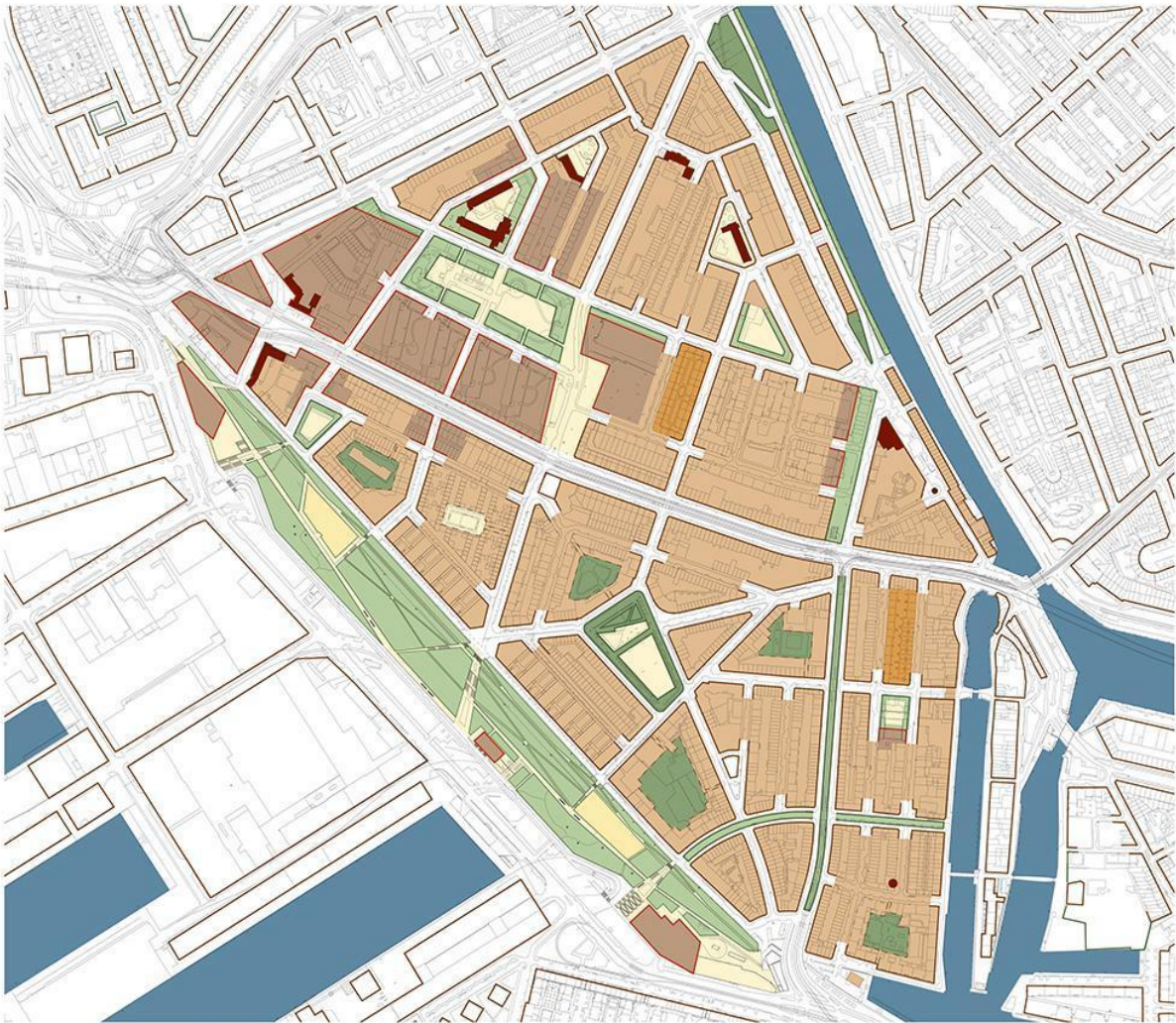


RESILIENT GOVERNANCE DURING CRISES: COVID-19 in community **BoTu** ROTTERDAM

Master Thesis - MSc Program: Complex Systems Engineering and Management

Delft University of Technology



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Executive Summary

Cities worldwide are changing fast. While these cities are evolving, they simultaneously have to face pressures and disruptions that could lead to societal distress. Circumstances like environmental changes, digitalization or mass migration are few of the challenges many cities face. Currently, the world is facing another great challenge, a pandemic caused by the coronavirus COVID-19. This event once again shows, it is important for cities and their communities to be resilient. Though, one would naturally say that the responsibility for this resilience resides with the authorities, formal actors, of a country or city. Citizens, informal actors, oftentimes also fulfil functions that increase a community's resilience.

Considering that the actors that are actively involved in community resilience can be seen as two-fold, formal and informal actors, the relationship between them is one that can improve a community's resilience as a whole. Literature shows that there is an existing dynamic between the actor groups that is signified by policies. However, it remains unclear how the relationship, and its dynamic, between formal and informal community actors remains during times of crisis.

To discover how this dynamic between formal and informal actors, and networks, changes, a literature study was done to find out how community resilience can be facilitated. From this study a conceptual framework for the facilitation of resilience was created. Furthermore, an exploratory case study to research in which extent a resilient attitude is embodied by local institutions in cooperation with local communities. The community in the case is that of the Bospolder-Tussendijken neighborhood. Research institute Veldacademie is currently monitoring a project that aims to increase the resilience in the neighborhood by 2028. This case allowed us to get a better overview of how formal and informal institutions play their part in community resilience during crises. With this data, a list of role changes by formal and informal actors in the community could be made, accompanied by the factors that facilitated or frustrated the role changes and activities of these actors. The conceptual framework was also applied to the case to verify its validity.

The literature study displays that community resilience can be facilitated by the interaction of several factors that influence it. These factors are social capital, engaged or resilient governance, community leadership and problem solving abilities. The interaction of these factors should take place in an information-sharing environment. This may eventually lead to a community resulting to a coping strategy, a short-term focused and reactive response, an adaption strategy, a long-term proactive response, or a transformation strategy, which applies to a long-term participative capacity of the community.

With the use of semi-structured interviews with formal and informal actors in the Bospolder-Tussendijken community, multiple subjects were discovered. These were grouped as: (1) COVID aid requests, (2) Policies and guidelines, (3) Activities and initiatives, (4) Triggers for collective action, (5) Facilitation of resilient acts, (6) Frustration of resilient acts, (7) Lack of actions, (8) Lessons and learning points. From these interviews, the stressors or aid requests that were identified were: the need for food & groceries, a lack of digital devices, increasing loneliness & isolation, loss of work & finances, children at home & lack of living space, developmental delay in children, garbage & dirt in the streets and school's loss of supervision on children.

Furthermore, there were policies and guidelines that affected the community and its ability to act. These policies and guidelines were led by the so-called intelligent lockdown. Moreover, entry to supermarkets was limited, also formation of groups was not allowed and group formation was met with fines. Also, schools were temporarily closed, local street markets were closed and physical contact was discouraged by keeping a 1.5-meter distance from others in public. These policies also partly caused stress, so did limiting meetings cause loneliness and closing schools made children stay home, for example.

Regarding activities and initiatives in the community. Both informal and formal actors undertook activities. The most significant of them was the emergence of the Delfshaven Helpt initiative, which was a problem-solving network that supported the people in the community in multiple ways, ranging from food and groceries to providing laptops for kids to allow online education. In total, 22 formal actors and 23 informal actors were identified. The interviews allowed us to map if the actors switch their roles. This role-switching was indeed the case in 14 of the informal actors and 19 of the formal actors.

The actors in the community faced multiple facilitating and frustrating factors which enabled or disabled their actions. The facilitating factors were a wide number of community networks, the use of digital resources and utilizing central hubs for logistics. Joining forces between formal and informal organisations and switching roles also aided in the resilience of the community. Still, actors were also frustrated in their actions by policies, limited network access or utilization, financial constraints, closed meeting places and inefficient communication. Unfortunately, there also was a lack of action in some instances. Sometimes, formal organizations were absent, while they were needed or expected to act. Institutions were not able to reach more residents and financially, there could have been made a greater effort to support initiatives that faced financial turmoil.

From the case, a number of lessons can be learned with regards to its community resilience:

- The impact of a crisis causes stressors and challenges to increase in a relatively weaker social-economic community.
- Policies that affected the community during the crisis, were introduced on a national level, with little regard to a community's characteristics. This caused frustration of resilience in some instances.
- As a result of strong existing social and professional networks, informal actors, as a whole undertook different initiatives and made role changes to face the challenges that were presented as a result of the crisis. Formal institutions made role changes as well. The role of institutions, or formal organizations was present in several of these activities. Mainly, in the Delfshaven Helpt initiative, formal organizations were highly involved.
- Though, residents are familiar with setbacks, they are overall involved in the community and initiatives. There remains a need for more municipal support that fulfils useful functions.

Finally, the main research question can be answered, which reads: *To what extent are local institutions resilient in their cooperation with local communities, during a crisis?*

All in all, local institutions have shown that they are indeed able to be resilient in their cooperation with local communities, more so in time of crisis. Which is shown by their ability and willingness to collaborate with other formal and informal actors in the neighborhood for the benefit of the community. Though, there are still improvements to be made to better match the needs and implement the input of local communities and its members, as displayed by the

frustrations and lack of actions in the previously mentioned cases. Institutions should look that they do not, or minimally, limit the capacity of a community for its resilience to prevail.

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1. Introduction

1.1 Research problem

When contemplating cities, one can say that they are rapidly evolving. Nowadays, the wellbeing of people in cities is built on a complex network of institutions, infrastructure and information. Yet, cities are areas in which pressures or abrupt disruptions develop. These pressures or disruptions could lead to societal breakdown, physical collapse or economic distress (Rockefeller Foundation, 2015). Worldwide, cities have been confronted with impactful phenomena like climate change, migration and, demographic and social changes due to digitalization in society (Afstudeerproject TBM, 2019).

Because globally cities are facing these challenges, the way these cities deal with them or the resilience of these urban places could be considered a significant factor in their development and prosperity. Additionally, due to the concentration of people in cities, risks in these urban areas may affect a great number of people at once. One of such examples is the case of New Orleans and Katrina, a hurricane that devastated the city in 2005. This disaster figuratively and literally reshaped the city as 80% of it was submerged under water (Colten, 2008). Though, some of these crisis events are out of human control, making them inevitable, it is naturally in a city's best interest to have the ability to adequately responds to these events and recover the state of the communities afterwards. Even more so because, resilience is not solely about economy and environment, it is also about society and culture (Mehmood, 2016).

This multifaceted characteristic of resilience is also found in its ranging definitions. So, what does being resilient mean? In the case of New Orleans, Colten (2008) calls resilience “a community or region's capability to prepare for, respond to, and recover from significant multihazard threats with minimum damage to public safety and health, the economy, and national security”. Davoudi (2012) describes resilience as the ability of complex socio-ecological systems to change, adapt and crucially, transform in response to stresses and strains. In context of communities, resilience can be defined as the capacity to withstand or adapt with change (Mehmood, 2016), through the management and engagement of community resources by community members to thrive in such an uncertain environment (Magis, 2010; Matarrita-Cascante et al., 2017).

As mentioned by Colten (2008), most authorities within communities are likely to have a degree of an emergency management plan in response to significant threats from their external environment. However, this is not the only form of organizing and facilitating resilience. In 2014, Stark and Taylor looked at the triangular relationship between citizen participation, community resilience and crisis-management policy. Despite policy's community resilience emphasis, it was recognized that communities remained fragile. Meaning efforts to strengthen community participation in public policy often fail (Stark & Taylor, 2014).

Nevertheless, citizens do also try to fulfill functions, that improve resilience, themselves through self-organization. In 2018, Edelenbos et al. analyzed three cases of community self-organization in three different: The United Kingdom, the United States, and the Netherlands. They discovered that countries' community self-organization efforts are indeed deeply rooted in policy contexts. Still, it is deemed necessary to embody and reflect the views of people in self-organized citizen initiatives. This is said to have a positive impact on the development and duration of citizens' initiatives.

