

Changing the rules

How institutional entrepreneurs facilitate institutional change in the energy transition



Radboud Universiteit Nijmegen

Name: Jelte Jorritsma

Student-number: s4781414

E-mail: j.jorritsma@student.ru.nl

Supervisor: I.F. Beenakker

2nd reader: Dr. H.L Aalbers

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1. Introduction

The change in the way we generate energy, a transition from fossil fuels to sustainable power, has been getting a lot of attention in the recent years. This so-called energy transition is usually brought up as a solution to climate change, which is a well-known and worldwide problem. Examples of the effects of climate change in the Netherlands are more extreme weather, increased risk of floods and extinction of native animal-species (Ministerie van Infrastructuur en Waterstaat, 2020). To mitigate these effects, an energy transition is necessary. Geo-political developments also add to the call for a quick transition. For example, not being dependent on Russia, which uses its gas as a means for political pressure (Zeeuw, 2014), is also an important benefit of the energy transition.

This energy transition seems to take place on an international and national scale. Wind turbines on the North-sea and solar panels on buildings are examples that come to mind. There has been a lot of attention for these big projects, which are mainly initiated or subsidised by the state government. Regional and local initiatives, however, are a substantial part of the Dutch climate change policies as well (Ministerie van Economische zaken en Klimaat, 2020). For example, the Dutch climate plan focusses partly on ‘Regional Energy Strategies’ (RES), where the provinces and water authorities work together on a regional scale to consider generating sustainable energy and the heat transition (Ministerie van Economische zaken en Klimaat, 2020). Another one of these regional initiatives is the ‘Gelders Energieakkoord’ (GEA), which operates on a provincial scale. Through the use of ideas and innovations GEA aims to change the way we travel, eat, live, produce and work to stop further global warming. The aim is to make the province of Gelderland energy neutral by 2050 (Gelders Energieakkoord, 2021). Furthermore, local energy initiatives (LEIs), being ‘any early-stage development of citizen-led decentralize energy projects’ have been receiving increased attention in research as well (Hasanov & Zuidema, 2018). These lower spatial scales are interesting, because they include local initiatives that experiment and learn, for example within communities of practice (Gelders Energieakkoord, z.d.). Learning and experimentation are important for the success of these initiatives. These local energy transition initiatives could potentially play a substantial part in the Dutch gas disconnection and general energy transition, if they are successful.

Institutions are ‘the rules of the game’ in a society, which means that institutions are the formal rules and the informal restraints that shape human interaction (North, 1990). Conforming to institutions is important for an organisation, because this leads to legitimacy, which means that the behaviour of an organisation is supported (DiMaggio & Powell, 1983;

Meyer & Rowan, 1977; Scott & Meyer, 1983). Prevailing institutions have a large influence on decisions of entrepreneurs (Tolbert, David, & Sine, 2011), and are thus relevant for entrepreneurial endeavours in the energy transition. However, institutions are often hard to change and rigid, which leads to inertia (Geels, 2004). Local initiatives in energy transition can thus face challenges in the rigidity of institutions. Furthermore, there is severe regime resistance against low-carbon transitions, because fossil fuels are the institutionalized means of producing energy as of now (Geels, 2014). In part, this resistance relates to institutional power, which means the institutional context facilitates the strategies of incumbent actors and thus helps these actors in their resistance against energy transition initiatives (Geels, 2014). Furthermore, the incumbent actors use the regime to resist institutional change to defend their vested interests (Lockwood, Mitchell, & Hoggett, 2019). This results in the activities initiated by local energy initiatives (LEIs) being illegitimate, because their activities are not in line with the current institutionalized norms, which means the initiative can lose societal support (Meyer & Rowan, 1977). Subsequently, change of these institutions is necessary for starting and legitimizing the local energy transition initiatives (Suchman, 1995). This means institutional change is a necessity for realising the (local) energy transition. Furthermore, to accomplish this institutional change, overcoming the regime resistance against low-carbon transitions is necessary (Geels, 2014).

The antecedents of institutional change have been researched extensively. Institutional change in the context of the energy transition and the role of institutional entrepreneurs, being actors who leverage resources to create new or transform existing institutions (Dimaggio, 1988), has been receiving increasing amounts of attention in research as well. These actors can be an important catalyst for the necessary institutional change (Battilana, Leca, & Boxenbaum, 2009). They are still the subjects of existing institutional pressures, but also influence the institutions by coming up with new practices (Van Den Hoed & Vergragt, 2004). It is, however, interesting to see how institutional entrepreneurs within local energy transition initiatives influence institutions to facilitate institutional change and overcome regime resistance.

These local initiatives in the energy transition have been learning and experimenting, setting up new networks and communities of practice to set up the energy transition in local communities in Gelderland (Gelders Energieakkoord, z.d.). Within these communities of practice current practices can be replaced with new practices (Vetter, 2020). This can help with or lead to institutional change. These local initiatives might thus be able to use an entrepreneurial mindset to change the prevailing institutions. However, the role of small entrepreneurial energy transition initiatives within institutional change has not been researched

yet. If these initiatives act as institutional entrepreneurs, how do they do this? What methods and/or tactics do they employ to change the institutions surrounding the energy transition? How do they overcome regime resistance from incumbent actors?

Earlier research has covered the role of institutional change and institutional entrepreneurs in sustainability initiatives (Heiskanen, Kivimaa, & Lovio, 2019; Jolly, Spodniak, & Raven, 2016; Mahzouni, 2019; Milchram, Märker, Schlör, Künneke, & van de Kaa, 2019; Ren & Jackson, 2020; Sánchez & Leadem, 2018). Furthermore, the role of regime resistance against sustainability advancements has been studied extensively as well (Becker, Franke, & Gläsel, 2018; Geels, 2002, 2014; Lockwood et al., 2019; Penna & Geels, 2012; Trencher, Healy, Hasegawa, & Asuka, 2019). This research, however, will provide a better view of the extent to which regime resistance could hinder institutional change in the context of local energy transition initiatives. Furthermore, by exploring the methods and tactics of facilitating the institutional change process within the energy transition, we can advance knowledge on useful tactics in the facilitation of institutional change by institutional entrepreneurs in energy transition initiatives. Lastly, the combination of the elements of institutional entrepreneurs and regime resistance can offer an explanation of the ways in which institutional entrepreneurs can overcome regime resistance.

The objective of this study is to create a better understanding of how institutional entrepreneurs facilitate institutional change in order to help local initiatives in the energy transition. In order to reach the aforementioned research objective, the following research question needs to be answered: *“How do institutional entrepreneurs facilitate institutional change in order to help the energy transition?”*

The relevance of this study lies in the new insights it will give on exactly how institutional entrepreneurs facilitate change in local energy transition initiatives. This will contribute to the theory on institutional entrepreneurship. Institutional entrepreneurs have been studied extensively in the context of emerging (upcoming) fields (David, Sine, & Haveman, 2013; Maguire, Hardy, & Lawrence, 2004) and sustainability initiatives (Heiskanen et al., 2019; Mahzouni, 2019; Ren & Jackson, 2020; Sánchez & Leadem, 2018), but not in the context of local energy transition initiatives and in opposition to the resistance by incumbent regime actors (Geels, 2014). In this context, the actors facilitating institutional change are smaller organisations than the institutional entrepreneurs that have been studied extensively, such as the aforementioned studies. It is interesting to see what the institutions are that these initiatives face and which tactics these actors employ to overcome regime resistance and facilitate change in these institutions. Furthermore, the research goes further than other studies, because the

methods and tactics that institutional entrepreneurs use are examined with more detail at a microlevel. This microlevel is important, because the mismatch between macro systems and micro activities is an important source of institutional change (Scott, 2008). At the same time, the knowledge of institutional change in the energy transition is extended by adding the concept of institutional entrepreneurship.

This study can also contribute to practice, by showing through which methods and/or tactics actors in (local) energy transition initiatives can overcome regime resistance and facilitate the institutional change that is necessary for the energy transition to succeed. This is useful for the aforementioned actors, because via this knowledge they can learn how to become successful institutional entrepreneurs. This means they can change the relevant institutions to legitimize their local energy transition initiatives, and thus gain necessary societal support. This knowledge can be used by institutional entrepreneurs to facilitate institutional change more effectively and efficiently in other LEI's, to speed up the energy transition in the Netherlands.

To reach this objective a LEI, the 'Wijk van de Toekomst'-project of the 'Gelders Energieakkoord' (GEA), is studied. This project focusses on the gas disconnection in neighbourhoods in Gelderland, which is an important element of the energy transition. The project is studied to find out how institutional entrepreneurs, such as individuals or organisations that participate in the 'Wijk van de Toekomst'-project, facilitate institutional change to make the local energy transition initiatives succeed. In addition, the role of regime resistance in the existing need for institutional change is studied as well.

The outline of this study is as follows. In this first chapter, the cause and relevance of the research problem was given. Furthermore, the research objective and research question(s) were formulated. In the second chapter, an outline of the relevant theory is given and relations between the different concepts will be proposed. Of these relations, a conceptual model will be constructed. In the third chapter, the methodology of this study is elaborated. The fourth chapter contains the results of the analysis that was carried out. The fifth chapter contains a discussion of the results, the limitations of this study and directions for future research. Lastly, in the sixth and last chapter the research question will be answered.

2. Theoretical background

2.1 Institutional change

Institutional change is, as the name suggests, the changing of institutions. In this paragraph, the concept of institutions and its effects are explained. Furthermore, it is elaborated how these institutions are important for organisations because of their need for legitimacy, followed by an explanation how this leads to inertia. Lastly, the concept of institutional change itself is elaborated further.

2.1.1 Institutions

Institutional change is a change of institutions. These institutions are the formal rules and the informal restraints that shape human interaction, more informally the ‘rules of the game’ (North, 1990). ‘Institutions are social structures that have attained a high degree of resilience. Social structures include norms, values, expectations, procedures, standards and routines.’ (Scott, 2001). These social structures have often existed for extended periods of time, with only small changes in between (Van Den Hoed & Vergragt, 2004). These institutions are meant to lessen the uncertainty in a community by structuring human interaction (North, 1990). Institutions thus create constancy, but also inertia (Voinea & Van Kranenburg, 2017). Whereas old institutionalism proposed that institutions and the environment are created by organisations and people (Delmas & Toffel, 2008; Michels, 1962; Selznick, 1953), new institutionalism argues that the external context and routines determine organisational change (DiMaggio & Powell, 1983). This leads to institutional isomorphism, where organisations become more and more similar (DiMaggio & Powell, 1983). This, in turn, will lead to stability (Meyer & Rowan, 1977).

