by what is called the transactive memory system. This is seen as a set of *'individual memory systems in combination with the communication that takes place between individuals'* (p.186, Wegner, 1986). Through the direct connections between all involved actors that often take place this system develops and is expected to increase and contribute to the continual knowledge transfer processes. The transactive memory systems, for if the senders and receivers are not able to access the system this hinders a successful knowledge transfer (Gul & Jamal, 2020)

Using either knowledge broker or transfer agent to define the role of the platforms fits into the operationalization of digital platforms in this research, namely as a sociotechnical system, meaning a combination of technology and organizational processes (De Reuver, Sørensen & Basole, 2018). However, all researched platforms differ significantly from each other in terms of their organizational structure, which might influence their role of transferring knowledge. Cirkelstad is a cooperative, where every member pays a fee and is equal in terms of what is offered is offered to all. Powerly is a company, which implies a possible profit motive that shapes the power relations between the knowledge senders, the platform, and the receivers. HIER is an association which by nature is forced to be transparent on their results. And the Versnellingshuis is funded by mostly governmental organizations and owes them statements on their progress.

While the organizational structure might be of influence, the main added value of all the platforms was found to be the network effect or function they offer to the involved actors. A network effect is when user benefits increase as the network grows in terms of users and participation rates (Belleflamme & Peitz, 2016; De Reuver, Sørensen & Basole, 2018). This is directly reflected in the wishes of the platforms to grow their network of knowledge senders and receivers for optimization of the transfer process and eventually reaching the aims of the platform.

What is interesting in this research, is that the live or physical element of knowledge transfer seems to be very important if not crucial. In the ever-growing platform economy, digital platforms influence not only the digital world but the physical world as well (Van der Aalst, Hinz & Weinhardt, 2019). For example, the difficulties physical shops have with regards to competing with their digital counterparts. The opposite appears to take place for knowledge transfer. The platform itself appears to offer the space to connect actors, but the emphasis put on the live events suggests the importance of physical contact to guarantee a successful transfer. This finding is supported by the findings of Karlsen & Gottschalk (2004) who found that interorganizational knowledge transfer is best facilitated by creating a *'space and place for social interaction to share relevant knowledge'* (p.9).

Creating this space and place for social interaction directly connects to the organizational culture, which in turn affects the conditions at the side of the knowledge sender (Karlsen & Gottschalk, 2004; Luu, 2013). For if the organizational culture of an organization or company does not nurture a culture open to sharing the transfer process might not happen (successfully). It is here that the digital platform can play a significant role. Creating meaningful connections between actors, or effectively creating a community, helps build and shape an organization's culture, even when the connections are external for the actors rather than internal (Luu, 2013; Mamonov, Koufaris & Benbunan-Fich, 2016).

Creating an open culture in the network fostered by the digital platforms is expected to positively affect the knowledge transfer process. Something that is important to note here, however, is that the current knowledge senders and receivers were found to be very willing to participate to the digital platforms researched here, which in turn is connected to the motivations to join the platforms and the fact that most users are identified as pioneers. This does however raise the question what it implies with regards to other possible knowledge senders who might not have as strong a conviction or organizational culture open to sharing to participate in platforms. To connect these actors, it is the strategy of the platform of targeting possible new participants and adjusting it accordingly to increase willingness. While adjusting the platform's strategy is an important part of growing the platform, it can be expected the platforms can influence the conditions completely, as can be is illustrated by the results indicating that the competitive position of companies is a big argument not to share knowledge.

When reflecting on the literature regarding the conceptualization of knowledge transfer, the operationalized definition is supported by the results (knowledge of a certain topic is moved from one context to another; Glaser et al., 2020). A risk of researching knowledge transfer lies in the use of this relatively simple definition, for it can easily become a catch-all term (Knott & Wildavsky, 1980). It can be argued that situation has occurred in this research. Given the result that the platforms perceive themselves as knowledge sender combined with the fact that different partners operate both as knowledge senders as well as receivers, it can be argued that the knowledge transfer process at large is less linear and more complex than expected and the initial definition used does not incorporate enough elements accurately. The found activities serve the notion that the knowledge transfer process is multidirectional, whereby the digital platform acts as a central hub. This finding suggests that, rather than using 'knowledge transfer', 'knowledge exchange' is a concept better suited to define the processes central to this research, as it is used more in a network-context where the direction of the process is not one-way (De Jong & Edelenbos, 2007; Verwaal, 2016).

A concern regarding the emphasis on transferability touches on the risk of a decrease in quality of the knowledge (Gagnon, 2011). While this concern cannot be supported by the research present, an argument that possibly serves this concern is the statements made regarding hesitancy to sharing knowledge in companies because of their competitive position. Knowledge is often an important resource for companies and for strategic reasons they might not be willing to share the most valuable knowledge (Styhre & Gluch, 2010). However, when they do offer lesser valued knowledge, this possibly proves this concern, but further research into the knowledge itself is needed to substantiate this argument.

