

# Exploring the Role of Intermediaries in the Acceleration Stage of the Energy Transition: A Comparative Case Study of Two Local Energy Projects

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## Abstract

Transition intermediaries are expected to play an important role in the acceleration stage of the energy transition. While existing scholarship helps us understand the role of transition intermediaries in the early stages of transitions, it remains unclear what role intermediation plays in subsequent transition stages, especially at the local level where the implementation of policies and legislation takes place. In this article, we aim to investigate how intermediation takes shape in the acceleration stage of the energy transition. Drawing on the literature on transition intermediaries and intermediation at the local level, we explore the role of transition intermediaries in two local energy projects in the Netherlands. Through extensive qualitative research, we find that various actors can act as transition intermediaries and that a single actor can fulfil different intermediary roles simultaneously. Our findings contribute to the literature on transition intermediation and urban intermediaries, emphasising the key role intermediaries play in aligning innovations with existing institutional configurations. Furthermore, we highlight their role in connecting the energy transition to broader societal developments, including through citizen involvement in local and regional governance arrangements.

**Keywords:** Acceleration stage; energy transition; neighbourhoods; regions; transition intermediaries

## 1. Introduction

Climate change constitutes an increasingly urgent and existential threat to humanity. Averting this threat requires a transition from a fossil fuel-based system to one based on sustainable energy sources. Scholars have recently argued that the energy transition has entered a new stage known as “acceleration”.<sup>1</sup> Transition intermediaries, who act as links between people and organisations involved in the transition, are said to play a crucial role in speeding up transitions.<sup>2</sup> It is unclear, however, what role such intermediaries play in the acceleration stage of the energy transition, especially at the local level where the actual implementation of policies and legislation is taking place. Therefore, this article focuses on the acceleration stage of the energy transition, examining its local manifestation and the role played by transition intermediaries.

<sup>1</sup> J Markard, “The next phase of the energy transition and its implications for research and policy” (2018) 3 *Nature Energy* 628; J Markard, F Geels and R Raven, “Challenges in the acceleration of sustainability transitions” (2020) 15 *Environmental Research Letters* 081001.

<sup>2</sup> P Kivimaa, W Boon, S Hyysalo and L Klerkx, “Towards a typology of intermediaries in sustainability transitions: A systematic review and a research agenda” (2019) 48(4) *Research Policy* 1062.

Research suggests that transition intermediaries are crucial in driving change.<sup>3</sup> According to Kivimaa et al, these transition intermediaries are individuals or organisations that connect various actors and their activities, skills and resources, fostering new collaborations related to new technologies, ideas and markets and ultimately disrupting prevailing societal configurations. Thus far, the literature on transitions and transition intermediation has primarily focused on the early stages of transitions, lacking sufficient exploration of activities such as diffusing ideas and deploying technologies.<sup>4</sup> Research is still lacking on such activities. These diffusion and deployment efforts occur at the local level, within cities and regions.

Historically, cities and regions have been important arenas for aspirations and actions related to sustainability, and energy transition is no exception.<sup>5</sup> In the acceleration stage, increasing numbers of cities and regions are formulating and implementing energy transition plans, including strategies for sustainable heating in residential areas. A host of actors, ranging from civil servants to business entrepreneurs, consultants and citizens, are actively engaged in these plans. It appears that an increasingly diverse array of actors are adopting intermediary roles. Durose et al have examined what they refer to as “urban intermediaries” – that is, individuals and organisations that connect people, ideas and resources at the local level and, in so doing, drive change.<sup>6</sup> However, the existing literature on urban intermediaries remains silent on intermediation in the local energy transition. As a result, we have yet to identify the precise nature of these local transition intermediaries and the specific roles they play in advancing neighbourhood energy transitions.<sup>7</sup>

This article aims to explore the actors assuming intermediary roles in local energy projects. Specifically, we seek to build upon and expand the literature on transition intermediaries at the local level by addressing the following research question: how does local transition intermediation take shape in the acceleration stage of the energy transition? Answering this question may contribute to a better understanding of the diverse actors involved in intermediation during the acceleration stage of transition, as well as the various ways in which intermediation occurs.

To investigate local transition intermediation, we use a qualitative case study method, zooming in on two neighbourhood energy projects in the Tilburg region, located in the south of the Netherlands. These projects are part of a larger action research project including ten neighbourhood energy projects. The selected neighbourhood projects are

<sup>3</sup> *ibid*; J Schot and F Geels, “Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, policy” (2008) 20(5) *Technology Analysis & Strategic Management* 537; P Kivimaa and M Martiskainen, “Innovation, low energy buildings and intermediaries in Europe: systematic case study review” (2018) 11 *Energy Efficiency* 31.

<sup>4</sup> Kivimaa et al, *supra*, note 2; Schot and Geels, *supra*, note 3; Kivimaa and Martiskainen, *supra*, note 3; H Rohrer, “Intermediaries and the governance of choice: the case of green electricity labelling” (2009) 41(8) *Environment and Planning A: Economy and Space* 2014; P Kivimaa, “Government-affiliated intermediary organisations as actors in system-level transitions” (2014) 43(8) *Research Policy* 1370; P Kivimaa, S Hyysalo, W Boon, L Klerkx, M Martiskainen and J Schot, “Passing the baton: how intermediaries advance sustainability transitions in different phases” (2019) 31 *Environmental Innovation and Societal Transitions* 110.

<sup>5</sup> V Castán Broto and H Bulkeley, “A survey of urban climate change experiments in 100 cities” (2013) 23(1) *Global Environmental Change* 92; M Hodson and S Marvin, “Can cities shape socio-technological transitions and how would we know if they were?” (2010) 39(4) *Research Policy* 477; M Hodson and S Marvin, “Mediating low-carbon urban transitions? Forms of organization, knowledge and action” (2012) 20 *European Planning Studies* 421.