Institutions are made up of institutional pressures (Voinea & Van Kranenburg, 2017). Three sources of institutional pressure were determined by DiMaggio and Powell (1983), being coercive, normative and mimetic pressures (Zhao, Fisher, Lounsbury, & Miller, 2017). Coercive pressure ‘come from legal mandates and regulations provided by regulatory bodies like the government’ (Voinea & Van Kranenburg, 2017, p. 36). Normative pressures, on the other hand, stem ‘from the similar attitudes and approaches of peer, professional groups, associations or society at large’ (Voinea & Van Kranenburg, 2017, p. 36). Lastly, mimetic pressures come ‘from the desire of organizations to overcome uncertainty by copying practices or technology of successful organizations, role models or competitors in an industry that are

regarded as appropriate or taken-for-granted' (Voinea & Van Kranenburg, 2017, p. 36). It is through these pressures that institutions are felt by organisations and lead to stability. Organisations that want to employ new activities thus need to overcome these pressures and change the relevant institutions.

Institutions in the form of formal rules, informal constraints and social structures (institutional pressures) (North, 1990; Scott, 2001), need to be distinguished from institutions in the sense of (nonmarket) actors, such as political institutions or regulatory authorities (Voinea & van Kranenburg, 2018). These actors are partially responsible for the aforementioned institutional pressures, since these actors enforce the relevant institutions in the organisational field (Voinea & Van Kranenburg, 2017, 2018). In this study, 'institutions' refer to the aforementioned formal rules, informal constraints and social structures (North, 1990; Scott, 2001), unless otherwise stated.

Furthermore, institutional theory has a point of overlap with network theory, because institutional theory is about formal and informal rules, which influence the relationships between and within organisations. These relationships can be either formal or informal (Aalbers, Dolfsma, & Koppius, 2014), which implies the existence of laws, rules and social norms. These contacts are important for knowledge flow within (Aalbers & Dolfsma, 2015; Aalbers & Dolfsma, 2017; Aalbers et al., 2014; Diamond & Rush, 2012) and between organisations (Burt, Kilduff, & Tasselli, 2013; Cross, Laseter, Parker, & Velasquez, 2006; Kratzer, Lettl, Franke, & Gloor, 2016). The knowledge flow and network centrality are important for the innovative capabilities of organisations (Aalbers et al., 2014; Wang, Zhao, Dang, Han, & Shi, 2019), which is of importance to institutional entrepreneurs (Albertini & Muzzi, 2016; Lounsbury & Crumley, 2007). These networks can also be a way to navigate institutional voids (Ivy & Perényi, 2020). There is thus reciprocal influence between institutional- and network theory. However, this is beyond the scope of this study, which focusses specifically on the methods employed by institutional entrepreneurs. Network theory will thus not be a part of the analysis.

2.1.2 Legitimacy

These institutional pressures are felt by organisations because these organisations have a need to be legitimate within their institutional environment (Voinea & Van Kranenburg, 2017). The need for legitimacy is thus what makes institutions important for organisations. To be legitimate is to have ones behaviour be supported within the concerning social system (Scott & Meyer, 1983). 'Legitimacy is a generalized perception or assumption that the actions of an

entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions' (Suchman, 1995). These 'system of norms, values, beliefs and definitions' are the aforementioned institutions. What behaviour is legitimate, is thus determined by the institutional environment (DiMaggio & Powell, 1983). The institutions that define what behaviour can be legitimized become ingrained in a society and are very hard to change (Voinea & Van Kranenburg, 2017). Organisations have a tendency to conform to institutional norms, as not conforming to these norms threatens the legitimacy of the firm, which in turn threatens the survival of the organisation (Bansal, 2005). According to Meyer and Rowan (1977), by incorporating institutional norms, an organisation 'becomes legitimate, strengthening its societal support and securing its survival (Voinea & Van Kranenburg, 2017). Society is most likely to supply resources to organizations that appear desirable, proper, or appropriate (Parsons, 1960). It is necessary to conform to institutions in order to gain legitimacy. However, it is also possible that institutional change legitimizes new activities (David et al., 2013).

From the literature, we can thus conclude that institutions are important for organisations because these institutions determine the legitimacy of organisations. In turn, legitimacy is important for the survival of the organisation, because without legitimacy organisations, including LEIs, lack societal support (Meyer & Rowan, 1977).

The need for legitimacy is thus what makes institutional change necessary. If an entrepreneurial actor wants to employ a new activity that is not in compliance with current social norms or other types of institutions, the activity will be illegitimate. If the institutions change, for example because of the work of institutional entrepreneurs, in such a way that the activity is now in compliance with the institutional context, the activity and the actor have been legitimized (David et al., 2013). Legitimacy is thus an important element in the study of institutions and institutional change.

2.1.3 Inertia and regime resistance

Conforming to the institutional environment leads to stability (Meyer & Rowan, 1977). Furthermore, isomorphism, where organisations imitate other organisations' structures and activities, leads to less uncertainty in the organisational environment (DiMaggio & Powell, 1983). The source of this stability can be found in the existence of the institutional pressures in the organisational environment (Van Den Hoed & Vergragt, 2004). However, besides this stability, the conformism to institutional pressures can also lead to organisational inertia (Geels, 2004). This inertia can hinder climate change policies, because when conventional methods are

legitimized at the expense of newer ones, new climate change adaptation methods cannot find legitimacy and thus remain unused (Munck af Rosenschöld, Rozema, & Frye-Levine, 2014). Furthermore, the institutional environment is known to be important for (corporate) sustainability initiatives (Bansal, 2005). Institutions and institutional pressures can encourage or hold back innovation, but this is dependent on the nature of the institutions themselves. Institutions can be rigid and unsuited for innovations, or be flexible and adaptable to innovations (Robertson & Langlois, 1994). Because the inertia caused by institutions can be rigid and thus hold back innovation and climate change policies, it creates a need for institutional change.

Inertia is, however, not the only source of (problematic) stability in the institutional field. This stability is also the result of active resistance by incumbent regime actors (Geels, 2014). This regime resistance partly comes from the routine-based behaviour of engineers and firms, which leads to technological regimes. This leads to stability, because the regime lead innovative activities along a trajectory to incremental improvements (Geels, 2002). This does not leave much room for the much-needed fundamental change in the energy sector. When the regime is confronted with problems and tensions surface, the linkages between actor groups loosen up. Only then opportunities for radical innovation stand a change (Geels, 2002). Problems and tension, in the form of climate change and the need for an energy transition, are currently present (Trencher et al., 2019). However, incumbent regime actors actively resist against the needed radical innovation (Becker et al., 2018; Geels, 2014; Lockwood et al., 2019; Penna & Geels, 2012; Trencher et al., 2019). Even more, these incumbents can resist against changes in the institutional context. The customary resistance to institutional change is thus enhanced by the active regime resistance of incumbent actors (Lockwood et al., 2019). These actors are thus to oppose institutional change through the use of regime resistance.

LEIs, such as the 'Wijk van de Toekomst'-project, propose radical innovation and fundamental change in the way we generate and use energy (Hasanov & Zuidema, 2018). The proposed change threatens the core capabilities of fossil energy producers, which means industry resistance is likely to be very intense (Penna & Geels, 2012). LEIs and likewise forms of energy transition initiatives, such as community based initiatives (CBIs), face challenges in the rigidity of institutions and active regime resistance (Becker et al., 2018; Geels, 2014). For example, incumbent actors try to form barriers to try to prevent CBIs from acquiring and maintaining a legal organisational form. However, CBIs have been able to overcome this resistance (Becker et al., 2018). Comparable initiatives to the 'Wijk van de Toekomst'-project are thus able to overcome the regime resistance of incumbent actors.

The combination of institutional rigidity and regime resistance thus leads to inertia, which can hold back innovative processes (Robertson & Langlois, 1994). This creates a need for institutional change. It is interesting to see what role institutional entrepreneurs play in the opposition to regime resistance and the facilitation of institutional change in the context of LEIs.

2.1.4 Institutional change

Institutional change is caused by the institutionalisation of new social norms. This process starts with the de-institutionalisation of current institutions, ‘the erosion or discontinuity of an institutionalised organisational activity or practice’ (Oliver, 1996; Scott, 2001). This is followed by the institutionalisation of new norms, which is ‘the process by which activities come to be socially accepted as ‘right’ or ‘proper’, or come to be viewed as the only conceivable reality’ (Oliver, 1996). Institutional change is thus the acceptance or internalisation of behaviour which was formerly not acceptable (Oliver, 1996; Scott, 2001; Van Den Hoed & Vergragt, 2004). Institutions change in differing speeds. Some institutions, such as social norms and values (Roland, 2004), are slow-moving. These institutions change constantly in an incrementally manner (North, 1990). The institutional change usually contains small adjustments to the complex of rules, norms and their enforcement that make up the institutional framework (North, 1990). This is endorsed by the observation of Lewis and Steinmo (2012) that incremental institutional change follows the principles of an evolutionary change, because evolutionary change is a slow process, this implies a slow transition of institutions. Because of the institutional inertia, incremental adjustments to the institutional environment are easier and much more likely than big and discontinuous changes. These incremental changes do not, however, rule out the possibility of discontinuous institutional change. (Genschel, 1997)

Fast-moving institutions, such as political institutions, change rapidly, in a more discontinuous way and in large steps (Roland, 2004). However, it can be said that no institutional change is completely discontinuous, because of the integration of informal institutions that show a historical path of the change (North, 1990). This means that institutions are constantly changing incrementally, occasionally interrupted by discontinuous change. It can thus be concluded that institutional change can occur incrementally or discontinuously, but these forms of institutional change are not mutually exclusive.

Institutional change can be caused by a great variety of sources. For example, slower institutional change can find its antecedents in the changing of values (Milchram et al., 2019). When the values in a society change, the subsequent norms and regulations (institutions) will

change as well, but this is a slow process. Exits and new entries, external shocks or crises, new technologies and practices or market changes, however, are sources of a more sudden institutional change (Van Den Hoed & Vergragt, 2004). Changing government regulations, performance problems and crises are also known to lead to deinstitutionalisation (Oliver, 1992), and in turn institutional change. For example, performance problems and crises tend to cast doubt on the procedures of the organisation, which creates room for new procedures and routines to develop (Oliver, 1992)

As aforementioned, institutions are rigid and can lead to inertia (Geels, 2004). This is enhanced by severe regime resistance to low-carbon transitions (Geels, 2014). This makes institutional change necessary for LEIs, so the energy transition initiatives can still become legitimate. If actors in the energy transition want to become legitimate by changing institutions, they will have to initiate change themselves. This is where institutional entrepreneurs come in.