An important possible risk that was identified in previous research is the scope of a digital platform, for when it is too broad the actors that are connected might not be able to supply and acquire the knowledge they want and need (Gagnon, 2011). That is not the case for the researched platforms. The academy provided by Cirkelstad offers a filter function, Powerly has the housing check tool to find the right solution to problems supplemented by the personal advice given through a phone call. HIER has a strategy with their own goals and target audience adjusted to the project they are hosting. And for the Versnellingshuis, this is also not applicable since their goal is to help those entrepreneurs who cannot see the wood for the trees.

5.2 BEST PRACTICES

Best practices were introduced in this research as a result from benchmarking processes, which are characterized by the ability to critically reflect and adapt accordingly (Bhutta & Huq, 1999). The platforms researched emphasize the importance of best practices and argue that most of the knowledge being transferred can be characterized as best practices. However, due to a lack of strong definitions and benchmarking processes used by the platforms, this cannot be stated with certainty. This does not mean, however, that these processes are completely absent, as the knowledge senders themselves might have processes in place that ensures the knowledge to be of value and a real best practice. The question here is who is qualified to decide what defines a best practice. As digital platforms are viewed here as transfer agents and therefore experts, it theoretically justifies their position to identify best practices. But this would show in selections at the gate, which are not present in the platforms, except for Cirkelstad.

A limitation of using best practices as a methodology is the difficulty if not impossibility of transplanting best practices directly from one context to another (Bhutta & Huq, 1999). Therefore, using best practices might not be of added value for users of platforms such as in this research, which reflect the results where knowledge receivers were found to prefer simple and applicable solutions. This limitation is counteracted largely by the matchmaking activities and the network-characteristics of the platforms, that offer the opportunity to adapt the knowledge to a tailor-made format for the intended knowledge receiver. As knowledge transfer by intermediaries is regarded as a major route through which best practice knowledge travels, probability is high limitations are minimized similarly with other types of intermediaries (Birch, Wachter & Keating, 2011). Nevertheless, it is a concern that should not be overlooked.

A possible explanation for the lack of selection processes can be an assumption made by the platforms that knowledge senders inherently offer the best possible results they have achieved and not mention the failures. This assumption can be directly linked to the knowledge senders being viewed as pioneers, with strong motivations to contribute to their goals. The knowledge senders were found to be proud of their achievements and enthusiastic about sharing them with others.

Assuming all knowledge that is being offered are best practices or positive experiences can have several negative effects. One of which is the argument that by focusing on the best practices it can result in a shortage of relevant knowledge being shared and the simple questions are overlooked (Knott & Wildavsky, 1980; Radaelli, 2004). It can be argued that these negative effects are prevented by the platform due to their lack of selections

processes on the one hand and the type of events and activities hosted on the other hand. Also, almost all platforms partially work with a sort of demand-supply system, where there is a question asked by the knowledge receiver for which then an answer is found among the knowledge senders (the connecting/matchmaking activities). The one barrier left in that situation is whether the knowledge receivers are willing to actively ask the simple questions. While this cannot be concluded from this research, it is expected to correlate to the levels of trust and the users feel safe and comfortable enough in the environment facilitated by the platform to ask all burning questions.

Lastly, when a focus lies solely on best practices, the added value of lessons learned from failures are completely ignored, which can perhaps ensure the best chances of a useful usage of the transferred knowledge (Radaelli, 2004). Sharing the failures teaches the receiving actors which choices to avoid, with possibly a higher chance of success than if solely the best practice was shared. The added value of sharing failures was also mentioned by the platforms, although only Cirkelstad acknowledges to having hosted events solely focused on sharing the failures. What did not result from this research, but what is expected, is that many failures are in fact being shared through the direct connections between knowledge senders and receivers facilitated between the platforms. As was mentioned before, the scale of the encounters combined with the environment created by the digital platform can result in an ambiance optimal for sharing failures.

Given the criticisms of best practices, a shift towards using so-called good practices can be seen. Joseph, Gunton & Rutherford justify their choice for the term of good practices because it reflects ‘the limited amount of empirical validation of practices with respects to outcomes’ (p.238, 2015). It is argued here that this also applies to the best practices used by the digital platforms, whereby the use of good practices is suggested as alternative to the debatable best practices.

5.3 METHODOLOGICAL LIMITATIONS

After reflecting on the literature and the results of this research, also some methodological limitations need to be elaborated on, which shall be done in this next section. Firstly, regarding the reliability and validity of this research some difficulties need to be pointed out. Regarding the reliability it needs to be recognized that the topics of this research, knowledge transfer, best practice knowledge, digital platforms and sustainable urban development have not been researched in a similar research objective. The difficulty of conceptualizations of the concepts probably serves as the best justification, but it does have the effect that the results are difficult to place in a bigger perspective.