<sup>6</sup> C Durose, M van Hulst, S Jeffares, O Escobar, A Agger and L de Graaf, “Five ways to make a difference: perceptions of practitioners working in urban neighborhoods” (2015) 76(4) *Public Administration Review* 576; C Durose, M van Ostaïjen, M van Hulst, O Escobar and A Agger, “Working the urban assemblage: a transnational study of transforming practices” (2022) 59(10) *Urban Studies* 2129.

<sup>7</sup> H Bulkeley, J Carmin, V Castan Broto, G Edwards and S Fuller, “Climate justice and global cities: mapping the emerging discourses” (2013) 23(5) *Global Environmental Change* 914.

typical of the acceleration stage of the energy transition as they focus on the selection and application of (technical) energy innovations such as (deep) retrofitting, solar energy, heat pumps and new-generation heat networks. Multiple actors, including municipal governments, housing associations, consultants and residents, are involved in these projects, with several assuming intermediary roles.

Studying these two projects allows us to gain an in-depth perspective on the role of intermediation in these specific cases and to compare and contrast them, exploring their similarities and differences. For the case studies, we draw on approximately 100 hours of participant observation, thirteen focus groups and thirteen semi-structured interviews with municipal employees, active citizens, consultants and project managers. By employing a qualitative case study method, we achieve a comprehensive and nuanced understanding of local transition intermediation.

This article is structured as follows. Firstly, we synthesise the existing scholarship on transition intermediaries and intermediary actors at the local level. Secondly, we provide a detailed explanation of the employed case study method, encompassing the collection and analysis of interview and observational data. Thirdly, we present and discuss our empirical findings, exploring the role of intermediation in the local energy transition in the Netherlands. Finally, we conclude by addressing the research question, highlighting the research's contributions and limitations and outlining potential avenues for future research.

## II. Theory

### 1. Transition intermediaries at the local level

Theory about transition intermediation is rooted in innovation studies, specifically within the context of transition studies. This theory typically adopts a systems perspective, focusing on changes in socio-technical systems rather than on isolated innovations. Transition intermediation is considered one of the ways through which actors may support a sustainability transition. Acting as transition intermediaries, these individuals or organisations liaise between actors, connect the activities of these actors and link their skills and resources. In so doing, they foster novel collaborations and disrupt existing structures and arrangements.<sup>8</sup>

#### a. Actors

A variety of actors can operate as transition intermediaries. They may be collective actors, such as innovation networks, standardisation committees for new technologies, municipal agencies, public-private partnerships, community initiatives, internet discussion forums and various kinds of consultancy firms. Alternatively, they can be individual actors, including project managers, consultants, public officials, architects and residents. Moreover, transition intermediation can occur through both paid and voluntary means. In many instances, consultants and public officials fulfil intermediary roles on a professional and remunerated basis. However, it is also common for residents to engage in intermediary activities voluntarily, contributing time and expertise to support the transition process.<sup>9</sup>

As transition intermediaries, different actors have divergent capabilities and qualities. In this context, we focus on the capabilities and qualities of consultants, civil servants and

<sup>8</sup> Kivimaa et al, supra note 2; Schot and Geels, supra, note 3; Kivimaa and Martiskainen, supra, note 3; J Wittmayer, F Avelino, F van Steenberghe and D Loorbach, "Actor roles in transitions: insights from sociological perspectives" (2017) 24 *Environmental Innovation and Societal Transitions* 45.

<sup>9</sup> Kivimaa et al, supra note 2.

citizens, as they are particularly relevant in a local setting. In general, *consultants* have the ability to solve problems, also related to cooperation and coordination,<sup>10</sup> and to generate and spread ideas quickly.<sup>11</sup> *Civil servants* typically work with and for the public in the context of present-day public engagement. Drawing from the urban intermediation literature, we understand that civil servants can bring together a range of interests, values, perspectives and resources both within and outside the local bureaucracy to make projects possible that serve the public good.<sup>12</sup> *Citizens*, in their intermediary capacity, can assume various roles such as community organisers, community leaders, everyday makers<sup>13</sup> or civic entrepreneurs.<sup>14</sup> As intermediaries, they tend to be driven by the goal of finding solutions that enable local change, improving life for the local community they are part of or contributing to broader social movements beyond their own community.

### b. Roles

Following the multi-level perspective on transitions, five distinct types of intermediary roles can be identified: systemic intermediaries, regime-based intermediaries, niche intermediaries, process intermediaries and user intermediaries.<sup>15</sup> First, *systemic intermediaries* operate at the system level and intermediate between multiple actors and interests, pursuing the goals of a socio-technical system. They are typically external to specific niches and aim to disrupt the existing system. Examples include national innovation networks or innovation funds. Second, *regime intermediaries* also operate at the system level, but they have a mandate given by dominant actors from within the regime. They are outsiders to specific niches and are recognised as players within the dominant systems who seek and are empowered to bring about change, yet they are part of established practices and associated rules. Examples include municipal climate change agencies and their officials. Third, *niche intermediaries* are insiders within niches where radical innovations occur. They play an intermediary role to advance and support the development of a particular niche. Examples of actors fulfilling this role are community energy initiatives or standardisation committees for new technologies. Fourth, *process intermediaries* function within experimental projects or specific processes, contributing to transitions. Their focus is on implementing context-specific priorities, informed by broader transition processes. Examples are sustainability consultants, project managers and architects. Fifth, *user intermediaries* intermediate between a technology and its users, emerging from amidst users and consumers. Examples are internet discussion forums for heat pumps.