2.2 Institutional entrepreneurs

In addition to the aforementioned sources, institutional change can also be caused by the work of institutional entrepreneurs, who proactively change existing institutions and build new ones. The concept of institutional entrepreneurship was first introduced by DiMaggio in 1988. DiMaggio (1988) and Battilana et al. (2009) have defined institutional entrepreneurs as ‘actors who initiate, and actively participate in the implementation of, changes that diverge from existing institutions’. According to Battilana et al. (2009), actors must ‘initiate divergent changes’ as well as ‘actively participate in the implementation of these changes’, in order to be regarded institutional entrepreneurs. Divergent changes are changes that break with the institutional context of the organisational field (Battilana et al., 2009). Actors must also participate in the implementation, by ‘actively mobilizing resources to implement change’. These actors do not need to aim for changing the institutional environment or even know their actions might change institutions, nor do they need to be successful (Battilana et al., 2009). The actors that act as institutional entrepreneurs can do this in different levels of action, being individual, organisational or institutional (Mahzouni, 2019). The LEI that is researched in this study acts as an institutional entrepreneurs on an organisational level, since they are “..formal organisations and networks, within defined boundaries such as a neighbourhood or rural community to mobilise resources for change” (Mahzouni, 2019). This distribution within levels of action by Mahzouni (2019) should, however, be distinguished from the fact that (groups of) individuals and (groups of) organisations can be actors that operate as institutional entrepreneurs (Battilana et al., 2009). The levels of action of (Mahzouni, 2019), are the levels

in which actors encounter and influence institutions in the field of the energy transition, while individuals or organisations are just examples of actors that can operate as institutional entrepreneurs (Battilana et al., 2009).

Organisations are capable of facilitating institutional change by proposing new practices. They are still the subjects of existing institutional pressures, but also influence the institutions by coming up with new practices (Van Den Hoed & Vergragt, 2004). Maguire et al. (2004) have found that successful institutional entrepreneurship in emerging fields consists of three sets of critical activities, concerning subject positions, theorisation and institutionalisation. The entrepreneur tends to be an actor whose subject position provides them with legitimacy and access to resources. Theorisation consists of translating the interests of stakeholders and developing coalitions with these stakeholders through tactics as bargaining, negotiation and compromise. Lastly, through institutionalisation the entrepreneur links his new practice to existing organisational routines and aligns them with the values of the stakeholders (Maguire et al., 2004). Emerging fields, which are new and upcoming organisational fields, such as the field of energy transition, supply institutional entrepreneurs with space and materials to build new institutions from, because these fields haven't matured into fields with institutionalized norms. However, this needs to be done in a way that appeals to differing groups of stakeholders (Maguire et al., 2004). The wants and needs of stakeholders are thus important for institutional entrepreneurs and should be kept in mind when trying to facilitate institutional change. Institutional entrepreneurs are usually new actors in emerging fields, but can also be embedded organisations in mature, highly institutionalized fields (Greenwood & Suddaby, 2006). One of the challenges of emerging fields is the presence of institutional voids, which can hinder the strategic possibilities of (institutional) entrepreneurs (Gao, Gao, Zhou, & Huang, 2015; Tang, Tang, & Cowden, 2017; Xiao, Chen, Dong, & Gao, 2021). These voids can consist of under-developed economic institutions (Ge, Stanley, Eddleston, & Kellermanns, 2017), imperfect legal systems (Ge et al., 2017; Sheng, Zhou, & Li, 2011), cultural tendencies and social mindsets (Bruton, Ahlstrom, & Obloj, 2008; Yamakawa, Peng, & Deeds, 2008), which discourage entrepreneurial initiatives. Organisations can attempt to fill these voids by developing an institutional infrastructure, either alone or in collaboration with other organisations (Ahuja & Yayavaram, 2011; Dutt et al., 2016; Gatignon & Capron, 2020; George, McGahan, & Prabhu, 2012; Luo & Chung, 2005; McDermott, Corredoira, & Kruse, 2009). Furthermore, central or local governments can shield actors in these emerging fields against these adverse effects by institutional support, for example through the use of legitimacy

and policy benefits (Chen, Heng, Tan, & Lin, 2018; Peng & Luo, 2000; Xiao et al., 2021; Xu, Huang, & Gao, 2012; Zhang, Ma, Wang, Li, & Huo, 2016).

Institutional entrepreneurs are also capable of establishing and legitimizing new organisational forms (Rao, 1998). By changing these institutions, new ideas or solutions of the entrepreneurs can be legitimized (David et al., 2013). This is important, because institutions play a big role in deciding on an organisational form (Tolbert et al., 2011). Furthermore, self-organisation plays a big part in local energy initiatives (Arentsen & Bellekom, 2014; Hasanov & Zuidema, 2018; Parkhill et al., 2015; Van Der Schoor & Scholtens, 2015). The creation of new organisational forms is also opposed by regime resistance (Becker et al., 2018) The creation and legitimization of a new organisational form takes place in three discrete levels, the individual, organisational and societal levels, which should again be distinguished from the levels of action of Mahzouni (2019). Each of these levels play an alternate but complementing role in the changing of institutions (Tracey, Phillips, & Jarvis, 2011). In this study, the focus is on LEIs that legitimate their organisational form and goals through alignment with appropriate and legitimate discourse and actors, which means the focus is on institutional change on the societal level. The institutional entrepreneurs are acting within an organisational form but try to change the institutions on a societal level. To legitimize the organisational form and the goals of the LEI, their actions have to be in alignment with the institutions on the macro or societal level. Subsequently, the institutional change should also take place on a societal level (Tracey et al., 2011). Institutional entrepreneurs can legitimize the new organisational form by employing frames to make the form seem necessary, valid and appropriate (Rao, 1998). Tracey et al. (2011) named the actions of institutional entrepreneurs to facilitate institutional change 'institutional work'. They found six types of institutional work, being: 'framing the problem, counterfactual thinking, building the organisational template, theorizing the organisational template, connecting with a macro discourse, and aligning with highly legitimate actors' (Tracey et al., 2011). Known tactics for facilitating change in market-oriented institutions are open advocacy, private persuasion, making a case of exception and acting against institutions and justifying it later (Li, Feng, & Jiang, 2006). Entrepreneurs have also been found to legitimize their actions through social engagement and distancing oneself from the groups where social norms apply (Bjerregaard & Lauring, 2012).

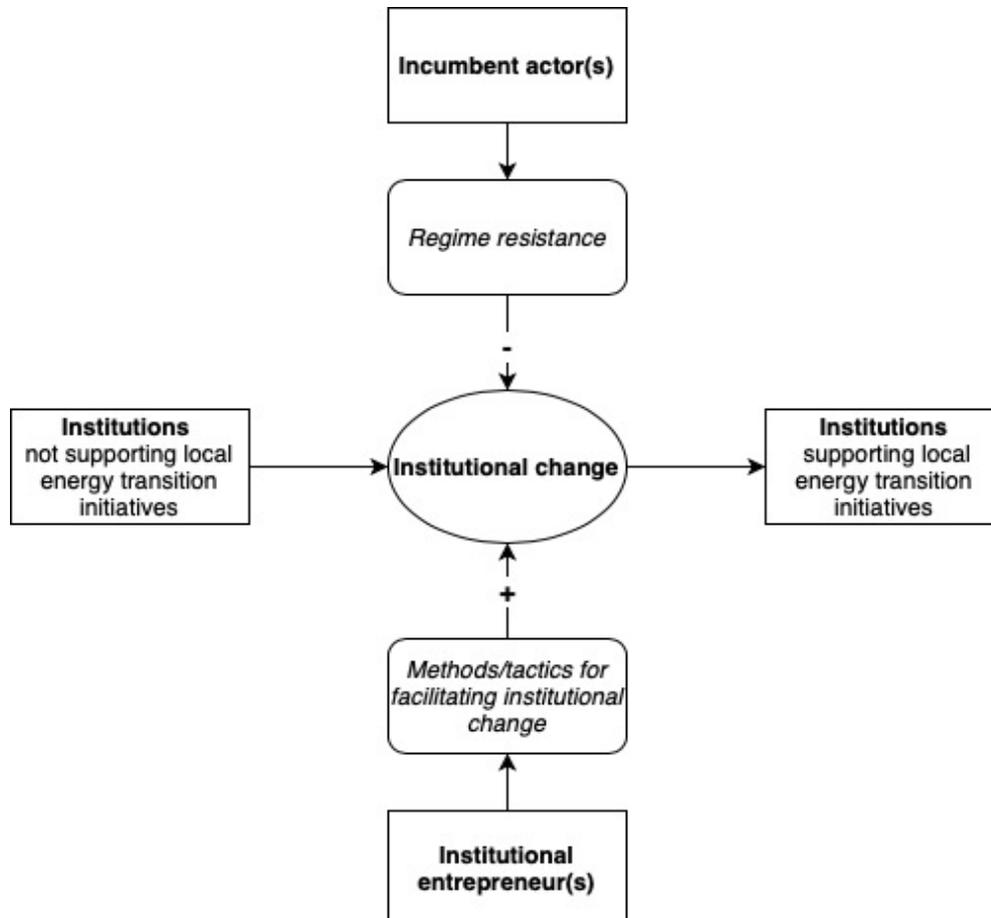
The role of institutional entrepreneurs in sustainability initiatives has been receiving increasing amounts of attention in research as well. Perhaps most relevant to the case of this research are the studies by Mahzouni (2019) and Hasanov and Zuidema (2018). Mahzouni (2019) found that institutional entrepreneurs in the studied energy community realise the

institutionalisation of their idea through the articulation of a vision for radical change in the local energy system and mobilisation of the local resources to support its implementation. Furthermore, by creating an organisation for the implementation of their vision, the entrepreneurship was brought up to the organisational level, which enhanced the commitment and trust necessary for the legitimisation of the energy transition (Mahzouni, 2019). Hasanov and Zuidema (2018) found that LEIs focus on the development of shared visions and the strengthening of the local character of each initiative, which is in line with previous research (Parkhill et al., 2015; Van Der Schoor & Scholtens, 2015). They do not, however, mention this as a way of facilitating institutional change.

There are thus many ways in which institutional entrepreneurs facilitate institutional change. It is interesting to see, however, how institutional entrepreneurs facilitate institutional change and oppose regime resistance within local energy initiatives.

2.3 Integration and conceptual model

The conceptual model below visualizes the proposed relationships within this research question. This model uses the relevant theoretical concepts and their proposed relationships.



As can be seen in the conceptual model, the core concepts are institutions, institutional change, institutional entrepreneur(s), incumbent actor(s) and regime resistance.