Taking this into account, it becomes somewhat clear there is an existing dynamic between formal community actors, that make policies amongst other activities, and informal community actors, like residents that self-organizes the fulfilment of functions in a community. Provided the importance of resilience within a city or community, it is no surprise that both formal and informal parties within the same area do what is in their power to build up resilience to face an ever-changing physical and social environment.

The same changes can be found in the city of Rotterdam. Hence, many changes in the environment cannot be influenced on a local scale within cities. Regardless, being prepared for such changes and the ability to act in such situations, is something that can be organized locally. Therefore, it is an important question to find out how local institutions, like the municipality of Rotterdam, are able to embody a resilient attitude. Such governance may be needed for 'homegrown'-initiatives and public participation to succeed (Afstudeerproject TBM, 2019).

Knowledge institute Veldacademie, is currently monitoring the resilience within communities in Rotterdam. On their request, this thesis takes place in the context of the Veldacademie's research, which will be analyzing resilience in a Rotterdam community called Bospolder-Tussendijken or BoTu for short.

1.2 The need for community resilience research

1.2.1 Knowledge gap

Much of the literature provides general outlines and guidelines on how to organize and influence community resilience from an overarching perspective. Though Stark and Taylor (2014) share, fragility of communities remains even with policy's community resilience efforts, occasions of citizen response in a crisis do exist and are described by Linnell (2014). Additionally, in some countries, self-governance of communities occurs, due to facilitating policies (Edelenbos et al.,2018).

This relationship between informal and formal actors, can be described as one of influence through policy. This form of influence sometimes turns out to be effective and sometimes not so much, as stated by Stark and Taylor. However, Edelenbos further asserts that, self-organizational success is more likely when initiatives seek communication with other residents.

Communication is also highlighted by Nespeca et al. (2020), who share that actors, formal or informal, may fulfil different roles that perform different activities. According to the study, actors can change roles and assume additional ones. Though, it remains unclear what facilitates this change of roles.

Thus, two questions arise. Firstly, is policy the only way in which formal actors can influence community resilience? Secondly, is successful self-governance only possible through activities from informal actors, citizens, or may formal actors also play a role? If so, which role do they play and do these roles change during a crisis, like Nespeca et al. (2020) alludes to? This leads to the conclusion that knowledge on the interaction between local formal networks and informal networks within communities, regarding community resilience, remains unclear.

To bridge these knowledge gaps, we will be researching the interaction. This may be explored by closely studying the practices and experiences of communities and institutions and identifying the significance of different types of resources and the community's environment.

1.2.2 Research goal

Since a community's resilience is dependent on the residents and may be enabled by (local) institutions, this provides a dynamic multi-actor 'playing field'. Such a system, in which actors are able to act autonomously, goes hand in hand with the practices of the Complex Systems Engineering and Management curriculum. Through times of crises, the following research objective arises:

Determine how local institutions and local communities play their part in community resilience during crises.

Likewise, the aim of the research is to produce new insights or frameworks that can be used in further research and applied in practice. After presenting the research question and sub questions, the current situation regarding the knowledge community resilience and crisis management. This is done by reviewing the literature. Following, the research methods are presented. Finally, research methods for each sub-question are discussed and visualized in a research flow diagram that can be found in appendix B.

1.3 Main research question

The literature on community resilience, presented in section 1.2.1, shows that there is a knowledge gap on the interactions of formal and informal actors in local communities. With this thesis, we aim to research this gap by answering the question:

To what extent are local institutions resilient in their cooperation with local communities, during a crisis?

1.4 Research approach and sub questions

An exploratory research approach will be taken to answer multiple research sub-questions, that lead to the main research question that addresses the presented knowledge gap, regarding the resilience of institutions and inhabitants within communities. To research this gap a case study will be done, using the Rotterdam community BoTu as a source to gain contextual and in-depth knowledge on the matter. The knowledge gap revealed that there is a need to extend current theory and continue exploration of the subject to increase knowledge on the interaction between institutions, communities and resilience. Semi-structured interviews will be applied in this explorative study. These types of interviews allow for in-depth questioning as the interview is directed by interviewees' response (Stuckey, 2013).

An exploratory research utilizes a qualitative methods and has several advantages as it provides flexibility (Corbin & Strauss, 2015). Furthermore, to answer the main research question, an exploratory research approach helps in potentially uncovering findings on subjects that have not been extensively researched. In early stages of research, a study without a specific hypothesis may result in valuable knowledge about the phenomenon (Neergaard, Olesen, Andersen, & Sondergaard, 2009; Sandelowski, 2000). Thus, providing a better understanding for direction of future research (Questionpro, 2018). This understanding flows from the analysis of data on the topic.

One limitation that exploratory research provides is the possibility of data leading to an inconclusive answer to the research question. Furthermore, qualitative data is susceptible to an

interpretation bias. Also, sample sizes are usually small, leading to a less accurate interpretation for generalization (Questionpro, 2018). The following sub-questions are part of the research:

1. What is community resilience and how can it be facilitated?
2. Which problems and challenges (stressors) are the local communities of BoTu facing, as a result of COVID-19?
3. What are the institutional policies and guidelines regarding crises that affect the local community?
4. How do local communities and institutions take initiative to tackle challenges in times of crisis?
5. What can local communities and institutions learn from experiences and contribute to the resilience of local communities for the future?

Through the answering of these questions, the main question shall be answered. Additionally, such a research approach may produce new insights and possible theories or frameworks that can be tested on multiple cases, which is another aim of theoretical contribution to the field of knowledge.

1.5 Research methods

As the main research question is answered with the help of sub-questions, it is important to dissect how these sub-questions will be answered. Therefore, this section discusses the research methods and presents a flow diagram. To answer these sub-questions, it shall be address which research methods are used and what data is needs to be collected. Furthermore, appropriate tools shall be highlighted to analyze that data and the flow of the research design, which starts with the main question:

To what extent are local institutions resilient in their cooperation with local communities, during a crisis?

Next, the research methods that are needed to answer the sub-questions will be discussed.

To better grasp the dynamic and interactions within a community and how these are related to resilient behavior, it is important to get an understanding of community resilience and how it can possibly be supported. Given the existence of a sufficient amount of scientific literature on the subject, a literature review was done to answer the question. Based on this review, a framework shall follow. This framework depicts how community resilience may be facilitated.

Because this thesis looks at resilience in the BoTu community, it is needed to identify the challenges that are present in the neighborhood and the impact that the pandemic has on the local residents. This information shall be drawn from government reports and experiences that are shared during interviews with community members.

Solely policies and guidelines influencing institutional and non-institutional actors in the community will be significant for this research. Therefore, these are mapped with the help of recorded interviews.

Similarly, interviews are used to gather insights on the way the community's residents and formal actors handled during the crisis, and what their roles were. Analysis of this information

then provides an overview of these actions and to which challenges they pertain, presented in a table.

The final sub-question utilizes the information that is collected during the interviews, the previous sub questions, the literature review, the framework and the case study. Resulting in relevant new lessons that are applicable for future situations, unfulfilled needs or opportunities within the community that may improve resilience and methods and conditions to improve local resilience.

2. Case study: COVID-19 in Bospolder-Tussendijk, Rotterdam

As the world is currently struck by a pandemic, countries and cities worldwide are trying to cope with the consequences. Though, how grave this health crisis appears to be, it provides an opportunity that may expose new findings in the workings of community resilience. To establish a better understanding of the interactions between formal and informal networks in a community, the Bospolder-Tussendijken neighborhood (BoTu) in the city of Rotterdam, will serve as case study.

2.1 Impacts of COVID-19 in Rotterdam

While the situation revolving COVID-19 is still developing, there have been some reports on the way the pandemic is impacting the world and specifically the Netherlands, as well. The Dutch Scientific Council for Government Policy (WRR) produced a report containing reflections on the long-term consequences of COVID-19 (WRR, 2020). The council touches on vulnerability and resilience in particular. Especially, insights on the government's directing role and the differences in resilience of the Dutch population provide a picture of the impacts on the country.

2.1.1 Role of the government

Because of the nature of the crisis, the Dutch government took on a more active role in society. Both in terms of maintaining national health and sustaining the national economy, WRR reports, the government has taken an almost unparalleled responsibility. This performance could continue the trend of the revaluation of solid government control when strategy to achieve collective goals and public values (WRR, 2020).

Nevertheless, the scientific council also highlights that this greater role of the government comes with some risks attached. This is because, generally decisiveness and acute intervention are poorly related to normal democratic procedures. This is mostly acceptable in short-term crises, but in a long-term crisis this leads to fundamental questions, the council states.

2.1.2 Resilience of the people

As this crisis exacerbates the existing socio-economic and social problems, the consequences are firstly and mostly felt by people in vulnerable social positions. Additionally, there is a growing emergence of new vulnerable groups, people who are experiencing social, physical or psychological pressure as a consequence of the crisis (WR, 2020). The wider effects of the crisis and the fight against it seem to create tensions among vulnerable groups.

Research on how the crisis affects Rotterdam inhabitants, by Kenniswerkplaats Leefbare Wijken (2020), shows that uncertainty is increasing especially among the lower educated, older people. These are mostly people that are on benefits, with a small social network, low income, high debt and ill health. The ability of these people to deal with this crisis is quite limited. Therefore, existing differences in resilience among people. may increase further (WR, 2020). Due to this reason, questions arise about the capability for vulnerable groups to keep up within a 'social distancing society'. Additionally, recent studies show that the increasingly digital, complex and self-sufficient welfare state does not always reach the people who need support (Bredewold et al., 2018; Van Gennep, 2017). This can be found in the risk among children from groups with a lower socio-economic status, since researchers warn that children from lower groups have an increased risk of learning disadvantages, due to limited facilities at home (Ter Weel, 2020).

2.1.3 Impact on Rotterdam

Though, the Dutch Scientific Council for Government Policy has a national report, the city of Rotterdam, can be considered a case of its own. Being one of the largest cities in the Netherlands with 650 thousand inhabitants (CBS, 2020), it is also known as the poorest city of the country, with 15.4% of the people living below the poverty line (CBS, 2018). Therefore, the health crisis may affect the city differently. Hence, Kenniswerkplaats Leefbare Wijken (2020), has mapped the Rotterdam experience of the COVID-19 crisis.

Firstly, regarding socio-economic consequences, approximately 5% of job-seekers report having lost their jobs as a result of the crisis. A quarter of self-employed and flex workers report a loss of income as a result of the current crisis. This refers both to Rotterdam and to the Netherlands as a whole. Additionally, almost a third of respondents with a job is scared to lose their job. This is the case for people with some sort of vulnerability especially. The report states that most respondents' coping style may be considered 'problem-oriented': they do what they can to keep the virus from spreading. Looking at respondents in Rotterdam, it seemed that particularly the elderly, people with lower educational backgrounds and people with poor health see COVID-19 as a threat to themselves. Younger people in particular face more stress than before and people with disabilities face feelings of anxiety considerably more often.

The researchers from Kenniswerkplaats Leefbare Wijken also asked about the occurrence of giving and receiving help. A substantial majority of the Rotterdam and national survey respondents are willing to provide assistance to people seeking COVID-19 support. Approximately one-third of former support providers and recipients show that the amount of assistance now exceeds pre-COVID amounts. About half of bidders and recipients see little change from before. The rest state they are giving or getting (a lot) less help than before. In Rotterdam the latter category is bigger than nationally.

Yet, Rotterdam respondents more frequently than those in the rest of the country, overall think that community relations have strengthened since the outbreak of the virus and they have gained more confidence in their neighbors. Accordingly, people with a lower level of education say they have more confidence in their neighbors than those with a higher level of education. The population's confidence in Rotterdam and that of the nation as a whole is generally high and represents the often recorded reality that the Netherlands is a high trust society. Trust in both national and local government is strong. As a result of the crisis, confidence in government has risen further.

Finally, the report touches on the importance of different resources during the crisis. Following the findings of Kenniswerkplaats Leefbare Wijken, Social capital (receiving help from fellow people) tends to be a key factor that leads to trust in government, compliance with behavioral rules, decreases anxiety and stress. Furthermore, economic capital (being able to make ends meet) and physical capital (being in good health), define how people are experiencing the COVID-19 crisis. It's primarily a combination of resource shortages that renders one vulnerable.