## 2. The acceleration stage of the energy transition

Transition intermediation at the local level, in cities and regions, can manifest in diverse ways, where different actors assume different intermediary roles. In practice, it is common for transition intermediation to involve a mixture or an ecology of actors, each playing

<sup>10</sup> J Grijzen, *Outsourcing Planning: What Do Consultants Do in a Regional Spatial Planning in the Netherlands*. Academic dissertation (University of Amsterdam 2010).

<sup>11</sup> R Prince, "Policy transfer, consultants and the geographies of governance" (2012) 36(2) *Progress in Human Geography* 188; A Vogelpohl, "Consulting completed: temporal aspects of expertise in urban development during times of fast policies" (2017) 72(1) *Geographica Helvetica* 65.

<sup>12</sup> W Blijleven and M van Hulst, "How do frontline civil servants engage the public? Practices, embedded agency and bricolage" (2021) 51(4) *American Review of Public Administration* 278.

<sup>13</sup> H Bang and E Sørensen, "The everyday maker" in P Dekker and E Uslaner (eds), *Social Capital and Participation in Everyday Life* (Abingdon, Routledge 2001).

<sup>14</sup> C Durose, "Revisiting Lipsky: front-line work in UK local governance" (2011) 59(4) *Political Studies* 978.

<sup>15</sup> Kivimaa et al, *supra* note 2; F Geels, "Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case study" (2002) 31(8-9) *Research Policy* 257.

different intermediary roles.<sup>16</sup> The specific configuration of actors and roles is likely to be dependent not only on the particular place of a transition, but also on the particular time; different stages may require distinct types of actors and roles to effectively facilitate progress. Our knowledge is still limited, though, as regards how intermediation unfolds in the *acceleration stage* of the energy transition.

The literature on transition intermediaries has primarily focused on what transition scholars refer to as the early stages of transitions and, therefore, on intermediation around niches. These early stages involve the emergence of innovations at the local level, accompanied by developments in business models, value chains, policies, regulations and user practices. The energy transition now appears to be moving into the acceleration stage, however, which is associated with the widespread diffusion of (technological) innovations such as deep retrofitting, solar energy, heat pumps and new-generation heat networks. In light thereof, one may expect intermediation to take shape in different ways than in earlier stages.<sup>17</sup>

#### *a. Challenges*

Markard et al<sup>18</sup> have identified several challenges that are characteristic of the acceleration stage. To begin with, technological innovations may fail to align with wider changes in the broader system. Furthermore, tensions may occur between competing technologies, firms and sectors. In addition, particular regions or social groups that are more affected by the transition than others may oppose the deployment of certain technological innovations. Finally, the acceleration stage of transitions is associated with an increasing complexity of governance, with a multitude of different actors involved. In spite of this complexity – or perhaps for this very reason – there is an increasingly loud call for a more interventionist approach in such governance.

We expect intermediation therefore to be addressing the misalignment between technology and the broader system and to be navigating tensions between technologies, firms and sectors. We also expect intermediation to be involved in developing contextual and place-based plans that fit local conditions, negotiating interests and mediating conflicts, but also creating perspective and generating support. Furthermore, we expect intermediation to be linking procedures for public policymaking, urban and regional planning and the processes of citizen and stakeholder engagement. Indeed, we expect intermediation in the acceleration stage to be concerned with horizontal and vertical policy coordination, as well as making sense of and connecting to societal developments.

### **III. Methods and data**

#### ***I. Research method***

To better understand local transition intermediation in the acceleration stage of the energy transition, we use a qualitative case study. We examined and compared the process of intermediation and practices of intermediary actors in two neighbourhood heat projects in the Tilburg region in the south of the Netherlands. Both projects are illustrative of the acceleration stage of the energy transition as their focus is on the selection and application of technological innovations instead of the emergence of new ideas or the designing of innovations. Furthermore, both projects are located in typical, middle-sized cities instead of in the frontrunner cities that are studied in most research on transition intermediaries. Yet, while both projects involve a range of different actors, including municipal

<sup>16</sup> Kivimaa et al, *supra* note 2; Geels, *supra*, note 15.

<sup>17</sup> Markard et al, *supra*, note 1.

<sup>18</sup> *ibid.*

governments, housing associations, consultants and residents, there appear to be differences between the projects in terms of the actors that act as transition intermediaries and the roles that they fulfil.

The two neighbourhood heat projects are part of a larger European Union (EU)-funded, regional action research project that ran from 2017 to December 2020 called Social Innovation Labs for a Zero Energy Housing Stock (SMILE). In this regional project, actors pursued local, participative and area-oriented approaches for deep retrofitting of the existing housing stock combined with other energy innovations. These approaches were implemented against the backdrop of regional and national developments. In the Tilburg region, local and regional actors signed a regional agreement for retrofitting at scale in 2015.<sup>19</sup> Innovations such as deep retrofitting, solar photovoltaics, heat pumps and new-generation heat networks have since started to diffuse. With the introduction of the Dutch Climate Agreement and the promulgation of a Climate Law, both in 2019, local authorities are formally put in a coordinating role for implementing local heat and energy strategies.<sup>20</sup>

We use what today is called an “abductive” approach, moving back and forth between our theoretical expectations and empirical observations.<sup>21</sup> Although we had some preconceived notions regarding the process of intermediation and the practices of intermediaries in transition, there was no well-established theory on intermediation at the local level in the acceleration stage of a transition. Generating new insights thus required us to use the knowledge we have and creatively apply it to new cases of intermediation. By so doing, the knowledge we inferred from the cases may ultimately contribute to producing new theoretical generalisations.