Institutions have an effect on energy transition initiatives. In this study and conceptual model the institutions are the formal rules and the informal restraints that shape human interaction (North, 1990), and explicitly not nonmarket institutions such as (regulatory) authorities as described by Voinea and van Kranenburg (2018). At first, the institutions that are relevant for the local energy transition initiative do not support such an initiative. Through the process of institutional change, these institutions become supportive of local energy transition initiatives. The goal of this change to supportive institutions is the legitimacy of the aforementioned local energy transition initiative. Legitimacy is necessary for societal support and survival of the organisation (Meyer & Rowan, 1977). It is possible that institutions change in such a way that they still do not support LEI's. This is, however, not the goal of the institutional entrepreneur in this context. This would thus mean that the institutional entrepreneurs have failed to change the institutions effectively, possibly because of regime resistance by incumbent actors in the energy industry (Geels, 2014; Lockwood et al., 2019). The proposed relationship regards the influence of actors (such as (groups of) organisations or individuals) that act as institutional entrepreneurs to facilitate the aforementioned institutional change. Failing to change the institutions effectively does not mean, however, that the aforementioned actors are not institutional entrepreneurs, because success is not a requirement for being an institutional entrepreneur (Battilana et al., 2009).

3. Methodology

3.1 Research design

A qualitative research approach is a form of research which aims to collect and interpret linguistic material. On the basis of the analysis of this material, a proposition about a certain (social) phenomenon can be constructed (Bleijenbergh, 2013). Qualitative research uses less units of observation, such as a single case study, but because of the richness of the collected material, these fewer units are sufficient for making propositions about a phenomenon in a reality context (Bleijenbergh, 2013). A case study is a study of a social phenomenon in its natural habitat, during a certain period, using diverse sources of data, to make statements about processes underlying the studied phenomenon (Bleijenbergh, 2013). In the context of this study, the studied process is the of facilitation of institutional change by institutional entrepreneurs. Furthermore, a case study is ‘a detailed study of a single social unit’ (Myers, 2019). The social phenomenon that’s being studied should not have evident boundaries with the context (Yin, 2003). This is applicable, because the LEIs that is being studied consists of the municipality, a grid operator, residents and the housing corporation, who each have their own connections to the outside context. In this case, a single case-study is done. One neighbourhood from the ‘Wijk van de Toekomst’-project is studied in-depth to find out how institutional entrepreneurs change institutions in the context of the local energy transition. The neighbourhood ‘Hengstdal’ has been chosen, because multiple actors have been involved in the gas disconnection in this neighbourhood since 2017. The neighbourhood is functioning as a pilot for the municipality for the involvement of residents and professional parties in the gas disconnection. The residents are motivated to be involved in the development of a sustainable neighbourhood, but also don’t want to be confronted with an expensive energy infrastructure. In this case the parties attempt to break the fossil fuel regime by experimenting with new organisational forms and learning through communities of practice. This makes it a very good case to study institutional change and institutional entrepreneurs. Furthermore, interviews with experts from the Gelders Energieakkoord (GEA) are analysed as well, which adds the perspective of less involved experts to the case study. These experts have a different view than closely involved residents or professional parties and can offer expert insights in the ongoing processes.

An important distinction to make in research is the distinction between deductive and inductive reasoning. When using deductive reasoning, a general, existing theory is

operationalized and tested with empirical data. When using inductive reasoning, data is collected and analysed, and the emerging patterns lead to hypotheses (Myers, 2019). In this study, a combination of these two reasonings is used. A deductive approach is used because the concepts and their operationalisation are taken from existing literature. However, the analysis of literature does not lead to propositions which are to be verified. Instead, the available data is analysed to construct propositions on the basis of this analysis, whereby the researcher keeps an open mind for new concepts and relationships. This combination is called abduction (Suddaby, 2006).

3.2 Data collection methods

For qualitative research, linguistic data is used, such as interviews, observation logs and documents (Bleijenbergh, 2013). There are several data collection techniques. Because a case study involves the combination of interviews, observations and the analysis of documents, it is possible to study a phenomenon in-depth (Bleijenbergh, 2013). The combination of the aforementioned methods of data collection is called triangulation (Henning, 2011). Triangulation is important to be able to study a case from different angles and in-depth through the use of different sources. In this study, these angles are the different participants of the Hengstdal ‘Wijk van de Toekomst’-project and the experts from the Gelders Energieakkoord. Triangulation also makes it possible to compare the different observations of the case, which increases the quality of the research (Bleijenbergh, 2013). The possibility to study a phenomenon in-depth that triangulation creates, compensates for the small number of respondents used in the research.

To collect usable data, face-to-face interviews have been held with participants of the ‘Wijk van de Toekomst’-project and professionals from the Gelders Energieakkoord (GEA). More data will be collected in the form of extra interviews if the available data does not provide enough information about the work of institutional entrepreneurs to answer the research question. Furthermore, there are participative observations of assemblies with the participants of the ‘Wijk van de Toekomst’-project available. The interviews are semi-structured, to make sure all relevant data can be acquired while also giving the researcher the opportunity to act on the answers of the respondents.

3.3 Quality of the research

Of course, the quality of the research is very important. In qualitative research, the quality of the research is very dependent on the researcher. Reliability and validity, both internal and external, are needed for a high-quality research (Bleijenbergh, 2013).

Internal validity means ‘measure what you want to measure’ (Bleijenbergh, 2013). The researcher should check if there is a systematic distortion in the way the researcher observed or analysed. In this research, the internal validity is guaranteed through the structuration of the interviews, which will decrease the chances of desirable or context-specific answers. The external validity means that the researcher is able to generalise the findings of a single case to the whole population. In qualitative research, the literal outcomes of a study are not generalisable, but the patterns underlying the studied phenomenon can be. A study can give a detailed description of a social phenomenon in an organisation and find a specific pattern in the way the social phenomenon occurs. Not the details, but the general patterns at the base of the studied phenomenon are generalised. This is called analytical generalisation (Bleijenbergh, 2013)

Reliability means the results of the analysis cannot be distorted because of coincidental deviations (Bleijenbergh, 2013). In qualitative research, reliability is often replaced with the possibility of verification of the data collection. The researcher will thus make clear which choices were made during selection of data sources and otherwise keeping registering interviews and observations. Furthermore, the aforementioned choices during data selection will be motivated through the use of memos in the Atlas.ti-program used for coding of the data. Because of this transparency, the researcher will make sure the research process is documented in such a way that it is possible to verify the exact process.

3.4.1 Operationalisation

In this section, the relevant concepts of this study are operationalised. These concepts are institutions, institutional change, institutional entrepreneurs and regime resistance. These four concepts will be operationalised into measurable constructs that will be searched for in the available data.

Institutions are any rules shaping human interaction (North, 1990). More specifically, ‘institutions are social structures that have attained a high degree of resilience. Social structures include norms, values, expectations, procedures, standards and routines.’ (Scott, 2001, p. 48) Institutions affect organisations in the form of institutional pressures, which are the coercive, normative and mimetic institutional pressures (DiMaggio & Powell, 1983). Because of this

operationalisation, the researcher will have to find laws and norms, or the copying of practices of other organisations within the context of LEIs within the available data. The subject of this research is (relatively) small organisations that employ local energy transition initiatives.

Institutional change is ‘the replacing of old rules and routines by new ones (Van Den Hoed & Vergragt, 2004). This process starts with the de-institutionalization of current institutions, ‘the erosion or discontinuity of an institutionalised organisational activity or practice’ (Oliver, 1996; Scott, 2001). This is followed by the institutionalisation of new institutions, which is ‘the process by which activities come to be socially accepted as ‘right’ or ‘proper’, or come to be viewed as the only conceivable reality (Oliver, 1996). Institutional change is found in the data when any of the rules and norms, as operationalised above, change.

DiMaggio (1988) and Battilana et al. (2009) have defined institutional entrepreneurs as ‘actors who initiate, and actively participate in the implementation of, changes that diverge from existing institutions’. According to Battilana et al. (2009), actors must ‘initiate divergent changes’ as well as ‘actively participate in the implementation of these changes’, in order to be regarded institutional entrepreneurs. Divergent changes are changes that break with the institutional context of the organisational field (Battilana et al., 2009). Actors must also participate in the implementation, by ‘actively mobilizing resources to implement change’ (Battilana et al., 2009). These actors do not need to aim for changing the institutional environment or even know their actions might change institutions, nor do they need to be successful (Battilana et al., 2009). Institutional entrepreneurs are thus actors (such as organisations or individuals) that change the aforementioned rules and norms or initiate and implement changes that diverge from these rules and norms. To define an actor as an institutional entrepreneur, he also had to participate in the implementation of the change and not just initiate it. However, the actor does not need to aim for institutional change or be successful in the initiated and implemented change, an attempt in institutional change suffices. Furthermore, an institutional entrepreneur can also be an actor who tries to ‘create alignment between new practices and existing institutions’ Mahzouni (2019, p. 299). It is thus not absolutely necessary for an institutional entrepreneur to change institutions, as long as he legitimizes a new practice.

Lastly, regime resistance is the resistance by incumbent actors of a regime against changes in the organisational field (Geels, 2014; Lockwood et al., 2019). The fundamental change that LEIs propose threatens the core capabilities of fossil energy producers, which means industry resistance is likely to be very intense (Penna & Geels, 2012). For example,

incumbent actors try to form barriers to try to prevent CBIs from acquiring and maintaining a legal organisational form (Becker et al., 2018; Geels, 2014).

3.4.2 Operationalisation scheme

Concept	Definitions	Indicators
Institutions	‘Institutions are social structures that have attained a high degree of resilience. Social structures include norms, values, expectations, procedures, standards and routines.’ (Scott, 2001, p. 48)	There are norms, values, expectations, procedures, standards and routines or more formal rules such as laws, regulations and internal rules applicable to the activities that the ‘Wijk van de Toekomst’-project want to employ.
Institutional change	‘The replacing of old rules and routines by new ones’ (Van Den Hoed & Vergragt, 2004, p. 4).	The norms, values, expectations, procedures, standards and routines, laws, regulations and internal rules that are applicable to the activities that the ‘Wijk van de Toekomst’-project wants to employ have changed. Either slow and in short steps (incremental institutional change) or fast and in bigger steps (discontinuous institutional change).
Institutional entrepreneur	‘Actors who initiate, and actively participate in the implementation of, changes that diverge from existing institutions’ (Battilana et al., 2009, p. 70), or who ‘create alignment between new practices	Any actor, being (groups of) individuals or (groups of) organisations that actively try to initiate and implement change in the norms, values, expectations, procedures, standards and routines, laws,

	and existing institutions’ (Mahzouni, 2019, p. 299)	regulations and internal rules applicable to the activities that the ‘Wijk van de Toekomst’-project want to employ or tries to align the practice of the energy transition initiative to the aforementioned constraints.
Regime resistance	‘The resistance of powerful incumbent actors to technological or institutional changes that threaten their vested interests’ (Lockwood et al., 2019, p. 1)	Any actor, being (groups of) individuals or (groups of) organisations that actively try to resist a change in the norms, values, expectations, procedures, standards and routines, laws, regulations and internal rules applicable to the activities that the ‘Wijk van de Toekomst’-project want to employ.