The chosen research strategy, case studies, was considered suited for this research because of the possibility to gain in-depth knowledge on the digital platforms and how they facilitate the knowledge transfer process. However, the number of cases researched as well as the number of interviews conducted can be criticized here. While the number of case studies can be low (even as low as one), in combination with the low number of participants one could argue that this has affected the reliability of this research. In future research, this can be prevented by either collecting data from a bigger number of cases, holding more interviews per case study so that the results are not provided from one perspective only, or a combination of the two.

Building on that argument is the criticism on the selected respondents. The research focused on respondents that represented the digital platforms to gain the most insights into the workings of the platform. However, as the knowledge transfer process affects more actors, namely the knowledge senders and receivers, the research would have benefitted from including respondents that fall into these categories as well as the originally targeted group. It would result in more perspectives regarding the discussed elements and the extent to which conditions were or were not met.

Regarding the validity of the research, it needs to be discussed that the selected methods were found to result in insufficiently complete results to fully answer the research question. Specifically, regarding the second sub question, it was difficult to analyze the knowledge-element and establish whether the conditions related to the element were met. With the current data, it was merely possible to add a personal perspective. While this was expected before executing the interviews, in future research, the selection of methods could be expanded to methods that can better contribute to a higher validity.

Another element which could have influenced the research is language in which the interviews were held. Dutch was spoken during the interviews, as the researcher and the interviewees are all native Dutch people. In the analysis, the coding was also done in Dutch to include the possibility of using the interviewees' words. The interviews benefitted from the spoken language and resulted in fluent conversation and using Dutch in the coding process has probably contributed to a better connection between the codes and the data. But the possibility exists some elements or comprehension of concepts might have been lost in translation.

When it comes to practical barriers, some were experienced. As the interviews were held online, due to COVID-19 restrictions, some level of incomprehensibility was experienced because of a faltering internet connection. Luckily, the faltering was experiences very limited, but it did influence the transcription and coding process, as well as the fluency of conversation during the interview. It can be argued that the used tool for the meeting, Microsoft Teams, has some privacy issues, but as an account was provided by the internship organization, not many other possibilities (with fewer critiques on privacy) were available.

5.4 RECOMMENDATIONS

The last section of this research reflects on this research and provides several recommendations for further research as well as recommendations for practitioners and digital platform.

5.4.1 RESEARCH RECOMMENDATIONS

This research has contributed to the current body of literature through covering the four different elements identified the research objective: knowledge transfer, best practice knowledge, digital platforms, and sustainable urban development. Since all are concepts which are difficult to conceptualize and define, the exploration of the combination in this research has resulted both in interesting findings as well as lessons on how to improve researching this topic.

An interesting point for further research lies with the definition of digital platforms. In this research, the used conceptualization of digital platforms was conceptualized as a sociotechnical system (De Reuver, Sørensen & Basole, 2018). It would be interesting to research whether the platforms researched here could benefit from shifting towards a more technical conceptualization (and the resulting set up of the platforms). As it was shown that the human and physical elements of the platforms is what adds value to these platforms, it would be interesting to see what happens if the human element is removed and more attention will be given to solely the technical part of the platform. Assumably, this would put more pressure on the conditions related to the knowledge senders, as there will be an expected need of being more proactive. Also, it might decrease the value of the knowledge and the trust the knowledge receivers have.

Defining the knowledge senders and receivers was sometimes difficult, especially given the network structure of the actors. As mentioned, it has been argued that the involved actors all belong to a sort of the community of the willing. It would be interesting to research if and how the platforms approach the unwilling or ambivalent groups of actors and analyze their strategy. Therefore, it is recommended to do more in-depth case analysis, whereby the knowledge senders and receivers are included in the research. Finding out how actors are

selected to participate in certain events for example, can strengthen the analysis of the workings of a digital platform.

For the previous recommendation it could be beneficial to focus specifically on one platform only, but this can also provide the opportunity to research the body of knowledge and evaluate for example the tacitness. An evaluation of the knowledge can further substantiate the assumption if the output can be viewed as brokered knowledge, determining whether the platform adds value to the knowledge.

5.4.2 PRACTICAL RECOMMENDATIONS

With regards to practitioners and digital platforms, also some recommendations can be drawn from this research. Firstly, it was identified that the value of the researched platforms lies in the network of actors connected to the platforms, as they act both as knowledge senders and receivers. Fostering this network is therefore very important. This can be realized by knowing who the actors are, and make sure to connect to all in ways relevant to the specific actor. Some might value more direct benefits of the platform, while others simply want to be included. As the network externalities grow with a growing network, this benefits of focusing on expanding the network has almost guaranteed success.