According to the Rotterdam study Maasstad aan de monitor (Engbersen et al., 2019), this lack of resources mostly exists among two Rotterdam social groups: the so called precarious (low-income working class) and the brittle lower group, which together represents 27 percent of Rotterdam inhabitants (Custers & Engbersen, 2019).

2.2 Research goal and Bospolder-Tussendijken case

As the Rockefeller Foundation (2015) states, cities always face risk and to counter these risks a city must be resilient. Accordingly, Rotterdam has the ambition to increase its resilience and create a so-called Resilient Rotterdam (Resilient Rotterdam, 2017). Part of this resilient Rotterdam is the Rotterdam-West neighborhood Bospolder-Tussendijken. The research and knowledge institute Veldacademie, is monitoring a project in this neighborhood called ‘*Veerkrachtig Bospolder-Tussendijken 2028*’, which translates to “Resilient Bospolder-Tussendijken 2028’. This project has been initiated by local organizations in collaboration with the municipality of Rotterdam.

The goal of the Resilient BoTu project is to develop the resilience of the neighborhood’s residents, so they become able to deal with challenges and changes in their life. Veldacademie’s neighborhood monitor report (2020) states, the neighborhood development project aims to create Rotterdam’s first resilient neighborhood. Moreover, the report states that in the long term, as a result, the initiators expect positive developments in the following areas of health, safety, parenting climate, informal care, more sustainable lifestyle and local economy.

Simply stated, this project is to make the neighborhood and its residents more resilient and for the neighborhoods’ socio-economic factors to reach the social urban average (Veldacademie, 2019). To attain this goal, the project focuses on four parts, namely:

1. Measuring local social development.
2. Mapping social networks
3. Multiplying social returns on investments
4. Documenting the governance processes

Veldacademie has conducted several studies on the subject of community and social resilience (Doff, 2017). Their literature study on these matters serves as a foundation for this research. A theoretical model was created to visualize the dynamics of factors on community resilience, as seen in figure 2.

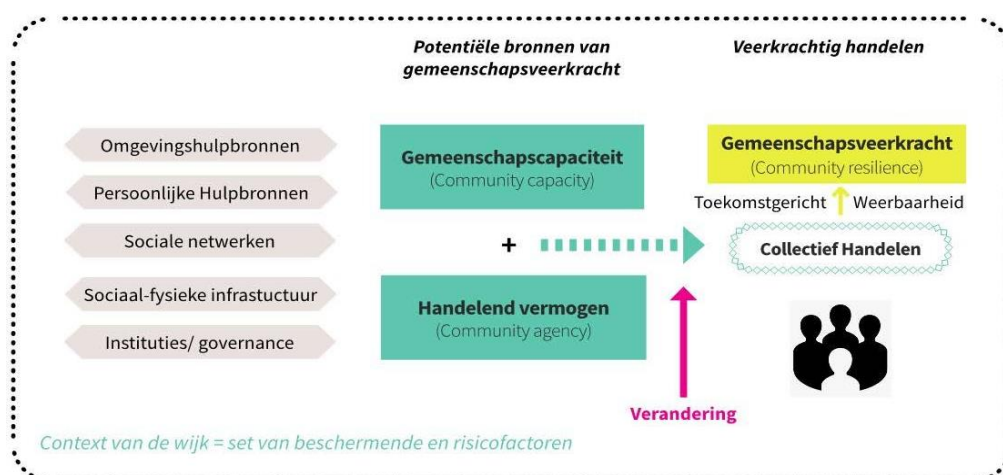


Figure 1 Theoretical community resilience model (Startfoto Monitor Resilience in Botu, 2020)

As part of the project this thesis shall focus on the second and fourth constituent of the project, mapping social networks and the documenting of governance processes. To highlight these constituents, the literature study by Doff (2017), will be used as input for a definition of community resilience and the way to facilitate it. Furthermore, there will be taken a look at

informal and formal actors and networks in the neighborhood. Being that the Veldacademie's project takes place in a neighborhood in Rotterdam and is oriented on the present and the future, with goals set for 2028, there is a high societal relevance to this topic. The municipality explicitly states that Bospolder-Tussendijken (BoTu), should be seen as a testing ground for the rest of the city. Additionally, during the preparations for this research a pandemic has ensued, due to the coronavirus COVID-19. Therefore, one can state there currently is a high relevance for researching and monitoring community resilience during these impactful events.

These so-called testing ground neighborhoods, Bospolder and Tussendijken, contain 14.500 residents and approximately 7100 households, these households contain a relatively high amount of kids, since more than 20% of the neighborhood is under the age of 18 years old, while the percentage of elders is below average with 11% (Gemeente Rotterdam, 2020). Both neighborhoods have a high diversity of residents. Almost 80 percent of the neighborhood's community has an immigrant background, of which almost 70 percent has a non-western background (Gemeente Rotterdam, 2020). Furthermore, Veldacademie states that Bospolder and Tussendijken are two of the poorest neighborhoods in the Netherlands. The neighborhoods have an image that can be described as 'disadvantaged'. This is due to a high concentration of social problems such as unemployment, high indebtedness and low quality of housing in the area's.

Despite this public image, many locals are actively involved in neighborhood initiatives. Though, a lot of these local projects rely on subsidies, while the energy of local residents are not inexhaustible, and administrative procedures are also fragmented. Currently, market parties are now also involved and together with residents they bundle their energy to reduce the social problems in the area (Veldacademie, 2020).

3. Community resilience and how to facilitate it

To determine the extent to which local institutions are resilient in their cooperation with local communities during crises, it is needed to clearly define resilience in the context of communities. Additionally, it should be clear what resilient cooperation or facilitation encompasses. Therefore, this section presents a literature study on resilience. Here the focus lies on collective resilience instead of individual resilience. Furthermore, studies were selected on the criteria that they provided information on social or community resilience. An overview of the literature can be found in appendix C.

3.1 Literature findings

Community resilience has many facets and can be viewed from multiple predefined in numerous ways, so Imperiale and Vanclay (2016) describe community resilience as: the social survival processes that are put into action by local communities to address negative social and economic impacts during crises. Ross and Berkes (2014) explored community resilience from the perspectives to understand, enhance and monitor the concept. Regarding the monitoring of resilience, they provide six aspects that can be taken into account: (1) Persistence, staying and acting within the community. (2) Problem solving, ability to tackle increasingly difficult problems. (3) Leadership, community leaders and self-organization. (4) Social capital, social networks. (5) Engaged governance and (6) Proxies for resilience, for example government statistics. These six aspects seem to be very much public-centric. Public-powered community resilience in vulnerable areas may also help in building social and territorial cohesion around a shared vision (Imperiale and Vanclay, 2016). This results in the emergence of aftershock economies and aftershock societies. Community members share resources and apply their knowledge and capacities to collectively cope with change. They also share strategies and stories (aftershock communication) that strengthen their sense of social responsibility, public duty, sense of place and their participation (aftershock engagement). The continuation of this review supports the found knowledge gap in the resilience literature and provides a further basis for a resilience facilitation framework.

3.1.1 Concept of resilience

As a starting point, Doff (2017) conducted a literature research in the field of social sciences. The review highlights Davoudi's (2012) definition of resilience: 'the ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains'. According to the paper, stressors can be caused by nature or by human behavior, such as socio-economic and institutional changes. Though, natural stressors may also be caused by human behavior. The research states that people can influence these changes and therefore exercising this influence is part of social resilience. From this perspective it will be valuable to research and map what type of stressors mostly occur in local communities which way of influencing change suits social resilience best in these situations. Next, the review went more in-depth on social resilience, referring to Keck and Saktapolrak (2013) to mention that there are three dimensions to social resilience: coping, adaptive, and transformative capacities.

To give an expansive overview of the meaning of community resilience, Doff (2017) also provided a comprehensive list of 19 studies ranging from 2008 till 2017. These studies all present a definition of community resilience. This list, found in table 1, aids in creating a better

understanding of the concept, which allows one to reason about the ways to improve this resilience.

Auteur	Definitie
Camps-Calvet et al. (2015)	learning to live with change and uncertainty, nurturing diversity for reorganization and renewal, combining different types of knowledge for learning, creating opportunity for self-organization (= strategies of resilience)
Chaskin (2008)	resilience is a positive, adaptive response to adversity, preventive or responsive
Cheshire (2015)	the capacity for disaster readiness, how communities and its constitutive features of local networks and associations, function as resources to help residents better prepare for and recover from disasters
Cretney & Bond (2016)	preparedness and reducing losses from future disruption
Dalgaard-Nielsen & Schack (2016)	a community's ability to leverage social capital understood as the existence of stable trust-based relationships and networks among the actors to detect radicalization risks, prevent the recruitment of community members into violent extremism, and bounce back after instances of recruitment via learning and adaptability
Davoudi (2012)	the ability of complex socio-ecological systems to change, adapt, and, crucially, transform in response to stresses and strains (=evolutionary resilience)
Fay-Ramireza, Antrobusa & Piquerob (2015)	the capacity to cope when confronted by hardship
Keck & Sakdapolrak (2013)	three different types of capacities are necessary for understanding the notion of social resilience in its full meaning: coping capacities, adaptive capacities and transformative capacities
LaLone (2012)	key aspects of resilience are anticipation and preparation, as well as the ability to bounce back through response and recovery
Magis (2010)	Community resilience is the existence, development, and engagement of community resources by community members to thrive in an environment characterized by change, uncertainty, unpredictability, and surprise.
Matarrita-Cascante et al. (2017)	community resilience is about resources existence, development and engagement, including the actions taken to manage them
Mehmood (2016)	the capacity of communities to withstand or adapt with change
Mulligan et al. (2016)	how local communities might prepare for, or 'bounce back' from, the threat of natural disasters, 'terrorist' violence, climate change impacts, or the vicissitudes of global financial and economic markets
Platts-Fowler & Robinson (2016)	the ability to adapt and survive in the face of long-term stress; to respond positively to change and ongoing adversity and risk
Steiner en Markantoni (2014)	personal / collective capacity to respond to change
Vale (2014)	responsiveness to sudden changes – unanticipated disruptions – but resilience can also help frame more gradual transformations, helping to guide responses to more predicted (or predictable) matters such as deindustrialization and urban shrinkage (=urban resilience)
Waters (2016)	the ability of a community to cope and adjust to stresses caused by social, political, and environmental change and to engage community resources to overcome adversity and take advantage of opportunities in response to change
Wickes, Britt & Broidy (2017)	the agentic capacity of communities to respond to and learn from challenges or threats to the neighborhood (collective efficacy)
Wilson (2012)	willingness of communities to take responsibility and control of their development through the development of responsive strategies towards change

Table 1 Definition of community resilience (Doff, 2017)

Accordingly, the paper also discusses concepts that are related to social resilience. It describes that community adaptability, capacity and vulnerability may affect community resilience, through community agency, as can be seen in figure 3. These related concepts aid in deducing a so-called level of social resilience within the local community.



Figure 2 Conceptual ties of resilience (Doff, 2017)

The literature review by Doff finally concludes that there is no one clear definition for the concept of community resilience. Therefore, it is helpful to consider community resilience, when looking at known social processes in the context of ongoing or future stressors, the researcher states. She highlights that oftentimes the capacity for change of behavior or adaptability is key in an ever-changing and unpredictable environment. In the case of the research, the ongoing stressor is the current health crisis caused by COVID-19. This leads to the following definition: The ability of the community to adjust their social processes to cope with the changing situation caused by a crisis.

When further researching the topic of community resilience, several concepts and contexts came forward which could be grouped into three themes. Therefore, the remaining literature that is reviewed is related to the following themes: facilitating resilience, crisis management and policy & governance.