3.5 Data analysis techniques

As mentioned before, the data sources of this study are interviews, observations and documents. The interviews have already been held, recorded and transcribed. These sources together contain a large amount of data. This means a data reduction and structuration is necessary to distinguish the relevant information from the less relevant information. Firstly, the data is classified in different subjects and then coded (Henning, 2011). This will be done using the concepts and indicators from the operationalisation in chapter 3.4. These indicators will be used to code the transcripts of the interviews and observations and the documents. Next, coding schemes are used to display a summarization of the information which can be used for an efficient analysis of the data. This will be done through the use of thick analysis, which is the combination of different methods of analysis. This allows for a more comprehensive analysis and enhances the depth and breadth of data analysis (Evers, 2015). The aforementioned combination will consist of thematic codes and content analysis. The analysis

starts with an analytic technique, used for searching and finding within the available data. Through the use of a thematic codes common themes, such as topics and ideas, will be identified (Evers, 2015). Following the thematic analysis, both the interviews and the observations will be subjected to an analytic tactic, meant for connecting within the data. Here a content analysis is used, for a more in-depth analysis of the data (Evers, 2015; Henning, 2011). Lastly, it is also important to stay attentive to emerging constructs for the data, beyond the operationalised concepts.

Limitations of this study are closely related to the chosen method of the case study. As aforementioned, there are limitations in the generalizability of the results. Furthermore, the subjectivity of the researcher might influence results. This limitation is solved by making sure the research process can be verified by other researchers. Lastly, a case study is very time-consuming, but time is saved by using data that has been collected earlier. These limitations can thus largely be solved.

3.6 Research ethics

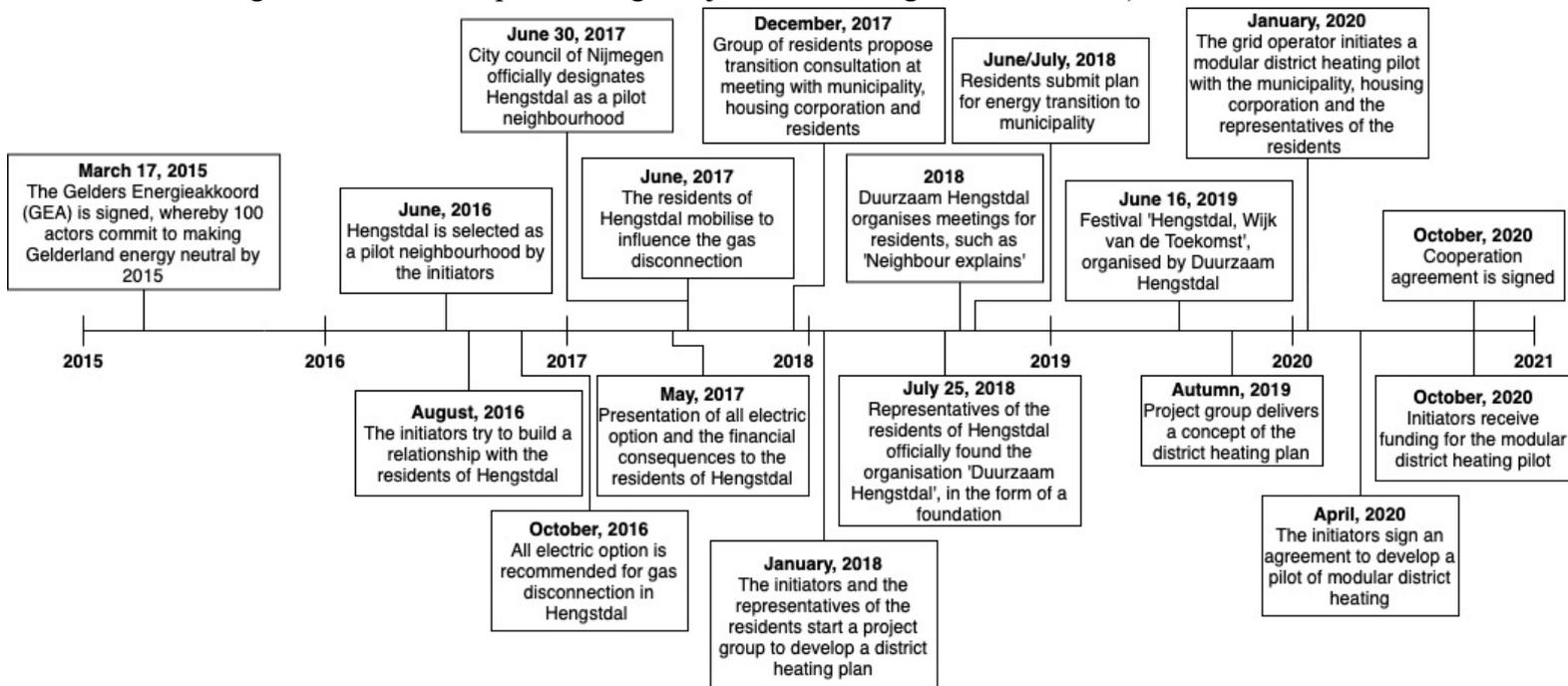
Because this research involves people, research ethics are important. Ethical issues can, for example, concern consent, data ownership, confidentiality and anonymity (Wiles, Charles, Crow, & Heath, 2006). Research participants, such as interviewees, might want to stay anonymous and want their answers handled confidentially. The researcher will make sure these issues are dealt with properly. First of all, when an interview is held, the participant will be informed on the goal of the study and the way the provided data is handled. The participant will be asked to sign a form which says they know what they are participating in, and consent to doing so. Furthermore, everybody who has access to the data will sign a confidentiality agreement, so confidentiality is guaranteed. Furthermore, because the researcher does not have any affiliation with the organisations that are to be studied, the objectivity of this study is guaranteed. Lastly, the findings of this study will not be applied within an energy transition practice.

3.7 Case

The case that is studied in this thesis is a local energy transition initiative, the ‘Wijk van de Toekomst’-project of the ‘Gelders Energieakkoord’ (GEA). This project aims to disconnect neighbourhoods from the gas grid, which is an important step in the energy transition. The projects started with the signing of the Gelders Energieakkoord (GEA) by more than a hundred actors, who thereby committed to making the province of Gelderland energy neutral by 2050.

Part of this goal is the disconnection of neighbourhoods from the gas grid. The city of Nijmegen, one of the aforementioned participants of GEA, designated Hengstdal, among others, as a pilot for the ‘Wijk van de Toekomst’-project.

To analyse the process of institutional change, a timeline of noteworthy events has been created (below/appendix 1). In this context noteworthy events are events that show initiation or implementation of (institutional) change (respondent 39, respondent 15/48, 170630 Collegevoorstel selectie pilots aardgasvrij, Gelders Energieakkoord, 2015).



4. Analysis

As can be seen in the timeline, the energy transition in Gelderland started with the Gelders Energieakkoord on the 17th of March 2015, which led to the ‘Wijk van de Toekomst’-project. Initiative also came from the housing corporation, “they basically took the initiative and said: we have to do something with energy and sustainability”, respondent 40 indicated. He, as a representative of the Gelders Energieakkoord, then created interest in several neighbourhoods in Nijmegen, including Hengstdal. The initiators chose Hengstdal as a suitable pilot neighbourhood for this project in June 2016. One year later, on the 30th of June 2017, the city council officially designated Hengstdal as a pilot neighbourhood for the ‘Wijk van de Toekomst’-project. The institutional environment was one of the factors on which the decision was made, because the city council is very sensitive to resistance among residents (respondent 4). Furthermore, support from residents is necessary for a successful gas disconnection. This mainly relates to sustainability-related values and norms, which might have to be changed in order to create support within the community and neighbourhood so the value of sustainability gains traction. The value of sustainability might collide with other values among the residents with regards to their residential situation. These values are, for example, affordability and liveability (respondent 33, respondent 3, respondent 16). These values are more important for residents than the value of sustainability and environmental consciousness. “The quantitative goal of being CO₂ neutral in 2035 is way less important for them. For them the goal of doing well with neighbours, or with the neighbourhood, is very important”, respondent 3 said. However, the city of Nijmegen, in which the neighbourhood of Hengstdal is located, is known to be a social city where the collective is sometimes more important than the individual (respondent 33). This is enhanced by norms and values among residents that are already aimed at sustainability, such as a sense of discomfort and guilt surrounding climate change (respondent 20). This can lead to a sense of urgency among residents, which leads to more willingness to cooperate with the energy transition initiative (respondent 5, respondent 20).

Residents thus seem mildly supportive of a gas disconnection but have their reservations with regards to considerations of affordability and liveability. As respondent 42 explained: “Those people don’t care what the source of their warmth is, but they definitely don’t want to pay more than what they are used to”, which refers to the value of affordability. The effect of financial considerations became clear when the municipality presented the all-electric option as a way to replace the gas network to the residents of Hengstdal in May 2017. This option is very expensive for the residents (respondent 15/48). Because the use of the all-

electric option caused friction with the value of affordability among residents, they mobilised to influence the gas disconnection process in June 2017. This mobilisation first consisted of opposition to the all-electric option but changed to participation when the all-electric option was abandoned, and new potential options were discussed.

Following this event, the residents started getting involved with the project. These residents can be called the ‘early adapters’ (respondent 15/48). At a meeting with the residents, the housing corporation and the municipality, they propose a transition consultation where all parties think of ways to successfully disconnect the neighbourhood from the gas grid (respondent 39). This led to the start of a project group with the initiators of the ‘Wijk van de Toekomst’-project as well as representatives of the residents in January 2018. The project group aimed to develop a district heating plan.

While this project group works on the district heating plan, the aforementioned residents’ representatives establish the foundation ‘Duurzaam Hengstdal’ (Sustainable Hengstdal). Through this foundation, the residents try to facilitate participation and create support among residents of Hengstdal for the gas disconnection in their neighbourhood. Establishing Duurzaam Hengstdal did not go without struggle, however. Within the municipality there are many laws, regulations and rules. These rules form something that other participants have called ‘the system’, which seems to lead to much bureaucracy and inertia. This led to great disappointment among the residents, who were confronted with a significant delay and complication of the process of founding Duurzaam Hengstdal (respondent 15/48). This can be seen as, and has been called in the data, ‘the regime’. This bureaucratic system hinders the necessary change. As respondent 15/48 noted: “the civil service, to put it simply, has to go into transition, even more so than the energy transition”. This is because, as the same respondent said, “you can’t do new things with old rules”. According to the municipality, Duurzaam Hengstdal had to be an official foundation to qualify for subsidies. Furthermore, they had to fill out many forms and otherwise struggled with the bureaucracy, which slowed down the process. Respondent 15/48 called the system a ‘system of forms’. It is undeniable that the laws, rules and regulations that are the foundation of this system lead to (institutional) inertia that hinder the energy transition initiative. Not because the desire for a successful energy transition isn’t there, but because of formalities that are ingrained in the aforementioned system. The current system (regime) of formalities thus complicates and hinders the change that is necessary for a successful energy transition initiative. There are some actors that have shown to at least try to change the aforementioned ‘system’. Nevertheless, this has been difficult, partly because respondents that want to change the system become part of the system

they want to change. They stay motivated, however. Respondent 15/48 noted: “That system change still has to happen, although we have a pioneering group of people. People of good intent and often with good ideas”, as well as: “I am now in a situation where I think, I am the system. I need to change the system from within”. When change does occur, it is a slow process. As respondent 15/48 specified; “I know it’s a slow process, I know. Making big organisations slowly change form”. This is unfortunate, because there is less and less time to make the energy transition a success, as is also noticed by many actors within this energy transition initiative. As the same respondent noted; “I need to change the system from within. But it has to be quick and fierce”. To properly and successfully facilitate the energy transition initiative in the form of the ‘Wijk van de Toekomst’-project, a change in ‘the system’ is thus necessary.