With regards to using best practices, it is suggested to firstly be aware of the position they take in the platform. While demarcating and selecting best practices has both benefits and limitations, the same applies for not demarcating best practices. Making a deliberate choice on what path to take can provide clarity to both the platform and its users. And after this choice, the strategy focused on expansion of the network can be adapted accordingly.

The human element of connecting actors together is greatly appreciated, so as a second step it is important not to forget about that strength and continue putting in the effort. Lastly, it is recommended to evaluate the effects of the efforts the platform spends on transferring knowledge. Knowing what does and does not work can provide indications on what to change in the organizational structure and knowledge transfer strategy. Especially when including the knowledge receivers in this evaluation, this might strengthen the connection between the platform and its actors.

6. CONCLUSION

To conclude this research, the way in which digital platforms, aimed at contributing to sustainable urban development, facilitate the transfer of knowledge is mainly through the network they create and maintain. As all platforms focus on a specific goal that are (indirectly) related to sustainable urban development, the network consists of pioneering actors that operate in the specific field related to these goals. These actors are viewed as pioneers, and given the network structure, often function both as knowledge senders and receivers, while the digital platforms themselves take up the functions of intermediary and knowledge senders. Depending on the organizational structure of the platform and their aims and goals, the involved actors may differ. Facilitating strong and reliable connections is what most of the activities of the platforms consist of and which are regarded to be the platform's biggest strengths, especially given the high level of trust in the platforms from the involved actors. The crucial place to foster these connections were found to be physical locations where live contact and connections can be grown.

The knowledge transfer process facilitated by the digital platforms are viewed to be successful. When combining that with the results stating the importance of best practices for the digital platforms, it can be concluded that the digital platforms successfully contribute to the transfer of best practice knowledge. However, as the knowledge itself was not evaluated and no clear demarcations or selection processes, this conclusion cannot be stated with absolute certainty. In future research, a more in-depth analysis of the knowledge which is being transferred is recommended, as the results can contribute to a more solid foundation of the conclusion drawn here.

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Introduction interview

- Personal introduction: name, Radboud University, master program, expected time of the interview (1 hour), structure (semi-structured)
- Short description of research
- Request to record

Digital platform

- What is your function within the platform?
- Purpose of the platform, goals/aims, organizational structure
- How does the platform work? What are crucial elements of the platform?
- What is the business model of the organization? How does it exist/where does funding come from?
- In what way does the platform focus on sustainability? Does the platform have specific goals?
- To what extent do you think initiatives such as your platform can contribute to sustainable development?
- What are the results of the platform thus far?
- What are the strengths and weaknesses of the platform?
- Do you face competition from other platforms?

Knowledge transfer process: short explanation of the conceptual model, highlighting

- *Knowledge sender*
 - Who are the knowledge senders?
 - Small/large organizations
 - Number of organizations
 - Is the level of activeness similar or dissimilar among all the senders?
 - How do they connect to the platform?
 - Do you select the knowledge senders? If so, how?
 - How do they build their knowledge and experience?
 - What motivates the senders to contribute to the platform?
 - How willing are the senders to contribute to the platform?
 - Any barriers as to why they cannot or will not share?
- *(Best practice) Knowledge*
 - Are you familiar with best practices?
 - How are best practices being used by the platform? Please elaborate.
 - Does a selection procedure exist with regards to the knowledge that is being transferred?
 - How does the platform remain up to date?
 - Is the knowledge often private or public knowledge?
 - Knowledge ambiguity: how is a possible lack of clarity regarding the sources or the components of the underlying knowledge being handled?

Tacit/explicit knowledge: how does this division play a role in the platform? Can you provide examples?

To what extent do you think knowledge is lost in the transfer process?

- *Process*

What does the communication look like between the knowledge senders, the platforms, and the knowledge receivers?

Is there a need for translation? How does this translation come about?

Direct relation

Intensity of the relation

To what extent does trust play a part in the activities of the platform? Please elaborate.

How do you (aim to) optimize the communication process?

To what extent do receivers accept the knowledge offered?

- *Knowledge receiver*

Who are the knowledge receivers?

Small/large organizations

Number of organizations

Is the level of activeness similar or dissimilar among all the senders?

How do they connect to the platform?

Absorptive capacity: How do the knowledge receivers use the knowledge you offer? Please elaborate with examples of situations of positive feedback of situations where you ran into problems.

To what extent are the receivers able to understand and incorporate the knowledge offered?

Cognition: Do certain characteristics stand out among the body of knowledge receivers/users? How often does the receiver's cognition connect to the (way the) knowledge offered?

Closing remarks

- Is there anything you would like to add or share which has not come up in the interview?
- Do you have any tips or recommendations for me?
- Would you like to receive the finished thesis?
- When relevant: Is it possible for me to get access to the closed environment?
- Thank the interviewee for participating in this research