3.1.2 Facilitating resilience

Social resilience may be improved through facilitation, but how does one facilitate or influence resilience? Social-ecological systems and psychology are shown to be interesting fields to analyze community resilience. From these disciplines, Berkes and Ross (2013) derive the following strengths and characteristics to be key in community resilience: “people–place connections; values and beliefs; knowledge, skills and learning; social networks; engaged governance (involving collaborative institutions); a diverse and innovative economy; community infrastructure; leadership; and a positive outlook, including readiness to accept change.” The authors share that the ability to influence resilience, self-organization and independence in light of community resilience, could be facilitated by community members through social learning or applying community development, like building strengths and relationships within the community.

More facilitating social key processes are outlined by Walsh (2007) who researched strengthening of family and community resilience, in the context of major disasters. Under these key processes fall organizational patterns like flexibility to adapt and re-stabilize; economic and institutional resources. Also, communication or problem solving processes like clear and consistent information sharing, as well as collaborative decision-making, planning, preparedness and resourcefulness. Communication has also been highlighted by Spialek and Housen (2018) who concluded that communication designed to validate knowledge about disasters and share stories has been correlated with stronger expectations of group resilience. Additionally, Vos and Sullivan (2014) mention, that improving collaboration between authority

response organizations and citizens is useful but simultaneously a simplification, since crisis communication is actually created in a multi-actor arena.

So far the discussed literature has clear findings on what facilitates resilience, ranging from social networks and communication to self-organization, governance and more. The question arises whether these key processes are currently applied by local actors to facilitate resilience.

Another recurring subject in facilitation of social resilience literature is social capital. Magis (2010) defines social capital as “the ability and willingness of community members to participate in actions directed to community objectives.” According to the US National Research Council (2011), social capital is a key source of resilience on which private-public collaborations depend.

When examining a health crisis in Canada, Lisnyj and Dickson (2018) found a high significance to elements of social capital to facilitate the community’s resilience in direct and indirect ways. Since social capital’s significance is high in terms of resilience, increasing it can be considered favorable. Simultaneously, because of social capital’s importance to community resilience, the degree of its presence or lack thereof, could translate into the degree of local resilience. For this reason, it is useful to identify the form in which social capital is manifested in the community and if new forms can be added.

3.1.3 Crisis management

Resilience may be easiest to perceive in times of crisis. Therefore, research by Williams et al. (2017) aimed to integrate resilience with crisis management. Crises were described in two ways: ‘crisis as event’ and ‘crisis as process’. Simultaneously, crisis management in both perspectives has its differences. The authors provide a process view of the fusion of crisis management and resilience. This view shows the duality and interaction of types of adversity, resilience development and actions, positive outcomes and the possible negatives. Adversities may be “routine” hardships or develop into discontinuous events. In case of a routine hardship, crisis management may rely on human and social capital to avoid catastrophe or halt its evolution. In case of a major disturbance, a need for positive cognitive and behavioral responses are needed that are reinforced through context. In this process view, through positive or negative outcomes, the acts of resilience provide feedback for following acts. This showcases the dynamic interaction of actors’ resilience with their environment.

This interaction of actors is mentioned by Nespeca et al. (2020) as well. According to this paper, actors have to coordinate by mutually adjusting their activities, to achieve a common goal. The researchers go on to provide a framework that is able to assess whether information in crisis management supports self-organization. As the ability to effectively self-organize is considered to be beneficial during crises. The framework distinguishes actors, roles, groups, the environment of crises and the relation between them, as seen in figure 4. This framework provides a way to look at the existing make-up of formal and informal environment within BoTu and bring attention to its actor roles, interaction and level of support for self-organization.

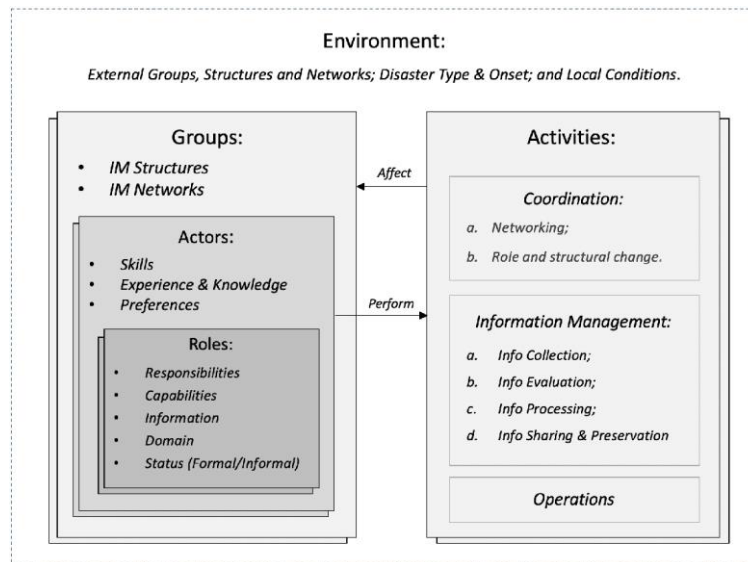


Figure 3 Design framework for self-organization supporting Disaster Management Information Systems (Nespeca et al., 2020)

One example of ways how actors interact with their environment is displayed in an article by Linnell (2014). He discusses Swedish citizen response in crisis. Linnell found that there was a range in grassroots initiatives that connected with wider crisis management. These initiatives existed of organized, semi-organized and non-organized volunteers. Where semi-organized and non-organized volunteers may be potential resources for enhancement of community resilience. Interestingly, he notes that the lesser organized volunteers apply the use of ICT and social media more than hierarchically voluntary organizations.

Regarding ways to improve community resilience, Comes (2016) points out three challenges that are recurrent during crisis responses and need improvement. The first challenge entails transitioning from preparedness to crisis response. Secondly, there lies a challenge in connecting significant community actors to each other. Finally, she adds the challenge of designing systems and tools for feedback from communities to incorporate into coordination and planning. To tackle these challenges Comes presents a design framework that should focus on the forming of expert networks with changing roles; fast communication and coordination support in distributed networks; ad hoc reasoning to address challenges and changes. These findings also complement the framework presented by Nespeca et al. (2020) and should likewise contribute to findings on the BoTu actors, their roles and information exchange, regarding self-organization.

3.1.4 Governance & policy

Crisis management in the context of resilience is often enacted through policies and governance. According to Stark and Taylor (2014), policy efforts often fail and are fragile. Therefore, it proves necessary to find out which relevant policies are in place of a community and learn how they are implemented. Are there policies that support resilience (during crises) and are they adhered? Knowing this helps in determining the success or failure of the policies.

Wilson (2013) also mentions how policy and resilience interact. Most successful policies are directed at the needs of specific communities and based on the correct timing of implementation. Nonetheless, state policies can often contribute to a decrease in the resiliency

of a community. Mainly in developing countries, policies need to concentrate on avoiding a further decline of community-level resilience. Whereas, in the more developed countries, policies may need to concentrate on rediscovering highly resilient pathways. Lastly, community-level actors can't always be left to act autonomously to guide resilience pathways. Instead, a form of external regulation of resilience building may be suitable. Adding that, in most situations, the government must play some part in directing and shaping the transformation to strong community resilience.

This coincides with the statements of Stark and Taylor (2014) who insisted on local state control. Though, local customs may still influence decision-making and in this way help in bridging social capital at community level. The influence of customs or culture is also addressed by Hills (2000). He states that there is no clear hierarchy of values and goals in crisis management and that institutional governance is only partially linked to expertise and ambitions. Concluding that the most important aspect in promoting resilience is the useful fulfillment of a function by an institution. As Stark, Taylor (2014) and Wilson (2013) state, local customs within a community may ask for specific policy-making. Therefore, distinguishing between state-imposed policies and local policies, while looking at their effectiveness of facilitating community resilience, can be of value.

Furthermore, successful resilient acts are more likely by initiatives who seek to communicate with other residents, as opposed to those that do not. This may be due to the fact that communities are dealing with complex challenges that are easier to tackle as a collective (Edelenbos et al., 2018). Which would explain why, the greater a community's capacity for self-governance the better able it is to deal with these complex challenges (Grube & Storr, 2013). The authors describe that self-governance depends on: (1) social coordination capacity, (2) social capital access, (3) shared perspectives leveraging, and (4) social networks.

According to Kapucu and Sadiq (2016), two steps are needed to facilitate governance for community resilience. Authorities should first adopt risk management regulations. Secondly, governments should cooperate with community stakeholders on disaster planning and community recovery goals. Here, the community capacity or social capital serves as input for multi-level network governance, that builds community disaster resilience. As previously stated in the literature review from Doff (2017), community capacity influences community resilience. Edelenbos (2018), Grube & Storr (2013) and Kapucu & Sadiq (2016) all allude to this. Policy may be more effective when it aids community capacity. If policies for BoTu do not already provide this, it can be valuable to study how this can be done.

3.2 Conceptual Framework

Though there are knowledge gaps, the existing literature tells us which values should be embodied to facilitate resilience. More importantly, the literature shows how elements from different fields impact community resilience. Using aspects of the Berkes and Ross' (2014) framework to monitor resilience as a starting point, concepts from literature can be connected to create a conceptual framework on the interaction of factors for facilitation of resilience. The framework highlights how the interaction of social capital, engaged governance, community leadership and problem solving abilities, in an information sharing and multi-level communicative environment influence the persistence and resilience of a community. Additionally, the conceptual model reflects findings from Nespeca et al. (2020), where the

engaged governance and community leadership factor reflect actors and the problem solving ability reflects activities, as previously depicted in figure 4.

3.2.1 Environment

Looking at the environment in which the framework should be applied, communication is highly recommended. According to studies communication between multiple actors, aid in problem solving and allows communities to tackle bigger problems, therefore a communicative environment is beneficial. To provide this benefit, the environment in which the rest of the framework exists, is characterized by **information sharing, multi-level communication, multi-actor communication, physical meeting places and tools that enable this type of communication**. (Walsh, 2007; Spialek & Housen, 2018; Nespeca et al., 2020; Berkes & Ross, 2014; Grube & Stor, 2013).

3.2.2 Community leadership

According to a study by Seixas and Davy (2008), leadership can be regarded as a significant predictor of success in functioning as a bridge between community and so-called higher levels or formal authorities (Berkes & Ross, 2014). Therefore, community leadership, **self-governance and self-organization** both influence and are influenced by social capital (Grube & Storr, 2013). Connecting significant actors, who may play part in community leadership, is seen as a challenge, but as one that adds value (Comes, 2016). Moreover, proper community leadership identifies needs and deals with problems (Berkes & Ross, 2014).

3.2.3 Social capital

Magis (2010) described social capital as “the ability and willingness of community members to participate in actions directed to community objectives.” Though Berkes and Ross (2014) refer to networks. Therefore, for this framework, this definition can be expanded to social networks that facilitate actions or access to several resources (Bourdieu, 1983; Coleman, 1988). Adding on the influence social capital has on community leadership, social capital also provides the **shared vision** and the **existing grassroots initiatives** that connect with wider assignments to solve problems (Grube & Storr, 2013; Imperiale & Vanclay, 2016; Linnell, 2014). Also, social capital should serve as input for authorities for multi-level network governance (Kapucu & Sadiq, 2016).

3.2.4 Engaged governance

Engaged governance relates to agency groups that participate in co-governing or co-management procedures (Berkes & Ross, 2014). This type of governance reflects resilient governance and cooperation that is subject in this study. Engaged governance should **reciprocate the received input it gets from social capital, with community specific policies**. This tends to be more successful than non-community related policies and may be needed in shaping community resilience (Wilson, 2013). Moreover, an important factor in the facilitation of resilience is the **fulfillment of useful functions** by institutional governance (Hills, 2000).

3.2.5 Problem solving abilities & community resilience

Finally, the problem solving abilities represent the combination of the previous factors that together enable the tackling of difficult problems within a community. This could take shape in the form of abilities of the community, like consistent information sharing, collaborative decision-making, planning, preparedness and resourcefulness, as previously stated. Problem solving ability could take the form of a problem solving network. These abilities result in three possible capacities of social resilience: **coping, adapting and transforming** (Keck &

Sakdapolrak, 2013). In this context, coping refers to a short-term focused and reactive response. Here problems are solved through directly available resources. Adapting relates to a long-term proactive response, where prevention is the goal through lessons from previous experiences. Transforming applies to a long-term participative capacity. This allows people to access resources, socio-political support from government, and participation in decision-making processes, Keck and Sakdapolrak reported. Finally, the degree of resilience determines the **persistence** of the actors **physically staying in the community** (Berkes & Ross, 2014).