After Duurzaam Hengstdal was established, the foundation organised gatherings in 2018 called ‘Neighbour explains’ where residents tell each other about the sustainable changes they have made to their homes. “It creates more confidence if someone from the neighbourhood tells the story and not a company”, respondent 39 explained. They also had a contractor who specialized in isolating homes give a course, to make the residents aware of the available options. This showed residents the opportunities for taking sustainability and the environment into account when considering their housing situation.

In the summer of 2018, Duurzaam Hengstdal takes the initiative by submitting a Warmth Scan Plan (SCN) for geothermal energy to the municipality by themselves. “We did shake things up a bit with that plan. They [the municipality, red.] had not expected that the residents would submit a plan”, respondent 39, a member of ‘Duurzaam Hengstdal’, said about this. The municipality expected the residents to participate by attending meetings and join the discussion, not to submit a plan themselves, which was the reason for the commotion. The residents used this to put pressure on the municipality in an informal way. By influencing the choice for the substitute of natural gas, Duurzaam Hengstdal tries to align the new practice of the gas disconnection with the value of affordability, which is important to residents (respondent 3, respondent 15/48, respondent 42).

Meanwhile, Duurzaam Hengstdal keeps trying to create support among residents for the energy transition initiative and sustainability in general. For example, on June 16th of 2019 Duurzaam Hengstdal even organised a festival with a sustainability theme. This was not meant to push the energy transition however, instead they used the interest created by the energy transition initiative to show the benefits of a more sustainable life and promote environmental consciousness, and thus change the values and norms among residents so they are more open to sustainability. This festival was generally well-received and thus introduced and

strengthened environmental consciousness as an important aspect for many residents of Hengstdal.

In the autumn of 2019, the project group delivered a concept of the district heating plan, which did not contain a clear choice for a certain substitute of natural gas. The project group only decided that ‘no regret measures’ were always a good option. This indecisiveness prompted Alliander, the grid operator, to initiate a modular district heating pilot in January 2020, in collaboration with the housing corporation, municipality and the residents. This created new expectations on the further course of the project. By initiating this, Alliander greatly influenced the choice for the substitute of natural gas. In April 2020, the initiators sign an agreement to develop a pilot of modular district heating. In October 2020, the municipality, grid operator and housing corporation receive funding in the form of a state contribution from the Ministry of the Interior and Kingdom Relations for the development of the modular district heating pilot. In the same month, a cooperation agreement is signed between the municipality, grid operator, housing corporation and Duurzaam Hengstdal, whereby they commit to dedicating effort in making the pilot a success (respondent 15/48).

5. Discussion

Institutions were operationalised as ‘social structures that have attained a high degree of resilience. Social structures include norms, values, expectations, procedures, standards and routines’ (Scott, 2001, p. 48). Indicators of these institutions are the presence of norms, values, expectations, procedures, standards and routines or more formal rules such as laws, regulations and internal rules that are applicable to the activities that the ‘Wijk van de Toekomst’-project wants to employ.

The data shows there are two types of relevant institutions surrounding the ‘Wijk van de Toekomst’-project in Hengstdal. Firstly, the institutions regarding sustainability in general. These mainly consist of informal institutions, such as values and norms of residents. These can relate to the housing situation, such as affordability and liveability or, on the other hand, sustainability. Secondly, there are more formal institutions regarding the process of incorporating the energy transition related changes. These institutions are present at the level of the municipality and consist of laws and regulations and for example relate to the allocation of subsidies.

Residents of Hengstdal feel discomfort with the increasing problem of climate change and a sense of urgency is developing. However, there are other norms and values that are not directly against sustainability, but which have to be kept in mind. Values like affordability and liveability are shown through the fierce objection and subsequent mobilisation following the proposition of the expensive all-electric option. These values are not the opposite of sustainability but can lead to opposition to certain instances of practical implementation of the energy transition initiative. This means that residents seem open to energy transition initiatives, as long as norms and values such as affordability, equality, justice and liveability are not compromised in the implementation of the energy transition initiative. In conclusion, informal institutions such as norms and values collide in Hengstdal, because it is sometimes difficult to align the practical implications of the value of sustainability with housing related values such as liveability and affordability.

The municipality is acting from norms and values that are open to or even aimed at sustainability, because they initiated and implement the ‘Wijk van de Toekomst’-project. The municipality itself is thus already acting from norms and values that are positive towards the energy transition initiative. However, efficient implementation of the gas disconnection plans is hindered by something that residents that are part of Duurzaam Hengstdal have called ‘the system’, which seems to lead to much bureaucracy and inertia, to great disappointment among

residents (respondent 15/48, respondent 39). This can be seen as, and has been called in the data, 'the regime'. This regime resists against the (institutional) change that is necessary for the success of the energy transition initiative. It is, however, a different type of regime resistance than described by Geels (2014) and Lockwood et al. (2019). They described regime resistance by actors in the fossil fuel market, which is resistance specifically aimed at sustainability related changes. In this case, the municipality is the initiator of the energy transition initiative. However, they operate within a bureaucratic system which hinders (institutional) change. For a successful and efficient implementation of the gas disconnection, institutional change regarding the bureaucratic system at the level of the municipality is necessary (respondent 15/48).

Institutional change was operationalised as 'the replacing of old rules and routines by new ones' (Van Den Hoed & Vergragt, 2004, p. 4). This means that a change in the norms, values, expectations, procedures, standards and routines, laws, regulations and internal rules that are applicable to the activities that the 'Wijk van de Toekomst'-project is the indicator for institutional change. This can occur either slow and in short steps (incremental institutional change) or fast and in bigger steps (discontinuous institutional change). This process of institutional change can be compared with the 'stages of development' in institutional change as described by Mahzouni (2019), being innovation, mobilisation and structuration.

Based on the results, there is cause to assume institutional change is present. Residents have become more and more focussed on sustainability related values and feel a sense of discomfort and urgency regarding the climate change problem (respondent 5, respondent 20). This can lead to more support among resident for the energy transition initiative in the shape of the 'Wijk van de Toekomst'-project. Nevertheless, while values surrounding sustainability are emerging, other institutions, such as the importance of liveability and affordability in the neighbourhood, are still present. These values can, in some cases, oppose the practical implications of the energy transition initiative.

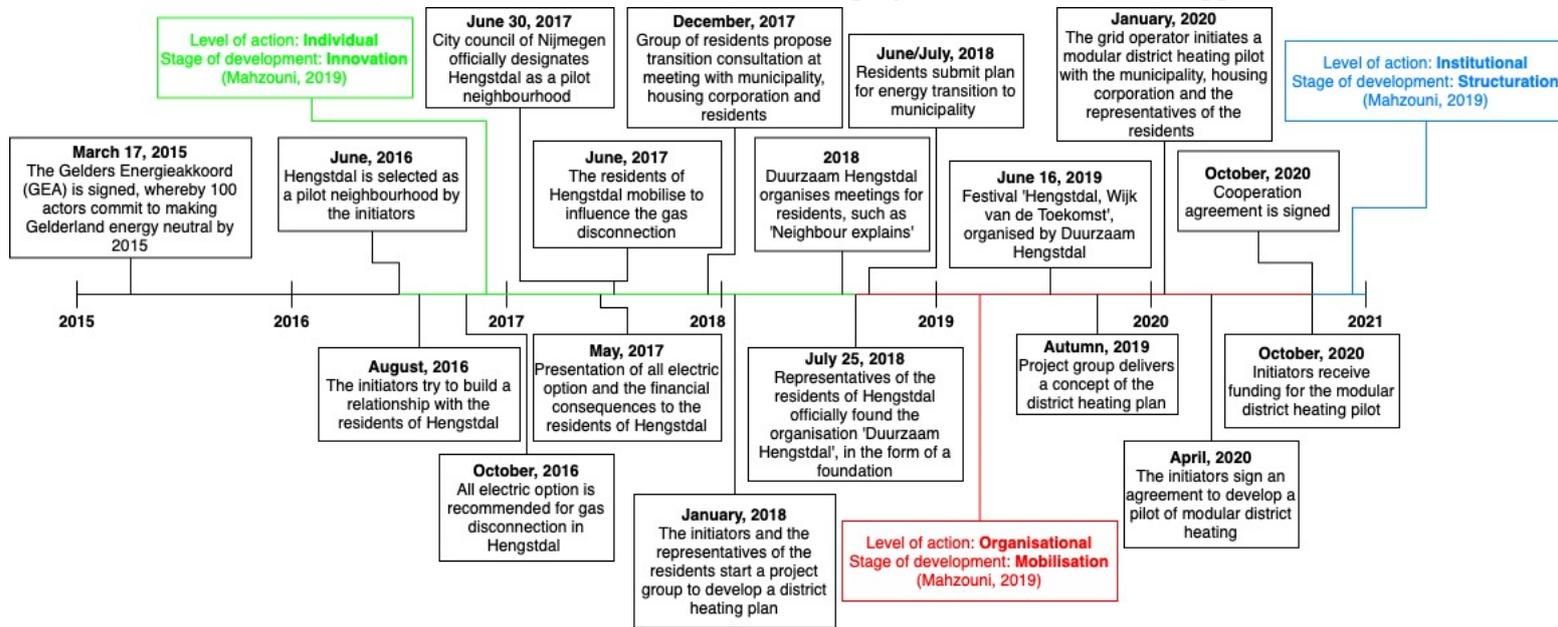
Concerning the aforementioned system, institutional change is less prominent. Respondents have indicated that the system is hard to change. When change does occur, it is a slow process (respondent 15/48), which means there is incremental institutional change. This is unfortunate, because there is less and less time to make the energy transition a success, as is also noticed by many actors within this energy transition initiative (respondent 5, respondent 15/48, respondent 20), which shows a need for discontinuous institutional change. There is thus a discrepancy between the need for discontinuous institutional change, and the reality of little actual change, where the change that does happen is incremental.