An abductive approach crucially involves a continuous reflective dialogue between the data, the theory and the researcher.<sup>22</sup> Instead of a systematic case comparison, as part of a controlled (most similar systems) design, we therefore did not juxtapose our cases to make a causal argument but to iteratively and recursively learn from and through the cases over the course of the research, “casing” our study while we were doing it.<sup>23</sup> This provided us with new ways of looking at local transition intermediaries. It also made it possible to develop first ideas about differences and similarities between processes and practices as a steppingstone to possible explanations for observed differences and similarities, possibly in a more preconstructed comparison and through a strategy of *a priori* casing.

<sup>19</sup> H van Brabant, *Op weg naar energieneutrale woningen* (Policy Document, Tilburg Region, 2015) <<https://studylibnl.com/doc/1376155/deal-nul-op-de-meter-hart-van-brabant>>; P Hofman, F Wade, J Webb and M Groenleer, “Retrofitting at scale: comparing transition experiments in Scotland and the Netherlands” (2021) 2(1) *Buildings and Cities* 637.

<sup>20</sup> *Rijksoverheid Klimaatakkoord* (Policy Document, National Government The Netherlands, 2019) <<https://open.overheid.nl/documenten/ronl-7f383713-bf88-451d-a652-fbd0b1254c06/pdf>>; Wet van 2 juli 2019, houdende een kader voor het ontwikkelen van beleid gericht op onomkeerbaar en stapsgewijs terugdringen van de Nederlandse emissies van broeikasgassen teneinde wereldwijde opwarming van de aarde en de verandering van het klimaat te beperken (Klimaatwet) 2019 <[https://www.eerstekamer.nl/behandeling/20190710/publicatie\\_wet/document3/f=/vl0130dc3uyn.pdf](https://www.eerstekamer.nl/behandeling/20190710/publicatie_wet/document3/f=/vl0130dc3uyn.pdf)>.

<sup>21</sup> I Tavory and S Timmermans, *Abductive Analysis: Theorizing Qualitative Research* (Chicago, IL, University of Chicago Press 2014).

<sup>22</sup> B Haig, “An Abductive Theory of Scientific Method” (2005) 10(4) *Psychological Methods* 371; G Thomas “Doing Case Study: Abduction Not Induction, Phronesis Not Theory” (2010) 16(7) *Qualitative Inquiry* 575.

<sup>23</sup> J Soss, “On casing a study versus studying a case” in E Simmons and N Rush Smith (eds), *Rethinking Comparison: Innovative Methods for Qualitative Political Inquiry* (Cambridge, Cambridge University Press 2021); M Klag and A Langley, “Approaching the conceptual leap in qualitative research” (2013) 15(2) *International Journal of Management Reviews* 149.

## 2. Data collection and analysis

For the case studies, we explored the phenomenon of intermediation in the acceleration stage of the energy transition by immersing ourselves in the neighbourhood projects. We thus witnessed, up close and personal, the intermediation processes and the practices of the variety of actors involved, including consultants, civil servants and citizens. This allowed us to engage with the complex social dynamics involved in the context of the local energy transition. It made it possible to learn while we were doing research, contributing to practice on the basis thereof and subsequently further building our understanding of the phenomenon of intermediation. In order to limit the potential bias that direct interaction with the research subjects might produce, we took great care in collecting and analysing the data.

We employed various methods for data collection: participant observation, interviewing and focus groups. First, we conducted participant observation and created a written record of observations and experiences in field notes.<sup>24</sup> Over the course of a three-year study, we spent approximately 100 hours on observing intermediation processes and intermediary practices related to the two projects. For De Bunders, we were present during project meetings between the consultant and civil servant, interviews with residents conducted by the project team and a neighbourhood festival on sustainability organised by the project team. For Herpt, we were present during project meetings between the municipality and the energy cooperation, a field visit for citizens, civil servants and politicians in Heusden showcasing Herpt and a meeting with citizens, consultants, civil servants and stakeholders involving the planning process for the environmental vision for Herpt and the nearby villages. For both projects, we were present in nine project meetings of the SMILE consortium. In addition, there was regular informal contact through talking over coffee or phone calls, and we met during other events such as conferences on the heat transition. We made field notes of these moments whenever relevant to the SMILE project.

Second, we organised and facilitated thirteen focus groups bringing together participants in the projects and their main stakeholders for reporting and reflection on activities and progress. For ten of these focus groups we visited each neighbourhood, where the local team would present their activities, progress and challenges and we facilitated a discussion about emerging themes. We wrote field notes about events before and after the meeting and about the meeting itself. On one occasion a survey was part of the preparation. Two of these focus groups were so-called stocktakes. Instead of visiting one of the projects, these meetings were held at the university and during another central event. Each team of participants reported on progress, and a larger group of stakeholders were invited. In December 2020, a last focus group was organised. The agenda was open and allowed participants to reflect on the results and process of the SMILE project.

Third, towards the end of the SMILE project, we conducted in total thirteen in-depth, semi-structured interviews with employees of municipalities, active citizens, consultants, employees of housing associations and project managers. We aimed for a broad range of perspectives on the project and hence spoke with a broad range of actors who had been directly and indirectly involved in the SMILE project. Three respondents were linked to the cases of Herpt and De Bunders. The interviews lasted between sixty and ninety minutes. They were conducted in the period between in October and November 2020 via Microsoft Teams because of restrictions due to COVID-19. The interviews complemented the data collected through participant observation.