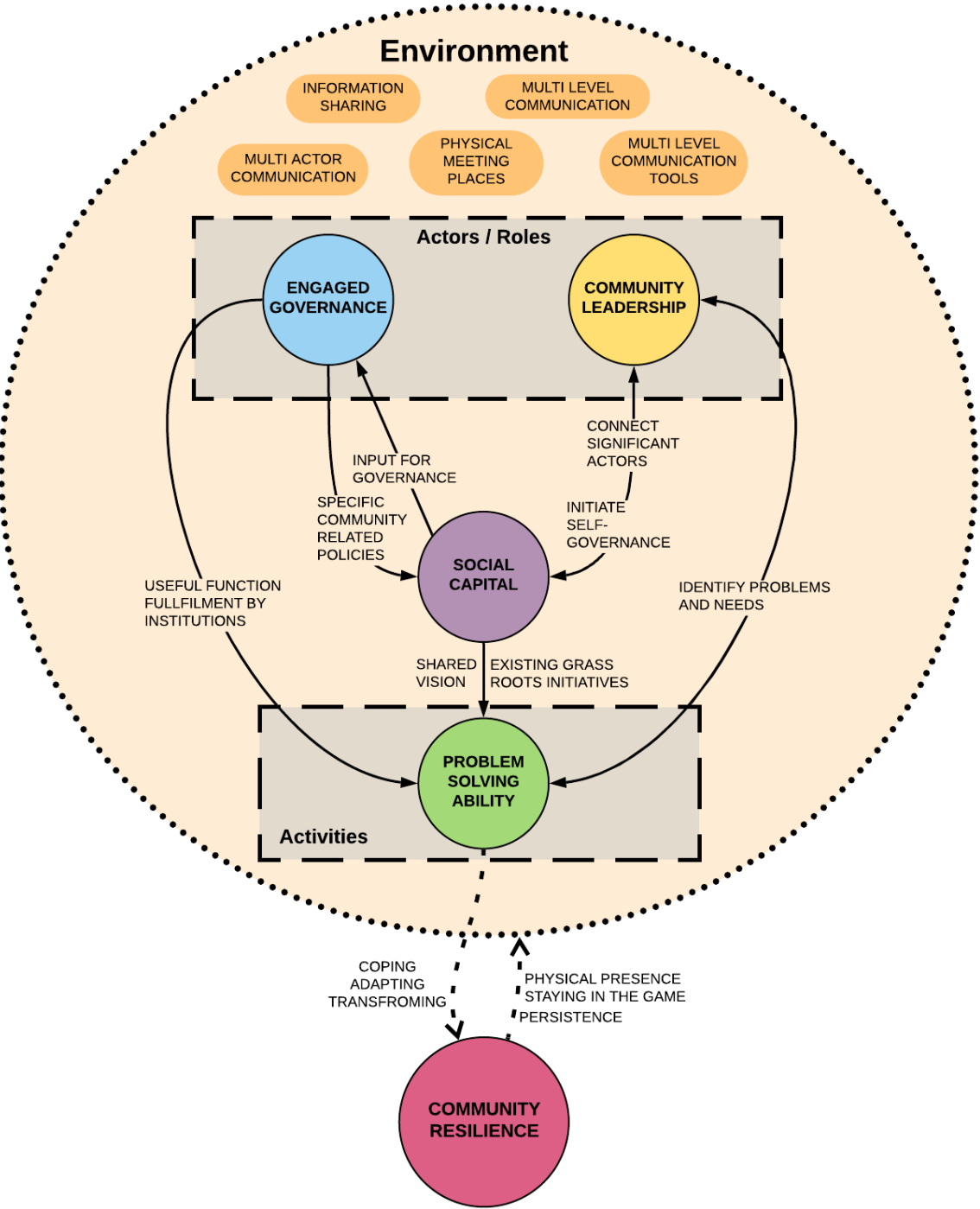


Figure 4 Conceptual framework: facilitating community resilience

4. Case interviews analysis

The previous chapter provided a theoretical view on the subject. This led to a conceptual framework to facilitate community resilience. To uncover findings from real-world experience this study collected data through the BoTu case study, existing of semi-structured interviews. The interviews were recorded and transcribed with the consent of interviewees, so they could be further analyzed afterwards. For the analysis, the transcriptions were attributed codes. These interviews were conducted and transcribed in collaboration with Veldacademie.

4.1 Data collection

The study applied semi-structured interviews, which enabled the collection of rich and systematic data (Corbin & Strauss, 2015). The questioning remained conversational, allowing the interviewer to delve more closely into specific issues. This flexibility assisted the researcher in clarifying the uncertainties that might emerge during the interview. Using the Veldacademie’s interview questions from their “Startfoto Monitor Veerkracht in Bospolder-Tussendijken” as a reference, a new list of interview questions to conduct this research, was developed, based on the intention to find factors that facilitate resilience and relate these factors to the conceptual framework in chapter 2. Both lists with interview questions can be found in appendix D and E.

Interviews were partly held with members of the Veldacademie’s current network that were involved in the ‘Startfoto Monitor’. This provides a possibility for a side by side comparison, from the same perspective, on the current and previous state of the neighborhood, within Veldacademie’s future research. The remaining interviews were done with actors from currently existing personal networks within the community. The participants can be found in Table 2, which shows the number of interviews and participants, since some participants were interviewed multiple times.

Table 2 Data collection, including the participant type, the number of interviews and participants contacted each type, and affiliations of several participants.

Participant Type	Interviews	Participants	Affiliation
Formal	(35)	(22)	
Municipal Employee (ME)	8	4	Rotterdam Municipality, Area Committee
Foundation (F)	18	12	WMO, Delfshaven Cooperatie ...
Healthcare / Education (HE)	4	4	IZER. Nicolaas, Bibliotheek Rotterdam, Peuter&co
Community Leader (CL)	5	2	Geloven in, Ayasofya
Informal	(29)	(25)	
Community Leader (CL)	0	0	n/a

Community Member (CM)	12	11	Botu12, Dakpark, Gijssingsflat ...
Community Foundation (CF)	15	12	Zelfregiehuis, Nablijklas, Verbindingskamer ...
Healthcare / Education (HE)	2	2	Bouwkeet, Martial Arts Rotterdam

From the literature review one can conclude that the subject of community resilience is quite extensive. Therefore, the time interviewees normally have available may not be enough to reach the full scope of the topic completely. Furthermore, the questions and results introduced in this study rely on clarification of participants' memories. Therefore, the interviews consisted of two parts. First, a short description about the study was shared and the consent forms were filled and gathered. After, the semi-structured interview was conducted and recorded. Finally, contact information was collected, in case follow-up was needed.

4.2 Data Analysis

The interview recordings were transcribed and analyzed with the help of coding and analysis tool called Atlas.ti 8. The coding method consisted of a detailed reading of the transcripts and identifying text describing relevant parts for study with regards to the research questions. This resulted in theme-based code groups that addressed global subjects. Following, these identified codes were all reassessed distinguished in detail. If a related subject was identified a new code was created. The codes were grouped after finishing the process, attributes and interrelations were identified. The relation between the codes, questions and conceptual framework can be found in appendix D. Additionally, quotes from the interviews were retrieved to illustrate each of the characteristics and connections. Finally, code counting was done to confirm the number of codes.

This resulted in a coding scheme of 8 code groups regarding resilience, consisting of 65 codes in total. These code groups were: (1) COVID aid requests, (2) Policies and guidelines, (3) Activities and initiatives, (4) Triggers for collective action, (5) Facilitation of resilient acts, (6) Frustration of resilient acts, (7) Lack of actions, (8) Lessons and learning points. Furthermore, 2 code groups regarding the actors are part of the coding scheme. Here the distinction is made between formal and informal actors. This distinction is mainly based on the divide that was made in the Veldacademie's Startfoto Monitor (2020). Institutions and organisations that are top-down structured, have decision-making power and influence, or may have ties to the municipality, were considered to be formal actors. Whereas foundations or bottom-up initiatives that are mainly initiated by local residents were considered to be informal actors. In total, 22 formal actors and 23 informal actors were identified. The complete list of codes can be found in Table 3 in appendix F.

Moreover, role changes of these actors were determined. Following the study of Nespeca et al. (2020), roles are characterized by five factors: (1) responsibilities, which are specific or duty-related to a role, (2) capabilities, which refer to the ability to perform certain activities, (3) information, which is needed or access is granted to, (4) domain, refers to the expertise that can

be carried to another work field and (5) status, regarding formal and informal roles. Changes in roles were characterized using a similar approach and can be found in table 4 and 5.

5. Results

In chapter 2, with help of existing literature, a conceptual framework was formed that depicts how to facilitate community resilience. The analysis of the interviews, identifies similar factors that are part of the conceptual framework, can be identified and placed into the framework, to reflect the relationship and dynamics of community resilience in the Bospolder-Tussendijken case. As an example of how to apply the framework, figure 5 shows the identified actors and factors in the emergence of community initiative Delfshaven Helpt. This collaborative initiative became prominent in facilitating resilience in the community by combining formal and informal actors. Figure 6 shows how the actors and their relationships fit in the context of the conceptual framework. The following sections shall discuss this further.

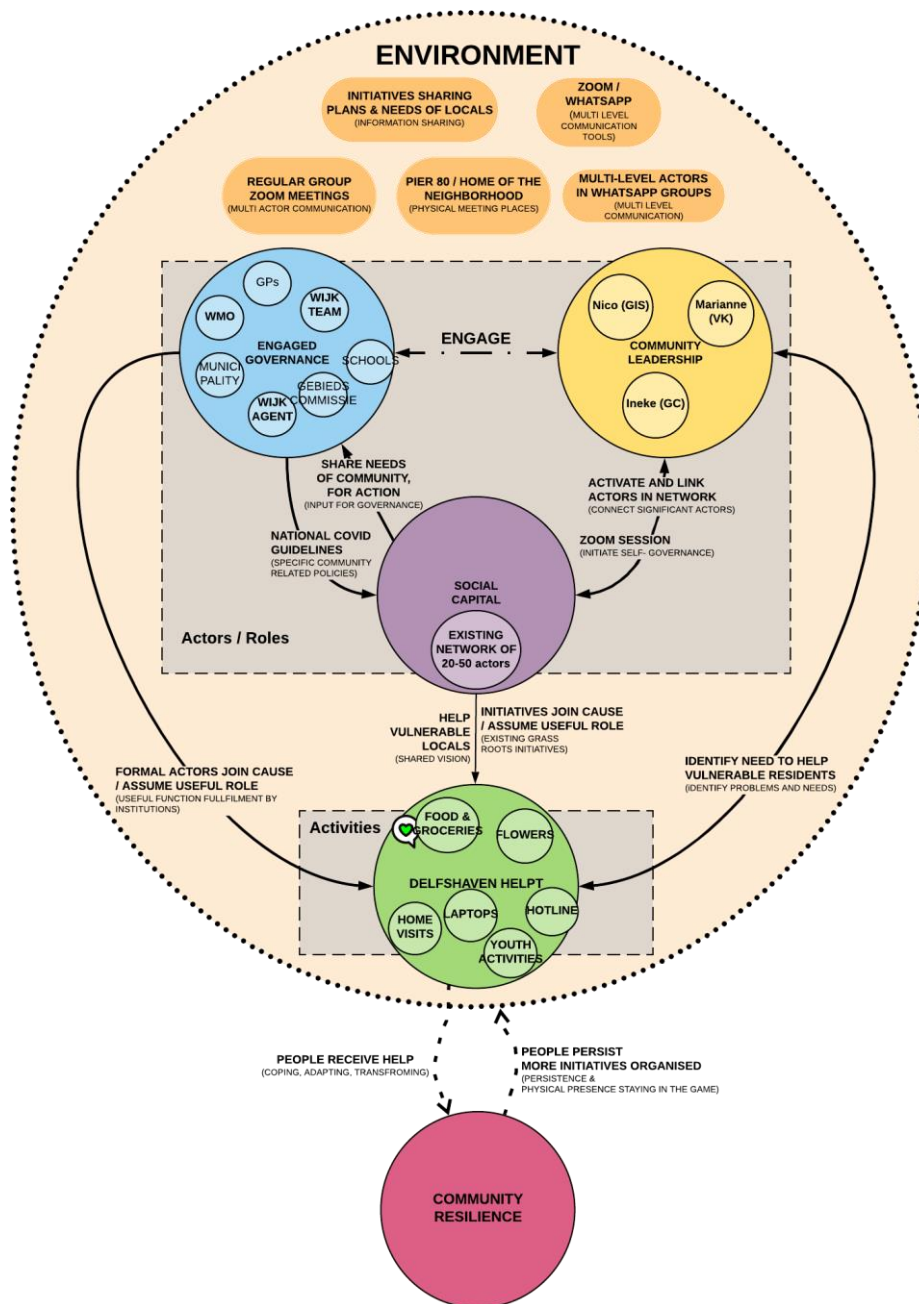


Figure 5 Conceptual framework: Facilitating community resilience, the emergence of Delfshaven Helpt

5.1 Actors and roles

In the conceptual framework, the actors and roles play a significant part. The factors in this element of the framework consist of existing actors that are related to the neighborhoods Bospolder and Tussendijken. With the skills, knowledge and preferences that actors hold, the dynamics between community leadership, social capital and resilient governance, a multi-actor setting, lay the groundwork for problem solving or, in this case, the emergence of Delfshaven Helpt.