This institutional change can be laid along the lines of the levels of action and stages of development as described by Mahzouni (2019). According to Mahzouni (2019) institutional change starts at the individual level, wherein individuals gain social acceptance for the innovative idea. In Hengstdal, the idea of the ‘Wijk van de Toekomst’-project gained social acceptance through the creation of informal networks of early adapters within Hengstdal. This was preceded by more than a hundred parties signing the Gelders Energieakkoord and several meetings in neighbourhoods in Gelderland, which led to the designation of Hengstdal as a pilot neighbourhood (Fokkema & Scholtens, 2017). However, the institutional change in the neighbourhood of Hengstdal can be said to have started with early adapting residents that unite in informal networks.

After the proposition of the all-electric option and the subsequent mobilisation of the residents, the initiators and the residents’ representatives start a project group whereby they commit to developing a district heating plan in January 2018. Furthermore, the informal network of residents is converged into the foundation Duurzaam Hengstdal on July 25, 2018. The self-organisation of residents within the ‘Wijk van de Toekomst’-project is not an isolated case. In many LEIs and similar projects, residents organise themselves to initiate or influence the initiative (Arentsen & Bellekom, 2014; Bauwens, Gotchev, & Holstenkamp, 2016; Becker et al., 2018; Hasanov & Zuidema, 2018; Kalkbrenner & Roosen, 2016; Mahzouni, 2019; Parkhill et al., 2015; Van Der Schoor & Scholtens, 2015). With the collective mobilisation of the project group and the formalisation of Duurzaam Hengstdal, the organisational level of action and the mobilisation stage of development is reached. The organisations mobilised for (institutional) change through the establishment of different strategies, such as by developing a district heating pilot or promoting environmental consciousness among residents.

In October 2020, the municipality, grid operator and housing corporation receive funding in the form of a state contribution from the Ministry of the Interior and Kingdom Relations for the implementation of the modular district heating pilot, which means the institutional change has reached the institutional level and the structuration stage. The allocation of the aforementioned funding means that the new practice of the modular district heating pilot is finding alignment with the institutional context and has thus gained legitimacy.

On the basis of this analysis of the process of institutional change during the ‘Wijk van de Toekomst’-project in Hengstdal, the different levels of action and stages of development of Mahzouni (2019) can be added to the timeline of the project as follows (below/appendix 2):



Institutional entrepreneurs were operationalised as ‘actors who initiate, and actively participate in the implementation of, changes that diverge from existing institutions’ (Battilana et al., 2009, p. 70), or who ‘create alignment between new practices and existing institutions’ (Mahzouni, 2019, p. 299). As such, indicators for institutional entrepreneurs are actors, such as (groups of) individuals or (groups of) organisations, that actively try to initiate and implement change in the norms, values, expectations, procedures, standards and routines, laws, regulations and internal rules applicable to the activities that the ‘Wijk van de Toekomst’-project want to employ. From the analysis, the role of institutional entrepreneurs in the facilitation of the institutional change becomes clear.

Unfortunately, values surrounding liveability and affordability in the neighbourhood have not changed much. The change that has occurred, has been incremental. Institutional entrepreneurs have helped in the development of new values aimed at sustainability, which have subsequently gained importance among residents. This has been called the ‘development of a shared vision’ in literature (Bui, Cardona, Lamine, & Cerf, 2016; Hasanov & Zuidema, 2018; Parkhill et al., 2015; Van Der Schoor & Scholtens, 2015). Despite the development of a shared environmentally conscious vision, many residents don’t want to sacrifice affordability and liveability for the purpose of sustainability initiatives (respondent 3, respondent 15/48, respondent 42). Participants, who act as institutional entrepreneurs, have noticed this. They

subsequently found that it is also important to fit the implementation of the energy transition initiative to existing institutions. In conclusion, there is room for the implementation of the gas disconnection, as long as values such as affordability are not put in jeopardy. Fitting new activities to existing institutions is nevertheless an act of institutional entrepreneurship (Mahzouni, 2019).

As mentioned before, the municipality took initiative in the designation of Hengstdal as one of the pilot neighbourhoods for the gas disconnection. The origin of this initiative lies at the central government, who is obliged to follow the Paris Agreement and thus initiate measures to lower CO₂ omissions. Initiative also came from the housing corporation (respondent 40). However, taking the initiative is not enough for a successful energy transition initiative. Support among residents needs to be created, which means informal institutions such as values and norms need to be changed. It is thus interesting to see which of the aforementioned actors actively try to facilitate institutional change beyond initiation of the project.

The grid operator, Alliander, was in a complicated position as an incumbent actor, because they have a financial interest in maintaining the regime. This might be the reason they were not an active institutional entrepreneur until the mobilisation stage, when it was clear the change from natural gas to a more environmentally friendly substitute was certainly going to take place, but it was still relatively uncertain how. At this point, the grid operator took a big step by initiating the modular district heating pilot as a reaction to the indecisiveness of the project group, hereby expediting the process of the energy transition in Hengstdal. The grid operator thus changed expectations and routines in the 'Wijk van de Toekomst'-project quickly, which means they facilitated discontinuous institutional change. This is in line with other research on the role of grid operators in institutional change in the energy domain. A study by Galvan, Cuppen, and Taanman (2020) showed that grid operators can be both the subject and object of institutional work. While they are an incumbent actor with an interest in maintaining the regime, they can also engage in institutional work, which has even led to phasing out natural gas (Galvan et al., 2020). In this study, it was found that when the grid operator was faced with the implications of the energy transition, they will engage in institutional work, which aligns with the findings of Galvan et al. (2020). In this case, the reason for their institutional work was the indecisiveness of the project group, which created importance for the grid operator to create clarity and influence the choice for a substitute to one that is favourable for the grid operator itself.

The ‘early adapters’ among the residents also acted as institutional entrepreneurs and facilitated the necessary institutional change (respondent 40). This group of residents have had to facilitate (institutional) change on two sides of the project to align the new practice of the gas disconnection with the institutional environment in Hengstdal. Firstly, the residents mobilised against the choice for the all-electric option and participated in the project group for the development of a district heating plan and later participated in the project group for the development of a district heating pilot. Furthermore, when they were united as Duurzaam Hengstdal, they also submitted their own plan for the gas disconnection in Hengstdal. By submitting their own alternative, they pressured the municipality to take affordability for the residents in serious consideration. This way, the new practice (the gas disconnection) that was to be introduced was moved closer to the existing institutions in Hengstdal, such as the value of affordability. Duurzaam Hengstdal thus influenced the selection of a substitute for natural gas through the use of a combination of opposition and participation.

Furthermore, Duurzaam Hengstdal introduced and strengthened sustainability and environmental consciousness as a value among other residents, thus developing a shared vision. They did this by informing and inspiring residents and strengthening the local character of the initiative. They organised approachable local activities, such as a festival with a sustainability theme where residents could come into contact with sustainable alternatives in the areas of food, transportation and housing. Furthermore, by organising ‘Neighbour explains’, where a resident explained how they made their home more sustainable, residents get information first-hand from people they know. The residents that have united in Duurzaam Hengstdal are thus trying to facilitate institutional change by informing and inspiring their fellow residents, hereby creating a shared vision of sustainability and environmental consciousness. Furthermore, they did this with local activities as to emphasize and strengthen the local character of the initiative, which aligns with the value of liveability that lives among residents. Introducing and changing values proved to be a slow process, however, which means the institutional change was of an incremental nature. Developing a shared vision and strengthening the local character of the initiative are known methods among LEIs and likewise initiatives (Hasanov & Zuidema, 2018; Parkhill et al., 2015; Van Der Schoor & Scholtens, 2015). But in the aforementioned studies, these methods have not been recognized as institutional work. In this study, it is justified to define them as such. These methods were found to have introduced and strengthened the values of sustainability and environmental consciousness among residents, who subsequently became more supportive of the energy transition initiative. These methods were the reason for this institutional change and can thus be defined as institutional work.

Duurzaam Hengstdal and Alliander thus helped to institutionalise the practice of the gas disconnection and more precisely the modular district heating pilot (Oliver, 1996; Scott, 2001; Van Den Hoed & Vergragt, 2004). This makes them the most noticeable institutional entrepreneurs in the ‘Wijk van de Toekomst’-project in Hengstdal (Battilana et al., 2009). Duurzaam Hengstdal facilitated the institutionalisation of sustainability and environmental consciousness as an important value and subsequently important feature of the housing situation in Hengstdal through approachable local events, thereby developing a shared vision and strengthening the local character of the initiative. Furthermore, Duurzaam Hengstdal facilitated the alignment between the gas disconnection and the existing values of liveability and affordability by mobilising against the all-electric option and for a more affordable option. Alliander, in turn, created momentum in the development of a gas substitute by taking action and initiating the modular district heating pilot, together with the municipality, housing corporation and residents’ representatives. Duurzaam Hengstdal and Alliander legitimized the gas disconnection by aligning a new practice with existing institutions, which is also a form of institutional entrepreneurship (Mahzouni, 2019).

Of the aforementioned institutional entrepreneurs, being Duurzaam Hengstdal, the municipality, the grid operator and the housing corporation, a figure can be made of their contribution to the institutional change in Hengstdal.

Stage of development →	Innovation	Mobilisation	Structuration
Institutional entrepreneur ↓	Methods for facilitating institutional change	Methods for facilitating institutional change	Methods for facilitating institutional change
Duurzaam Hengstdal	Influencing decision for gas substitute by opposition Development of a shared vision and strengthening local character of the initiative	Influencing decision for gas substitute by participation Development of a shared vision and strengthening local character of the initiative	Participation in the implementation of the modular district heating pilot

Municipality	Initiating ‘Wijk van de Toekomst’-project	None	Participation in the implementation of the modular district heating pilot
Grid operator	Initiating ‘Wijk van de Toekomst’-project	Initiating modular district heating pilot	Participation in the implementation of the modular district heating pilot
Housing corporation	Initiating ‘Wijk van de Toekomst’-project	None	Participation in the implementation of the modular district heating pilot

This study knows a few limitations. First of all, existing interview transcriptions were used, which means the questions asked to the interviewees were not fitted to the research question of this study. The interview questions were mainly aimed at goals of actors in the ‘Wijk van de Toekomst’-project, but values and other informal institutions can be said to be at the basis of these goals. The subject of this study thus still played a significant role in the interviews and so enough results could be gathered. However, because data on institutional change and institutional entrepreneurs was not of abundance, not all conclusions made are based on more than one respondent, which means the subsequent conclusions based on this analysis are very dependent on this one respondent. Further studies can prevent these limitations by conducting new interviews with questions that are aimed at institutional change and institutional entrepreneurs and thus gather more relevant data. In this way, the researcher will be able to draw conclusions based on multiple respondents more often.