Analysis involved a process of moving back and forth between theory and data, in line with the abductive approach of our study. We started making sense of the data using the available theory on transition intermediaries and our expectations as regards

<sup>24</sup> R Emerson, R Fretz and L Shaw, *Writing Ethnographic Fieldnotes* (Chicago, IL, University of Chicago Press 2011).

intermediation in the acceleration stage of the transition. Our focus was on puzzling observations, generating a search for (ideas for) explanations. We classified the data based on our categorisation of the intermediary actors involved and typology of the intermediary roles fulfilled. We constructed thick descriptions of the two cases, elaborating the best-fitting (ideas for) explanations. Our analysis was thus inherently iterative and recursive.<sup>25</sup> We conducted the comparative analysis in a similar fashion, juxtaposing the cases, interpreting differences and similarities and writing various memos (including practitioner-oriented ones) and several versions of the present article developing and testing arguments.<sup>26</sup>

#### **IV. Transition intermediaries in two local neighbourhood energy projects**

##### ***1. Intermediary actors and roles in the De Bunders neighbourhood***

The first project we studied is set in De Bunders, a neighbourhood in the town of Oisterwijk. De Bunders was the first urban housing area built in Oisterwijk in the 1970s. Almost all houses are privately owned terraced houses. There is a primary school and a community centre in the neighbourhood. The neighbourhood is considered spacious and is a popular residential area. The project area consists of 628 houses and 1,660 residents.

Over the course of the project, a strategy for the heat transition in De Bunders was developed by a project team, including the municipality and a project manager. Resources were allocated for a feasibility study exploring a local heat network based on geothermal heat or aquathermal heat. Residents and homeowners in De Bunders were informed and were given access to support, such as energy advice, help in buying and installing solar panels and through the availability of shared electric cars. All residents were given the opportunity to engage in the planning process, and a small group of residents were actually involved in assessing the possibilities of a neighbourhood heat network. The project led to steps forward in the planning and engagement process and was a learning experience for all actors involved.

##### ***a. Actors***

Various actors operated as transition intermediaries. We zoom in on the activities of civil servants, consultants and citizens as the most relevant actors in the setting of De Bunders.

*i. Civil servants.* A regional coordinating officer, who initiated the SMILE project, helped the municipality of Oisterwijk organise itself to participate in the project. One of our respondents said about this: “At the time, there was not even a specific policy officer for energy transition at the municipality of Oisterwijk yet.”<sup>27</sup> As part of SMILE, the regional coordinating officer connected several actors that previously had not worked with each other. He had the specific goal of stimulating clean energy projects in the region and possessed extensive general knowledge about the energy transition.

The municipality’s alderman and a policy officer considered the project as an opportunity to attract resources for reaching their sustainability goals and wanted to be supportive of the citizens in De Bunders and the members of a local community energy initiative (Duurzame Energie Coöperatie; DEC) that were interested in participating. Unlike the regional coordinating officer, the municipality had limited knowledge about the energy transition at that time.

<sup>25</sup> Klag and Langley, *supra*, note 23.

<sup>26</sup> N Cheesman, “Unbound comparison” in E Simmons and N Rush Smith (eds), *Rethinking Comparison: Innovative Methods for Qualitative Political Inquiry* (Cambridge, Cambridge University Press 2021); Emerson et al, *supra*, note 24.

<sup>27</sup> Informal talk with regional consultant, 20 December 2018.



ii. *Consultants.* A professional consultant, living in the neighbourhood and an active member at the local community energy initiative, was involved from the early beginnings of the project. He had established local connections over the years, and he was eager to work in the neighbourhood where he lived. He was given a paid assignment by the local government to be the project manager for the project. As project manager, he interacted with many actors, such as the municipality, other consultants, the local community energy initiative, several companies in the region, the primary school in the neighbourhood, local energy coaches, the network operator and other project partners. He was working to find and implement context-specific solutions informed by broader transition processes, both at the neighbourhood level and at the individual household level.

The project manager first committed to drawing up a heat transition plan for the neighbourhood, considering the small river De Voorse Stroom as an alternative source for natural gas heating.<sup>28</sup> CE Delft consultants were hired to help explore alternatives and evaluate their suitability for De Bunders. This consultancy firm was rapidly developing expertise on how to advance heat transitions and on standardised decision-making models for local actors. Clean heat technologies were becoming more mainstream, but expert knowledge was required to select and implement a suitable alternative. CE Delft consultants were involved in national research, development programmes and local pilots. At the time that they were asked to consult the team in De Bunders, they were very busy and could hardly meet demand.<sup>29</sup>

Twee Snoeken, an architects' office, participated as a project partner in SMILE to further develop their product *Woonconnect*, a digital twin for the built environment designed to support homeowners in their decision-making processes for renovation and retrofit. *Woonconnect* had passed the small-scale pilot stage and was looking for a larger-scale application. *Woonconnect* was piloted in De Bunders because it appeared to be most efficient approach for rather homogeneous neighbourhoods with similar types of houses, as is the case in De Bunders. The idea was to identify the technical solutions that residents might apply (eg wall insulation, renovation of roofs or triple glass) and match this demand with specialised contractors. The tool and service were appreciated by homeowners; however, it appeared to be challenging to find contractors capable of offering suitable products or services for private homeowners.<sup>30</sup>

iii. *Citizens.* Involving residents in the transition was another element of the project manager's plan: "We have to help residents in making decisions", he said during a focus group discussion.<sup>31</sup> His goal was to engage people in the process and, at the same time, mobilise and enable people to start saving energy. He set up a focus group (in Dutch: "*klankbordgroep*") for the heat plan and organised a neighbourhood festival on a Saturday where neighbours could get inspiration and information.

At the start of the project, the local community energy initiative DEC was still exploring its role in the heat transition. DEC had already provided an independent platform for citizens to share experiences about products and measures. DEC had co-developed a local wind energy project, *Spinderwind*, and several solar energy projects. DEC had been active for some years in Oisterwijk. They possessed organisational resources and capabilities and a strong local network. Working in a neighbourhood approach related to the heat transition was new for them, however.<sup>32</sup>

<sup>28</sup> Project meeting in De Bunders, 5 September 2018.