5.1.1 Community leadership

For the development of problem solving abilities, which in the framework is embodied by the Delfshaven Helpt initiative, the emergence started with the community leadership factor. As seen in the framework, community leadership identifies problems and needs. The origin of Delfshaven Helpt lies within the identification of vulnerable people's need for help. This was identified by a combination of three actors that acted on this. Firstly, one actor shared this problem online: *"Then I had posted a very small message on my own private social media channels to help an elder in your neighborhood or in your village, in your family circle, you know, make the occasional extra call or send a card or give some extra attention."* (CF, *Verbindingkamer*) This was followed by two actors internalizing the need and also as one of them states: *"... she was worried about elderly people and she wrote 'adopt an elderly person' or something. And then I thought, yes, that might be a good idea to get some more people to join in'.* (CL, *Geloven in Spangen*). This statement also portrays the initiation of self-governance that community leadership is able to manifest through influencing social capital. Though, prior to this the three actors engaged and met with the governance actors: 'wijkteam' or community team, welfare organisation WMO Radar and the community police officer. Regarding the problems and needs that arose during this period the one category of the coding scheme can be placed in identification of the problem and needs identification, namely *COVID aid requests*.

5.1.2 Engaged governance

In Bospolder-Tussendijken, the role of resilient governance is fulfilled by formal actors in the neighborhood. These actors stand closer to government and thus are sometimes part of enforcing or implementing policies. These policies affect the community, as well as social capital, as can be seen in the framework. During the research most policies were nationwide policies, with a small degree of variances within municipalities. The code category that represents these policies in the framework is: *Policies and guidelines*. During the emergence of Delfshaven Helpt, the community leadership actors had a meeting with the governance actors to discuss the needs and problems within the community, following the crisis, policies and guidelines that were implemented due to COVID-19. *"Of course you have many elderly people who do not dare or are advised not to leave the house. They need groceries, they get lonely"*. (ME, *Area committee*), so one of the leadership actor shared. As well as one of the governance actors stated being one of the initiators of Delfshaven Helpt: *"we are one of the leaders together with the City of Rotterdam and a number of other partners."* (F, *WMO Radar*)

5.1.3 Social capital

Following the meeting between the actors representing the governance and community leadership factors, self-governance was initiated by activating the social capital or social network that is present in the community. According to the interview with the leadership actors, an online meeting, using conference call software program Zoom, was organized. The meeting

consisted of 20 to 50 actors, according to the leadership actors, the exact amount remained unclear.

One factor that enables social capital to be utilized for problem solving is shared vision, as commented on during an interview: *“I think the reason why it came about so quickly in this district, or rather quite Delfshaven, is because in recent times, years already, investments have been made in the resilience of various networks. So we can find each other very quickly and therefore also have a kind of shared framework of values, which makes it easier to work together on the basis of trust.”* (F, Delfshaven Cooperatie). Accordingly, the vision and mission to support local residents in need was widely adopted within the existing social network, that similarly played a crucial role in enabling social capital, and facilitates the problem-solving and emergence of Delfshaven Helpt. This shared vision is also one of the subcategories in the category related to social capital in the framework, namely *Triggers for collective action*. Conformingly, shared vision was mentioned 45 times during the interviews. Where existing networks are mentioned 56 times as a factor to trigger collective action.

5.1.4 Role changes in Bospolder-Tussendijken

During the study the actors that are part of the social fabric in Bospolder-Tussendijken have been identified. A coding scheme of these actors can also be found in appendix G. Due to the COVID-19 pandemic, some of these actors have changed their original role to accommodate the need for help. This has been done through Delfshaven Helpt, but also outside of Delfshaven Helpt, initiatives have taken on the challenge to support residents within the neighborhood and beyond. So one respondent shares: *“There are a lot of initiatives, everyone tries to contribute in his or her own way.”* (CM, BoTu12). The occurrence of role changes also has been mentioned 33 times during the interviews.

Role changes were made both by formal actors that lay in the resilient governance factor of the conceptual framework, as well as informal actors represented by the social capital factor of the framework. Table 5 presents a list of recognized formal actors, alongside information on role change sand type of role changes. Furthermore, the table reflects the activities that they have undertaken, which can be found in the coding scheme category *activities and initiatives*. The table also implements the coding categories *facilitators for resilient acts* and *frustrations for resilient acting*, for each actor. Table 6 presents a similar list for informal actors.

Table 5 Formal actors' role changes and activities

*(NED: Not enough data)

ACTOR	ROLE CHANGE?	TYPE OF CHANGE	ACTIVITIES (CODE)	FACILITATOR (CODE)	FRUSTRATIONS (CODE)
AYASOFYA	Yes	<i>Capabilities</i>	Phone calls or Hotline; Food & Groceries; Flower initiative	Networks; digital resources;	Closed meeting places
CENTRUM JEUGD GEZIN DELFSHAVEN COOPERATIE	NED*	-	-	-	-
HUISARTS & IZER ZORG	Yes	<i>Responsibilities</i>	Delfshaven Helpt	Formal organisations; cooperating initiatives; networks; digital resources	-
FONDSSEN	Yes	<i>Information</i>	Delfshaven Helpt; Home visits	Digital resources; networks; cooperating initiatives	Inefficient communication
FRONTLIJN	NED	-	-	-	-
GEBIEDSCOMMISSIE (AREA COMMITTEE)	Yes	<i>Responsibilities; capabilities;</i>	Delfshaven Helpt	Formal organisations; cooperating initiatives; networks; digital resources	Inefficient communication
GELOVEN IN SPANGEN	Yes	<i>Responsibilities; capabilities</i>	Delfshaven Helpt; Giveaway shop	Cooperating initiatives; networks; formal organisations	-
GEMEENTE ROTTERDAM	Yes	<i>Information, status</i>	Delfshaven Helpt;	Networks; central hub	Closed meeting places; Policy, process, guideline
HAVENSTEDER	Yes	<i>Capabilities; domain</i>	Giveaway shop; Delfshaven Helpt	Formal organisations; cooperating initiatives; Networks	-
JONG DELFSHAVEN	Yes	<i>Capabilities</i>	-	Central hub; cooperating initiatives	Policy, process, guideline; Closed meeting places
JUMBO	Yes	<i>Capabilities; domain</i>	Food & Groceries;	Cooperating initiatives; Formal organisations	Limited supermarket entry
MEVLANA MOSKEE	Yes	<i>Capabilities</i>	-	-	-
PIER 80	Yes	<i>Capabilities</i>	Food & Groceries;	Central hub; cooperating initiatives	Closed meeting places; 1.5m guideline
RABOBANK	NED	-	-	-	-
SCHOLEN	Yes	<i>Responsibilities; capabilities</i>	Youth activities	Digital resources	School closes; Work from home
UNILEVER	Yes	<i>Capabilities</i>	Food & Groceries	Networks; cooperating initiatives; formal organisations	-
VRAAGWIJZER	Yes	<i>Information</i>	Delfshaven Helpt	Cooperating initiatives; formal organisations	1.5m guideline; Policy, process, guideline
WIJKAGENT (LOCAL POLICE OFFICER)	Yes	<i>Information</i>	Delfshaven Helpt	Formal organisations;	-
WIJKTEAM (COMMUNITY TEAM)	Yes	<i>Capabilities; information</i>	Delfshaven Helpt; Food & groceries; Home visits;	Networks; cooperating initiatives; digital resources; formal organisations	Inefficient communication; 1.5m guideline; Policy, process, guideline
WIJKVERPLEEGKUNDIGE (DISTRICT NURSE)	Yes	<i>Information</i>	Delfshaven Helpt; Home visits	Formal organisations; digital resources; cooperating initiatives	Inefficient communication
WMO RADAR	Yes	<i>Capabilities; status; information</i>	Delfshaven Helpt; Food & groceries; Home visits; Cleaning initiative; Youth activities	Central hub; networks; cooperating initiatives; formal organisations	1.5m guideline; Closed meeting places

Table 5 shows that of the 22 formal actors that were identified during the analysis of the interviews, 19 changed their roles. There was not enough data on the remaining 3 actors to determine whether they changed their roles or not. The most common type of role change was a change in *capabilities*, meaning these actors changed or expanded their activities. This is followed by the *responsibilities* role change, which mostly occurred alongside a role change in capabilities. Most of the formal actors had activities that were related to Delfshaven Helpt and their role changes were mostly facilitated by the collaboration of formal organisations and cooperating initiatives. Two of the main frustrations for the formal actors were inefficient communication and the closed meeting places.

Table 6 Informal actors' role changes and activities

ACTOR	ROLE CHANGE?	TYPE OF CHANGE	ACTIVITIES (CODE)	FACILITATOR (CODE)	FRUSTRATION (CODE)
BESOUK	No	-	-	-	-
BOTU12	Yes	<i>Responsibilities, capabilities</i>	Flower initiative; Delfshaven Helpt	Networks	Inefficient communication; Policy, process, guideline
BOUWKEET	Yes	<i>Capabilities</i>	Phone calls or Hotline; Youth activities	Digital resources	-
DAKPARK	Yes	<i>Capabilities</i>	Food & Groceries	Formal organisations	-
DELFSHAVEN HELPT	Yes	<i>Responsibilities, capabilities, status, information</i>	Delfshaven Helpt; Food & Groceries; Laptops; Home visits; Phone calls or Hotline	Networks; formal organisations; digital resources; cooperating initiatives	Inefficient communication
DELFSHAVEN LOKAAL	Yes	<i>Responsibilities</i>	Delfshaven Helpt	Networks; cooperating initiatives	-
SPEEL-O-THEEK KLEIN DUIMPJE	NED	-	-	-	-
MARKT VISSERIJPLEIN	No	-	-	-	Policy, process or guideline; 1.5m guideline; Restricted market
RMC	No	-	-	-	Financial constraints; 1.5m guideline
SCHIEZICHT	Yes	<i>Capabilities</i>	Flower initiaive	Networks; cooperating initiatives	Closed meeting place
SPONSORS	Yes	<i>Capabilites</i>	Laptops, Food & Groceries, Giveaway shop	Networks; formal organisations	-
STICHTING ONTMOETING	No	-	-	-	Work from home; 1.5m guideline
TAEKWANDO CLUB	No	-	-	-	1.5m guideline
TEAM TOEKOMST	Yes	<i>Capabilities</i>	Youth activities	Closed schools	-
THUIS IN WEST	Yes	<i>Responsibilities</i>	Delfshaven Helpt	Cooperating initiatives; networks	-
VROUWEN EMANCIPATIE CENTRUM	NED	-	-	-	-
VERBINDINGSKA-MER	Yes	<i>Responsibilities, capabilities</i>	Delfshaven Helpt	Networks; digital resources; cooperating initiatives	-
VLUCHTELINGEN VOOR VLUCHTELINGEN	Yes	<i>Domain</i>	Small or own initiative	Cooperating initiatives	Policy, process or guideline; inefficient communication, closed meeting places
VOEDELSELBANK ROTTERDAM	No	-	Food & Groceries	-	-
VOEDELSELBANK ISLAM	Yes	<i>Capabilities</i>	Food & Groceries, Small or own initiative	Networks; digital resources; formal organisations	Inefficient communication; Policy, process, guideline
VOEDELSELTUIN	No	-	-	-	Policy, process, guideline
ZELFREGIEHUIS	Yes	<i>Capabilities</i>	Flower initiative	Networks, digital resources	Policy, process, guideline
ZORGVRIJSTAAT	Yes	<i>Domain</i>	Delfshaven Helpt	Networks, digital resources	Inefficient communication