In this study, the facilitation of institutional change by institutional entrepreneurs within local energy transition initiatives was studied. The overlap with network theory was discussed shortly in chapter 2.1.1, but the role of networks was beyond the scope of this study. However, it does provide interesting directions for future research. For example, laws, regulations and social norms shape formal and informal relationships, which in turn influence knowledge flow, innovation and entrepreneurship (Aalbers & Dolfma, 2015; Aalbers et al., 2014; Ivy & Perényi, 2020). Innovative and entrepreneurial processes are important for institutional entrepreneurs. It would thus be useful to study the role of formal and informal relationships of

institutional entrepreneurs within their network. Furthermore, network centrality also has a large influence on the innovative capabilities of organisations (Kratzer et al., 2016; Wang et al., 2019). It could thus be interesting to see the influence of network centrality on the success rate of institutional entrepreneurs. Communities of practice were also of relevance for the learning of the actors in this energy transition initiative, who sometimes acted as institutional entrepreneurs. Communities of practice have been found to enable institutional change (Bridwell-Mitchell, 2016; Gehrke & Kezar, 2017; Hutchins & Boyle, 2017). The role of these communities of practice on the success of institutional entrepreneurs could thus also be an interesting direction for future research.

6. Conclusion

The central question of this study is “*How do institutional entrepreneurs facilitate institutional change in order to help the energy transition?*”. It was found that the institutional environment of Hengstdal heavily influences the ‘Wijk van de Toekomst’-project. The informal constraints, consisting of values and norms of residents such as liveability and affordability, are aspects that require consideration from the initiators. Furthermore, to create support for the energy transition in Hengstdal, it was necessary to introduce and strengthen the consideration for sustainability and environmental consciousness as an important aspect of housing among residents. These institutions did change during the project and this institutional change aligned with the stages of development (innovation, mobilisation and structuration) in the different levels of action (individual, organisational and institutional), as described by Mahzouni (2019).

The aforementioned incremental institutional change was mostly facilitated by institutional entrepreneurs in the form of a group of residents, who later formed Duurzaam Hengstdal. The residents mobilised when the municipality chose the all-electric option for Hengstdal, which did not align with existing institutions and thus did not find legitimacy. By influencing the decision-making process and participating in the new project group they came to a compromise in the form of the modular district heating pilot as the new substitute for the existing gas grid. This option found better alignment with the existing values of affordability and liveability in the neighbourhood of Hengstdal. They thus influenced the selection of a substitute for natural gas by respectively by opposition and participation. Furthermore, Duurzaam Hengstdal introduced and strengthened the consideration for sustainability as an important aspect of housing among residents. They organised local activities which both developed a shared environmentally conscious vision among residents and strengthened the local character of the initiative. By this combination, sustainability became an important part of the new institutional environment of Hengstdal.

Furthermore, Alliander, the grid operator, facilitated discontinuous institutional change by initiating the plan for a modular district heating pilot. This suddenly disrupted and changed the existing expectations and routines and greatly accelerated the process of change.

In conclusion, the residents and the grid operator were the institutional entrepreneurs that facilitated institutional change in order to help the energy transition. They facilitated institutional change through different methods, which helped to legitimize the energy transition initiative.

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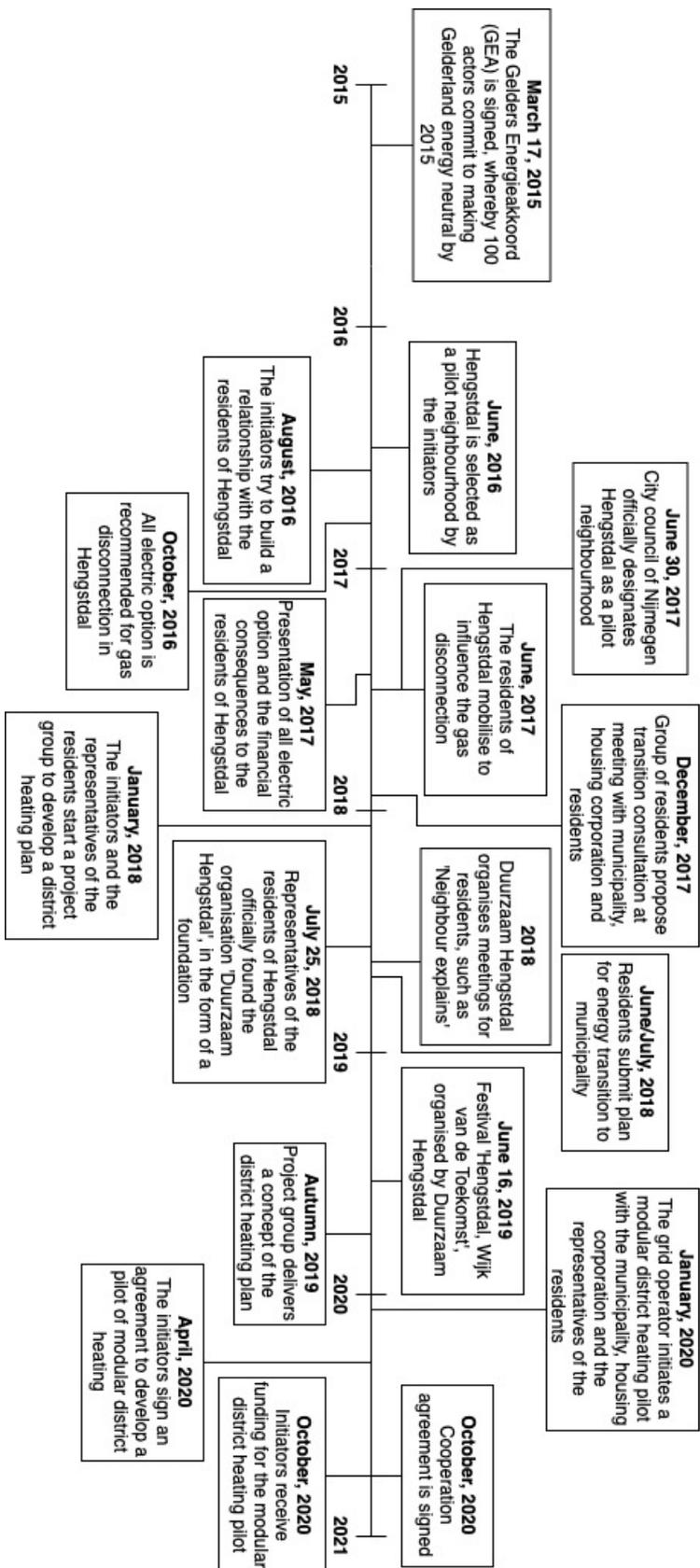
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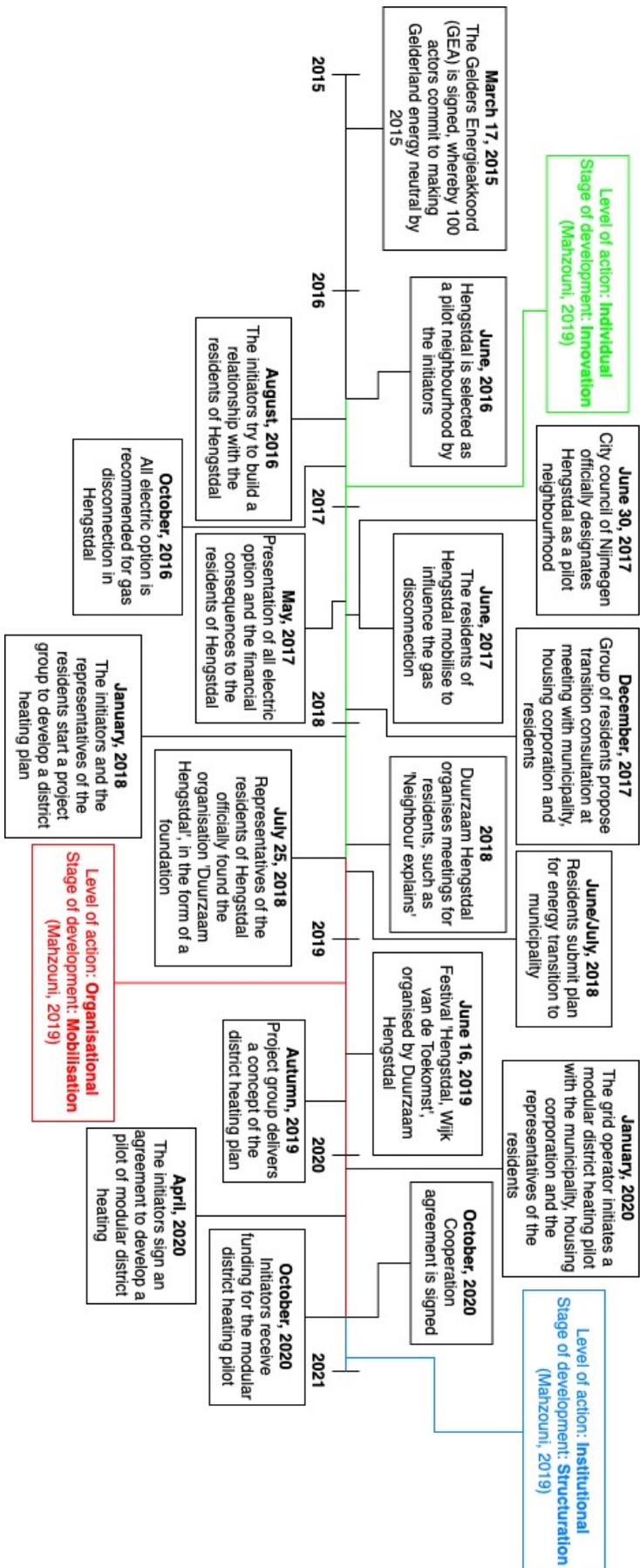
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Appendices

Appendix 1: Timeline



Appendix 2: Timeline of institutional change



Appendix 3: Code book

ATLAS.ti Report

Thesis

Codes grouped by Code groups

Report created by Jelte Jorritsma on 14 Jun 2021

◇ Actor

4 Codes:

- Central government
 - Community of Practice
 - Municipality
 - Residents
-

◇ Institutional change

3 Codes:

- Discontinuous change
 - Incremental change
 - Institutional change
-

◇ Institutional entrepreneurship

16 Codes:

- Advising
- Creating support
- Decision making
- Developing shared vision
- Entrepreneurship
- Experimenting
- Influence
- Initiative

- Initiator
 - institutional entrepreneurship
 - Learning
 - Participation
 - Rejection of institutional entrepreneurship
 - Stimulating
 - Strengthening local character
 - Tactics & methods
-

◇ Institutions

8 Codes:

- Formal rules
 - Informal rules
 - Institutions
 - Laws & regulations
 - Legitimacy
 - Norms & values
 - Organisational form
 - Policy
-

◇ Regime

6 Codes:

- Bureaucracy
- Free market solution
- Inertia
- Regime resistance
- Resistance
- System