<sup>29</sup> Focus group in De Bunders, 11 October 2018.

<sup>30</sup> Observation of neighbourhood festival, 28 September 2019; focus group in Elst/Elsackers (one of the other neighbourhoods), 11 April 2019.

<sup>31</sup> Focus groups in De Bunders, 11 October 2018, and in Esbeek, 28 November 2019.

<sup>32</sup> Observation of neighbourhood festival, 28 September 2019.

### *b. Roles*

Transition intermediation in the neighbourhood of De Bunders has thus taken shape in different ways. Indeed, we find that different types of actors adopted different types of intermediary roles, from systemic to regime-based, niche, process and user intermediation.

In this project, the region can be considered to be a systemic intermediary. In the Netherlands, the region is not a formal level of government but a more fluid governance arrangement that operates as an “in-between” actor or, rather, as an arena. As an outsider to the specific energy transition niche, it has thus fulfilled the role of bringing together other actors on the basis of its power to convene such actors. Although less obvious, the municipality of Oisterwijk can be said to have acted as a regime-based intermediary. While also an outsider to the specific energy transition niche, the municipality is part of the formal structures of government and has a fixed mandate to address societal issues, including the energy transition.

Furthermore, the two consultants hired, CE Delft and Twee Snoeken, are insiders to the energy transition niche and can thus be said to have operated as niche intermediaries, just like the energy cooperative DEC. They intermediated to advance their particular perspectives on and interests in the niche, which are partly complementary but can also compete with each other. At the same time, DEC also can be considered a user intermediary, representing the interests of (at least some) users and consumers. Finally, the local consultant acted as a process intermediary, serving as a linker between the systemic and regime intermediaries and the niche and user intermediaries. In that sense, he can be regarded as key in the overall intermediation process, driving novel collaborations between the other actors involved and disrupting prevailing structures and arrangements.

## **2. Intermediary actors and roles in the village of Herpt**

The second project we studied is set in Herpt, a village of 284 houses and 715 residents in the rural surroundings of the town of Heusden. All houses are privately owned, and they vary between farmhouses and detached, semidetached and terraced houses. The community is shaped by families who have been living in Herpt for generations but also by newcomers. Those who have lived in Herpt for a long time vividly remember the land consolidation in the 1950s when around 150 farms in the area were relocated. The process damaged the community’s trust in the government.

Over the course of the project, Herpt developed a vision for the Herpt energy and heat transition and a variety of activities, projects and collaborations as parts thereof. An active working group was formed, residents were informed and engaged, support for short-term interventions was provided and a feasibility study for a heat project was started. A network of stakeholders was formed, including citizens, civil servants and consultants.

### *a. Actors*

*i. Citizens.* Initially, in 2017, the local community energy initiative Energiek Heusden advocated for participation in SMILE. The Energiek Heusden member explained that he had a career in the energy production and distribution sector and that he had been active in Energiek Heusden for a long time. He was one of the partners in a regional network in the Tilburg region. He considered participation in SMILE as an opportunity to advance the goals of this network.<sup>33</sup>

<sup>33</sup> Project meeting in Heusden, 23 October 2018.

At around the same time, a group of active citizens – four villagers from Herpt – wanted to “do something with sustainability”. They co-organised a film night featuring the movie *Before the Flood* and invited people to participate in “Climate Conversations” (*Klimaatgesprekken*). In October 2018, they organised a meeting in the community centre during which they explored what their fellow citizens of Herpt would find important in relation to biodiversity, energy, mobility, etc. The group explained how they value the rural landscape and feel that it is threatened by developments such as solar parks. They also explained how land consolidations in the past, and especially the top-down governance style, had left the local community angry and frustrated.<sup>34</sup>

As a response, the group sought to actively intermediate between sustainability goals and local interests. One of the citizens, using living labs at a university, explained that she felt the need to step up in her community, but that she also liked the social aspect as she had not been living in Herpt for long. Later in the project, the group developed into the working group *Duurzaam Herpt*. In contrast to *Energiek Heusden*, the group had less expertise on technical issues but more expertise on social issues. After a while, the working group expanded into a citizen network that intermediated between users and technologies. Some residents were trained as energy coaches. The group offered house visits to their neighbours, gave advice and shared knowledge and experiences about what would work for others.<sup>35</sup>

ii. *Civil servants*. When Heusden decided to participate in SMILE, it chose the village of Herpt as a pilot project. Civil servants strategically used SMILE to mobilise different actors, such as the city council, the municipality’s department of spatial planning, community energy initiatives and citizen groups of surrounding villages. The municipality’s sustainability team started by making an effort to inspire citizens in Herpt. In Herpt, there already was a village council, which was involved in organising the abovementioned film night. It created the character *Teuntje Toekomst* to engage with primary schools and children in the area. One of the civil servants elaborated on how he was keen to engage the right people: “I need people who believe in an open process and are willing to take ownership.” He also stated: “In these conversations, I mainly talk about the process, about roles and how ownership by citizens is important.”<sup>36</sup>

The municipality of Heusden follows a specific strategy of participatory area development, illustrated by initiatives such as *Buurt Bestuurt* (in English: “The Neighbourhood Governs”). In Herpt, front-line civil servants, officially called *Mogelijkmakers* (in English: “enablers”), were mandated by the municipal organisation to work with and enable citizen initiatives. The programme manager in Heusden reflected on the organisational challenge for Heusden: “We need social innovation on the side of government as well as civil society in view of developments such as the energy transition and new environmental planning legislation.”<sup>37</sup> For this purpose, Heusden, although a rather small municipality, had a multidisciplinary team in place.