The identified informal actors made less role changes than their formal counterparts, table 6 shows. In most cases, this was due to frustrations that disabled their abilities. In other cases, like Voedselbank Rotterdam, the actors did not change roles because their current role remained relevant in the changed environment. Voedselbank provided groceries, which was a great aid request. Of the 23 identified informal actors, 14 actors changed their roles, 7 actors did not change their roles and there was not enough data on the final 2 actors. The type of role change that most often took place was again the *capabilities* type role change. Similar to the formal actors' role changes, this is followed by the *responsibilities* role change type. Apart from Delfshaven Helpt, which appears several times as an activity of the informal actors, informal actors also had a focus on smaller initiatives which were sometimes their own or they shared flowers in the neighborhood to support the local morale. Most of the informal actors' role changes were facilitated as a result of having or being part of a network. Furthermore, the deployment of digital resources has aided these actors. The frustrations that informal actors that

did not change their role faced, were primarily the social distancing guideline that urged people to keep at a distance of 1.5 meters and policies halted the gathering of groups of people. The frustrations of informal actors that were capable of changing their roles, were similarly policies, processes and guidelines, as well as inefficient communication.

5.2 Activities

Following the actors and roles, activities are another important part of the conceptual framework. In activities element of the framework the factor of problem solving activities reside. In the case of Bospolder-Tussendijken, this factor is reflected by the Delfshaven Helpt initiative. According to Nespeca et. al (2020) the activities element is divided in coordination, consisting of networking and role changes, information management, consisting of info collection, evaluation, processing and sharing. Lastly, operations are a part of the activities element.

5.2.1 Problem-solving activities: Delfshaven Helpt

The process of interaction within the actors' element of the framework eventually led to the emergence of Delfshaven Helpt. This initiative could be considered a problem-solving network with the specific and challenging mission to support residents of the Delfshaven district that are in need, during the COVID-19 pandemic.

5.2.2 Coordination

Coordination entails new connections and changes in roles and relationships. Regarding new connections, the Delfshaven Helpt initiative consisted of resilient governance actors, grassroots initiatives and the initiating community leadership actors. As previously stated, regarding the formal actors 12 of the 22 identified actors were linked to Delfshaven Helpt. Looking at the informal actor, 6 of the 23 identified actors were part of Delfshaven Helpt and the Delfshaven Helpt network.

One example of a role change that were linked with Delfshaven Helpt by a formal actor is that of healthcare professionals, like general practitioners. This group of actors changed their role by exchanging information about vulnerable patients that need a form of support that can be fulfilled through Delfshaven Helpt. One of the respondents explained: *“At the moment a patient reports to the doctor with a headache, the doctor can give medication for it, but there is a cause behind it and that is often not in the medical field. For that solution, the doctor's practice must refer to the person's environment to find out whether someone is lonely and make sure he or she is entertained or that he or she wants to volunteer to keep busy.”* (HE, IZER)

5.2.3 Information management

Considering information exchange, the management of information is a relevant subject within the activities element. The collection, evaluation, processing and sharing of information all took place within the Delfshaven Helpt initiative. Digital resources were crucial in the facilitation of information management within the context of Delfshaven Helpt, as a lot of communication took place through these means. *“We have also formed several whatsapp groups, for example a district coordinators group that discusses the district and about those packages and so on.”* (F, WMO Radar) One noteworthy comment, is the fact that this part of the activities has been brought up as the cause of *inefficient communication*, a frustration of resilient acts. several times. This applied to both formal and informal actors, as can be seen in Table 5 and Table 6. Likewise, a respondent that is active in both formal and informal initiatives shares: *“So, all sorts of things, originated from those messaging groups. Yes, and everyone added or asked*

people to add at some point. So, that became more and more extensive, which resulted in a message every three seconds. So that was also a bit, uh, intense.” (F, Zorgvrijstaat & Delfshaven Cooperatie)

5.2.4 Operations

Operations reflect the physical activities that have been undertaken within the environment. In the case of Delfshaven Helpt, this relates to the code category *activities and initiatives*. Actors in the Delfshaven Helpt network organized several activities in response to the help requests that were present in the community. These activities and initiatives included: a caller hotline, groceries and food packages, home visits, distribution of laptops for studying, gifting flowers, a giveaway shop and youth activities.

5.3 Community resilience

Initially, the problem-solving network and initiative Delfshaven Helpt emerged as a coping strategy. The initiative was meant to restore the pre-existing well-being in the community, after the impact that the COVID-19 pandemic had on the neighborhood and its residents. From the fact that most locals remained in the neighborhood, persisting as a community, one may determine that the community was indeed resilient. This has also been attested by multiple respondents: *“Delfshaven is resilient, there are many local initiatives at micro and larger levels.” (CM, Social entrepreneur)*. Another resident even mentioned one of the initiatives, that Delfshaven Helpt also was a part of: *“We are resilient because, we are relaxed and deal well with the things that come our way. Nobody sits down to cry. At the beginning of the crisis, women came here and gave all the mothers plants to support us. Yes, they came from BoTu, so there is enough flexibility here.” (CM, Buurtbestuur)*

Delfshaven Helpt has made a contribution to facilitation of the community’s resilience. According to the interviews this facilitation has been made possible by different factors combined. These factors are also found in the coding category *Facilitation of resilient acts*. A factor that was mentioned 59 times was the collaboration with formal organisations. This refers to the formal actors or resilient governance actors that joined and supported initiatives. Allowing initiatives access to greater resources to solve problems and meet needs within the community. One example is the gesture made by grocery concerns Unilever and Jumbo that both supported the initiative to provide groceries to the community. *“Unilever has contacted one of the people at Delfshaven Helpt, to ask if they can make us happy? Well of course they could, so it has been a few weeks, it was quite a logistical affair behind the scenes. But in the end the Jumbo supermarket also said, okay we are going to add food because Unilever did give us those hygiene products. So in the end, the package is all packed in the parking garage of the jumbo and we have all volunteers from the neighborhood to pack.” (CF, Verbindingskamer)*

The use of digital resources was mentioned 51 times. As previously mentioned much of the communication between actors in the network was through digital devices. Mobile communication applications, like WhatsApp were used to form communication groups. Additionally, video conferencing software, like Zoom, was used to have online meetings. This was also a new experience for some actors: *“corona has given us a new understanding in our lives and that is ‘zoom meeting’.” (CM, BoTu12)*

Other relevant factors were networks, which is very much related to social capital and was mentioned 50 times, and role changes that were made by several actors and organisations (mentioned 33 times).

Moreover, a factor of significance was cooperating initiatives (mentioned 51 times). According to respondents, initiatives cooperating with each other facilitated the resilience because of the common goal or shared vision. *“Yes of course you now have a common goal. That is to help as many elderly and vulnerable people as possible. Provide for the less fortunate and that sort of thing, so to speak. Previously, of course, you also had other goals and now you work together on an assignment that is more inclusive.”* (F, WMO Radar) Previous to this clear goal, there may have existed some form of competitiveness between initiatives, so one respondent states. *“Just because of that tendering that also causes distrust, especially because of the way of tendering and KPI's you have to achieve and fortunately we were able to step over that by working together and getting to know and trust each other. During corona time with our cooperation Delfshaven Helpt that suddenly fell away altogether. Everyone understood it was necessary and it was no longer a competition but just cooperation and you also gave each other something. That was very nice and we actually want to keep it that way.”* (ME, Area committee)

Finally, though it has just been mentioned 3 times, a central hub also had a contribution to facilitation of the acts and initiatives in Bospolder-Tussendijken. Pier 80, also known as a ‘Home of the Neighborhood’, which originally is a meeting place, was utilized as a central hub, that allowed storage of goods and functioned as a workplace for formal actors in the community. *“Surely Pier 80 is a kind of center where many things are stored or worked from. So that's where, for example, all those plants were delivered at the time. Also a lot of food parcels are stored there, for example even if people are not at home, they are brought to pier 80, then residents can still pick it up there themselves.”* (CF, Verbindingskamer)

These resilience-facilitating factors not only played a part in the contribution of Delfshaven Helpt, but likewise in the many other initiatives that were organized by individual locals. This is also reflected by the coded sub categories: *involved local residents, initiatives led by residents* and *small or own initiatives*. These sub categories explain the high level of activity of locals in Bospolder and Tussendijken. The majority of active initiatives are initiated and led by locals. Residents in the neighborhood can also be considered relatively involved and therefore start their own initiatives. One of the initiators of the Delfshaven Helpt initiative also mentioned that they are accustomed to filling the gaps that people expect the municipality to fulfil. When asked if they do not have the idea that they are jumping into a gap that normally should or could be filled by the government? The response was *“Yes but we always do.”* (CL, Geloven in Spangen)

5.4 Lessons

5.4.1 Frustrations of resilient acts

Though community resilience has been facilitated to an extent by the activities and initiatives that took place, as well as Delfshaven Helpt, there also have been circumstances that frustrated resilience acts from both formal and informal actors. This can be found in the coding category: *Frustration of resilient acts*. Among these circumstances were the *closed meeting places, financial constraints, inefficient communication* and *policies, processes and guidelines*. Another identified frustration was the *limited access to or utilization of networks*.

Closed meeting places, hindered the possibility of people gathering together and sharing information. A lot of information was spread with the help of digital media. However, not the entire demographic of the neighborhood is able to deal with digital or social media. So one of the WMO youth workers shared: *“Yes, due to the crisis, houses of the neighborhood are closed,*

where often information could be obtained in the form of flyers, posters and so on. That fell away now. So everything happened online or through colleagues who looked in their own network, calling and online ... But the houses of the neighborhood fell away, that's an important point, for example for a Cape Verdean mother in her 50s, who is not on Instagram.” (F, WMO Radar)

Financial constraints limited especially actions of individuals and informal actors. Due to the pandemic some initiatives had to halt usual operations and therefore endured a financial hit. One of which was Stichting RMC: *“Yeah well we are more worried because we don't have any income at all, our income is just all the people who come to us for homework support and a little canteen income, so to speak.” (CF, RMC)*

As noted while discussing information management, inefficient communication has also been a frustration, this has been the case during communication with digital resources, as well as communicating with local residents, who were not always aware of existence of initiatives. Flyers were used to create awareness, but these did not always seem to be effective: *“that spreading of flyers doesn't work, that's money thrown away. I will tell you honestly ... you need that key person again. You can put up nice flyers, but you don't have contact with parents.” (HE, Peuter en Co)*

Policies, processes and guidelines were also a significant frustration to resilient actions, as they were mentioned 51 times. One example is the fact that municipality employees were not allowed to meet to discuss with partners: *“What I regret, but that is also the policy of the municipality, we had another physical consultation with the core team of Bospolder-Tussendijken. And the only people who are acting difficult are my colleagues from the municipality who then who point out the rules. While the rules also say that if it really was an exception, then meeting is allowed. But then they say the boss says it's not allowed.” (ME, Municipality Rotterdam)*

5.4.2 Lack of action

A specific type of frustration was the lack of action from local institutions or formal actors. Informal actors in the local community were the only group suffering from the consequences of this lack of action by institutions. Firstly, in some cases there was an *absence of civil servants and organizations*, when they were needed. *“I think there were neighborhood managers who also only sat at home. I really think so. Not to judge, although I do think that in this position and as community networks, you have to be a visible government. This is certainly important in this neighborhood, where people are not all digitally skilled. But we did not receive that assignment.” (ME, Neighborhood manager)* Secondly, there have been instances where there could have been done more to *reach a bigger group* in the community. Lastly, there have been valuable informal initiatives that took a financial hit during the crisis but did *not receive any financial support*. This was due to a missing administrative code at the Dutch chamber of commerce, and nothing was done to rectify the situation.