Moreover, Heusden engaged with several national-level innovation programmes such as “*Anders werken aan stad, dorp en land*” (in English: “Working differently on city, village and country”) and a programme regarding the new Environmental Planning Law using Herpt as an innovative case or pilot project. These programmes, established by national authorities such as the Ministry of the Interior, aimed to develop and disseminate knowledge on a variety of subtopics, including sustainability and energy, through collaboration with various municipalities in the Netherlands.

<sup>34</sup> Informal talk with the group of residents during field visit, 24 May 2019.

<sup>35</sup> Presentation during focus group in Herpt, 13 June 2019.

<sup>36</sup> Informal talk with civil servant, 22 May 2019.

<sup>37</sup> Project meeting in Heusden, 23 October 2018.

*iii. Consultants.* A regional consultant, who worked with the regional coordinating officer in the context of the SMILE project, helped with finding a consultant for the Herpt project. The citizen working group was supported by this consultant, who designed a planning process and mobilised her network for expert sessions about wind energy, solar energy, aquathermal heat, biodiversity, permaculture and retrofitting. Later on, a conflict arose amongst the consultants on the one hand and the municipality and the citizen group on the other hand. The municipality and the citizen group felt that the consultants no longer served the community by moving too fast to achieve their own objectives, and therefore they ended their assignment.<sup>38</sup> Subsequently, two other consultants were hired to facilitate the process of arriving at a collective vision. Their focus was on facilitating a co-creative process over a couple of sessions. They had very limited knowledge of the technical issues.

#### *b. Roles*

Just like in the case of De Bunders, transition intermediation in the village of Herpt has thus taken shape in different ways. Indeed, we find that different types of actors adopt different types of intermediary roles, from systemic to regime-based, niche, process and user intermediation.

*i. Systemic and regime-based intermediation.* Also in this project, the region, as one and the same “in-between” actors as in the case of De Bunders, can be considered a systemic intermediary. The intermediary role of the municipality is difficult to pinpoint. It acted as a regime-based intermediary in the sense that it brought together various actors at different levels. While a player in the dominant system of government, the municipality was taking a different perspective on its role, seeking to enable other actors in their efforts to, in this particular case, realise the energy transition. As such, it also seems to have served as a kind of process intermediary, itself experimenting with novel forms of governance to help steer the transition, beyond its traditional role as a local government. Were it not for the fact that the municipality is still formally part of the prevailing structure of government and was never really established to intermediate, it could even be regarded as a systemic intermediary.

*ii. Niche and process intermediation.* A group of civil servants and citizens can be said to have acted as niche intermediaries, advocating for their specific perspectives on sustainability. In fact, there were different niche intermediary actors: one group of citizens mainly approached the transition from a technical perspective, while another group approached it more from a social perspective. Whereas the former group was dominant in the early phase of the transition, the latter group gained influence in the subsequent phase. Moreover, the latter group may also be regarded as process intermediaries. Its goal was not to promote a specific technical innovation but to realise social innovation as part of a broader transition process. The consultants seem to have acted as process intermediaries, or at least that was supposed to be their role, but they did not deliver on that role, as a result of which their assignment was ended.

### **3. Transition intermediaries in De Bunders and Herpt in the acceleration stage**

The local projects in De Bunders and Herpt are typical of the acceleration stage of the energy and heat transition. In both projects the focus, at least initially, was on the deployment of technological innovations to facilitate the shift towards renewable energy

<sup>38</sup> This was discussed just before a stocktake meeting, 19 November 2019, and also in a focus group in Esbeek, 28 November 2019.

**Table 1.** Actors and roles in the acceleration stage of the energy transition.

Intermediary roles	Intermediary actors	
	De Bunders	Herpt
Systemic intermediaries	Region	Region Municipality
Regime-based intermediaries	Municipality	Municipality
Niche intermediaries	Consultants Local community energy initiative	Groups of citizens Groups of civil servants Local community energy initiative
Process intermediaries	Consultants	Consultants Municipality (especially front-line civil servants) Citizen groups
User intermediaries	Local community energy initiative	Informal network of citizens

sources. Hardly any attention was devoted to the behavioural change required to reduce demand. Actors in the two cases pursued local, participative and area-oriented approaches for deep retrofitting of the existing housing stock combined with other energy innovations, such as solar energy, heat pumps and (new-generation) heat networks. These innovations did not automatically align with wider changes in the system, necessitating a broader view.

Transition intermediation in this stage has thus taken shape in a variety of ways. The two cases show increased complexity of governance, with a multitude of actors playing an intermediary role, from the regional (coordinating officer, project manager) and municipal (alderman, policy officers, front-line civil servants) to consultants (individuals and firms), local community energy initiatives and citizens (individuals and groups). Moreover, several of these actors took on different intermediary roles: the region and the municipality acted as both systemic and regime-based intermediaries; citizens and community energy initiatives acted as niche, process and user intermediaries; and consultants acted as both niche and process intermediaries. Indeed, transition intermediation involved a mixture or an ecology of different types of actors adopting different types of intermediary roles. See Table 1 for an overview of the actors and roles in the acceleration stage of the energy transition.

In both cases, we find that the Tilburg region acted as a systemic intermediary. As part of the SMILE project, it stimulated the development of projects around specific transition goals and engaged strategic partners across levels, organisations and sectors. It mobilised local stakeholders for action, connected capacity and resources across places and facilitated learning and networking. As regions lack formal status in the Netherlands, the region's capacity is sourced from its municipal network (a civil servant from one of the municipalities assuming a coordinating role) by hiring external capacity or by teaming up with partners (such as the university).

Also in both cases, the municipality acted as a regime-based intermediary. It allocated capacity to participate in a project linked to the local energy transition. It engaged in learning purposes and in identifying and overcoming challenges in practice. It funded other actors in the projects. We find differences between the cases, however. In the case of Herpt, the municipality of Heusden also fulfilled other intermediary roles. Notably, it assumed the role of process intermediary through its front-line public officials. These officials organised citizen engagement and collaboration between the municipality and

citizens. They networked with others by attending and organising meetings and events. They paid attention to communications and relationships. They worked towards a vision and overarching goal. Moreover, a team of civil servants operated as niche intermediaries by actively pursuing a vision of sustainability and of how governance should be arranged in terms of both their own organisation and society. They adopted an integrated approach to the transition and were dedicated to community engagement and ownership of the transition.

In the cases of both De Bunders and Herpt, local community energy initiatives acted as niche intermediaries by advocating for clean energy and community involvement. At the same time, they were still figuring out their specific role in the (for them) “new” domain of the local energy and heat transition. Again, we find differences between the two cases. In the case of De Bunders, the local community energy initiative assumed the role of a user intermediary by sharing knowledge and experiences about retrofitting and clean energy among their members and other citizens. In the case of Herpt, however, it was a group of local citizens that acted as niche intermediaries by promoting their vision of a sustainable future in their own locality and by attracting support for this vision and building coalitions around it. Groups of citizens also operated as process intermediaries by navigating between the different involved interests. Residents played a role as user intermediaries by sharing experiences with neighbours about, for example, saving energy, retrofitting their houses or using sustainable energy.

Finally, in both cases, consultants fulfilled the role of process intermediaries. They coordinated projects and engaged stakeholders within the frameworks set by the project goals and budgets. Even though some adopted a more substantive approach, they generally were concerned about the process, as also is demonstrated in their work pertaining to citizen participation. Many consultants were outsiders to the local setting, but sometimes they were part of existing local networks. In contrast to the case of Herpt, consultants also functioned as niche intermediaries in the case of De Bunders. They actively advocated for instruments and tools to speed up the transition, and they also developed such instruments and tools themselves, fitting their products to the local context.

## V. Discussion and conclusion

This article aimed to improve our understanding of intermediation in the acceleration stage of the energy transition at the local level. The guiding question of our inquiry was: how does local transition intermediation take shape in the acceleration stage of the energy transition? The study examined the role of transition intermediaries in two local energy projects in the Netherlands, specifically the neighbourhood of De Bunders and the village of Herpt in the Tilburg region, which are representative of the acceleration stage of the energy transition. These projects focus on the selection and application of technological innovations. Our analysis and description of the cases are based on extensive qualitative research, including participatory observation, interviews and focus groups. Employing an abductive approach, we iteratively and recursively moved between theory and data, continuously learning from and through the cases throughout the research process.

We found that a range of actors can assume roles of transition intermediaries at the local level, including regional entities, consultants, civil servants and citizens. Interestingly, some actors fulfilled multiple intermediary roles simultaneously, while other actors also performed similar roles at the same time. For example, civil servants and residents both took on the role of process intermediaries in different instances. Differences were observed when comparing the cases of De Bunders and Herpt, particularly in the intermediary roles played by the municipality and citizens. In De Bunders the municipality primarily acted as a regime-based intermediary, whereas in Herpt it also played a crucial

role as a process intermediary, facilitating interactions among different actors. Reflecting the unique challenges of the acceleration stage of the energy transition, intermediation in the case of Herpt (and more so than in De Bunders) centred around linking public policymaking procedures, urban and regional planning and citizen and stakeholder engagement processes.

The contribution of the article is twofold. First, it demonstrates the significance of transition intermediaries in the acceleration stage of the energy transition and expands our understanding of their roles beyond the early stages of the transition.<sup>39</sup> The study identifies implications for transition intermediation, particularly the importance of aligning innovations with existing institutional configurations and tailoring solutions to local contexts. Moreover, it highlights the significance of connecting the energy transition to broader societal developments and involving citizens in local and regional governance arrangements.

Second, and closely relatedly, we demonstrate that the local level serves as an important arena for aspirations and actions related to the energy transition. Cities and regions are actively planning for the heat transition and engaging a host of actors in a variety of roles. Contributing to the literature on urban intermediaries,<sup>40</sup> which focuses on local actors driving change through making connections, we elucidate who these actors are and what roles they play in advancing neighbourhood energy transitions. Each leveraging their distinct capabilities and qualities, consultants, civil servants and citizens all fulfil key intermediary roles. Our findings confirm that, also at the local level, transition intermediation entails a mix of different actors assuming diverse intermediary roles.

Despite the contributions of this article, it is important to note that our study is exploratory in nature, and further research is necessary to draw more comprehensive conclusions. First, while we aimed to maintain an independent role as researchers, the fact that our university was a partner in the regional project might have unintentionally influenced our results. We may have inadvertently played an intermediary role in the process ourselves. Second, although we conducted extensive qualitative research, our study only encompasses two cases within a specific setting, part of the same region and project, which may impact the generalisability of our findings. Therefore, additional research examining cases in different settings is warranted. Lastly, the energy transitions we examine unfold over long periods and across geographical and administrative scales, whereas our case studies were limited to a few years and primarily focused at the local level. Consequently, conducting more longitudinal and cross-sectional studies on transition intermediation is necessary to account for these temporal and spatial dimensions.

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**Competing interests.** The authors declare none.

<sup>39</sup> Kivimaa et al, supra note 2; Kivimaa and Martiskainen, supra, note 3; M Hodson and S Marvin, “Cities mediating technological transitions: understanding visions, intermediation and consequences” (2009) 21 *Technology Analysis & Strategic Management* 515; Rohracher, supra, note 4; Kivimaa, supra, note 4; Kivimaa et al, supra, note 4; Hodson and Marvin, supra, note 5.

<sup>40</sup> See supra, note 6.

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