5.4.3 Contribution possibilities

During the interviews there have also been made remarks that were valuable as learning lessons for local institutions that may improve the community's resilience when acted upon.

The first lesson is that even though in general the local residents are in a less favorable socio-economic situation, this may cause them to have an above average resilient attitude. This is

possibly due to the fact that they are *familiar with setbacks* because of their socio-economic position. *“I think that many people in the neighborhood, not necessarily to take on a victim role, have already experienced the necessary blows in their own lives. As a result, a lot did not end up in a convulsive position, but saw it as just one of the blows of life. And just kept going and just looked at the situation.”* (CM, Social entrepreneur)

This may also affect the lesson that *residents are overall involved in the community and locals are often times initiating initiatives*. Following, interviewees have mentioned a need for a *better knowledge sharing method* and the experience that a *central support point* and an *overview of existing initiatives* are favorable to the community. One learning experience regarding formal actors, is that it may be in the interest of the community’s resilience to *act without official permission* of superiors. This has been done several times by municipal employees to bypass guidelines and facilitate activities. *“We basically have to work from home unless we need to be present. Then you must follow a decision tree and then ask permission from your manager. Well I never used that decision tree. I never asked my supervisor. We just started, under the motto use common sense, keep your distance, fewer people in the room.”* (ME, Neighborhood manager) This act is also related to the *importance of visibility and trust* in the neighborhood. Bospolder and Tussendijken is a neighborhood that relies on social visibility as means to inform and engage. *“At a professional level, you can do that somewhat digitally, but it must trickle down to everything and everyone. Face to face contact is very important for this.”* (ME, Neighborhood manager)

Furthermore, there have been mentions that the community’s *input and influence on the decision-making by governance* can be improved. This has been the case in the municipality’s decision to sell the building, that was used by the informal actor Zelfregiehuis’ community initiative, to real estate investors. Due to the fact that Zelfregiehuis supported the resilience of a group in the community, the residents voiced their disapproval of the decision in multiple ways, but the sale of the building still went through. One interviewee stated that the municipality *“sometimes organize moments and then you only hear, ‘we are going to work on it’, but you don’t hear more than that.”* (CF, Nablijfklas)

Another similar lesson is that there is *need for more support from the municipality*. According to one of the community leadership respondents, the COVID-19 pandemic made it easier than before, to collaborate with the municipality. Though, for this collaboration to prevail *“the municipality should offer some infrastructure themselves and that is actually limited.”* (ME, Area committee)

Since meeting places were closed as a consequence of the measures to prevent the spread of COVID-19, *the value of meeting places* also became clear in light of community resilience. As previously stated, meeting places like Pier 80, ‘Home of the neighborhood’, are an environment in which some locals get their information or help with other aspects of their lives. The relative *uninvolvement of the youth* is an experience that may also be related to this lack of meeting places. As there are not many meeting places for the youth in Bospolder and Tussendijken, they usually meet outside. This was also the case when schools closed and meeting in groups was not advised by the guidelines. *“Apart from the masks, you also saw many more young people on the street between 15 and 21 years old. They drew closer together.”* (CM, Entrepreneur). In addition, youngsters were also more likely to consider the possibility the crisis being a conspiracy theory. This was most likely based on information gathered from social media.

Causing the need for youth workers to reinforce the seriousness and health risks. *“There was also a small period when young people didn't believe in it, thought about conspiracy theories. But putting the focus on the health hazard to their parents usually worked out fine. (F, WMO Radar)*

The current pandemic and its social-distancing measures have induced the realization that it can be beneficial for *elders to develop their digitally skills*. As stated by a respondent: *“Well, the elderly think why should I have that smartphone or why should I learn to video call or whatsapp? They say 'yes you do not need that or I do not want to learn that', and now you notice no visits, no contact with children, these kinds of things, it is an opening to start a conversation and better convince you that this is real is necessary.” (F, WMO Radar)* In the cases that elders were digitally skilled, they also used their devices to communicate and maintain social relationships. *“Fortunately she can handle her phone, otherwise she would go crazy I think. We are lucky, because not everyone from that generation is handy with that.” (CF, Nablijklas)*

Finally, there have been multiple comments on the *long term need* of initiatives and collaborating problem-solving networks like Delfshaven Helpt. Developing the initiative from a coping mechanism into a long-term participative collaboration network.

6 Discussion

This section provides the results of Chapter 5 and the relation to the previously presented research.

6.1 Findings and scientific contribution

The study analyzed the case of Bospolder-Tussendijken, according to the proposed framework for facilitation of resilience in Chapter 2.

The research recognizes that there are several triggers for the collective action within a community. These triggers coincide with the research of Berkes and Ross (2013). That stated people-place connections, values and beliefs, social networks and leadership are key strengths and characteristics in community resilience. These characteristics display overlap with a study that report initiatives' success is more likely when seeking to communicate with other residents, as opposed to those that don't (Grube & Storr, 2013).

The case study has similarly shown that in cases when formal and informal actors collaborate, the ability to solve problems within a community may be facilitated better than when this collaboration is not present. This has been portrayed especially regarding the availability of resources and utilization of social capital. An example of this is seen in the emergence of Delfshaven Helpt, a collaborative initiative between formal and informal actors that allowed to impact a greater group within the community than other informal initiatives did on their own. Previous studies have highlighted this as well (Walsh, 2017; Berkes & Ross, 2013; US National Research Council, 2011). It must be said that the existing social network within the BoTu community may have had a significant influence on this development. Whereas in other communities in Rotterdam, where there is not such an extensive social network in place, emergence of similar initiatives did not occur. Though, this case study does not fully support Wilson's (2013) finding that community-level actors can't always be left to act autonomously to guide resilience pathways, it does agree with the Hills' (2000) idea that an important aspect in the facilitation of resilience is the effective fulfillment of a function by an institution.

During the period of the case study, the policies and guidelines that affected the community were mostly nationally imposed. The case study shows that on several occasions this has led to being a frustration to the ability to act resilient. Wilson (2013) also warned for the possibility that state policies can often contribute to a decrease in the resiliency of a community. Municipalities were able to have slight flexibility in the policies, but the municipality did not so much as to incorporate the community's local customs, which could have provided a benefit to the community's ability to act (Stark & Taylor, 2014; Wilson, 2013). In some sense, one could say the community's capacity was limited by the imposed guidelines. Additionally, because community capacity influences community resilience (Edelenbos, 2018; Grube & Storr, 2013; Kapucu & Sadiq, 2016) policy may have been more effective if it aided or at least not limited the community capacity.

The interviews and framework shows that the facilitation of resilience is subjective to an information sharing environment. The use of digital resources or devices has acted as a great facilitator in the communication between actors, especially informal. Which is no surprise since previous research also showed that lesser organized volunteers apply the use of ICT and social media more than hierarchically voluntary organizations (Linnell, 2014). Therefore, the aim to develop technological means to allow collective contributions of residents during crises (Vos & Sullivan, 2014; Comes, 2016), is very much justified. Even more so, because a crisis, where physical movement and meeting is limited, possibly makes both formal actors or authorities and informal actors and residents, prone to isolation.

In crises, or major disturbances, social capital can be an effective resource to deploy for the facilitation of community resilience. Previous research makes a distinction between routine hardships and major disturbances, and the way both should be handled. Considering the utilization of social capital only to be valuable in routine hardships (Williams et al., 2017). However, this statement may ask for an expansion as the results in Chapter 5 show that also partly thanks to social capital in BoTu, the major disturbance that was caused, by the pandemic, allowed the facilitation of resilience and therefore could be tackled. Showing that the framework could be applied to both routine hardships and major disturbances or crises. This finding also follows the logic of Linnell (2014), who discusses that semi-organized and non-organized volunteers may be potential resources for enhancement of community resilience.

Following, the case study reflects one of the challenges of crisis response, that revolved around the connection between significant community actors to each other (Comes, 2016). Comes proposed a framework that focused on the forming of expert networks with changing roles; fast communication and coordination support in distributed networks; ad hoc reasoning to address challenges and changes. Such a description resembles the likes of the Delfshaven Helpt initiative, that emerged from the availability and activation of the present social capital in the community. Since social networks or social capital facilitates actions or access to several resources (Bourdieu, 1983; Coleman, 1988), this could also mean the knowledge or experiences of the actors within the network (Nespeca et. al, 2020). This allows the actors or existing grassroots initiatives in these social networks to change their role and assume a useful role in the context of solving problems and resolving needs in the community through Delfshaven Helpt. In chapter 4, the example of Delfshaven Helpt shows clearly that the proposed and applied framework, which incorporates research from Nespeca et al., (2020) provides a model to map such developments.

This study show how previous literature can be related to each other to present a framework to map the facilitation of community resilience. Using the Bospolder-Tussendijken neighborhood as a case to research the facilitation of resilience and apply the framework, resulted in the support and extension of the existing literature. Further, the study resulted in learning lessons, in Chapter 5, that can be enlightening and useful for further research.

6.2 Societal value

This research has made the exploratory attempt to comprehend the dynamics of community resilience by investigating the resilience of the BoTu neighborhoods and residents, while determining how formal and informal actors fulfil their roles in community resilience, during crises. Even though, the aim of the research is to produce new insights or frameworks that can be used in further research and applied in practice, the field of community resilience is still relatively new and there remains future research that should be done to come to a greater consensus on elements within the subject of community resilience.

The societal contribution that this thesis delivers exists out of three aspects. Firstly, the research determined how community resilience can be facilitated. By identifying the factors that influence resilience and determining the relationships between the relationships between these factors. Secondly, a framework was presented that was based on the findings of the facilitation of community resilience. This framework can be applied in context-specific situations to determine whether the factors within a specific context are present or missing and if the desired relationship between these factors exists in the context. Thirdly, an account of the formal and

informal actors that are active in Bospolder-Tussendijken could be mapped in regards to their roles during the health crisis caused by coronavirus COVID-19. Additionally, several learning lessons have been determined regarding the course of the crisis in BoTu. This is of value to the Veldacademie and the project Resilient BoTu 2028, which they monitor on behalf of the municipality. This may eventually lead to be a long term contribution to the Bospolder-Tussendijken community.

Concluding, the societal relevance of the thesis lays in the exploration of resilience in a community while being in a crisis and capturing how this community and its actors act in the face of adversity. While simultaneously learning how these acts result in community resilience and providing lessons and tools for the future.

6.3 Limitations

There are several limitations to this study. First of all, only one researcher was used to analyze all the 64 interviews in this study. Furthermore, the number of schools interviewed was limited to one, therefore making the school's perspective less represented. In addition, in the interviews used in this study individual residents, that do not represent an initiative, may have been underrepresented, being just 12 of the 64 interviews. This could provide another interpretation of the situation in the neighborhood. Moreover, this study has a time constraint, while the health crisis is still ongoing and developments may take place after the writing of this thesis. Therefore, this study has a greater focus on the beginning of the health crisis.

7 Conclusion

The goal of this thesis was to research and explore the resilience of the BoTu neighborhoods and residents, while determining how formal and informal institutions play their part in community resilience during crises. This aim allowed the idea to develop a framework that can be used for the facilitation of resilience as well as mapping the interaction between actors in the community and the possible role changes that took place. The research collected knowledge from interviews that were semi-structured. The selection of this approach is consistent with the exploratory nature of this study and well-tailored to the depth of the subject at hand.

As chapter 2 highlights, the existing literature on which a conceptual framework was formed. In chapter 5, the outcome of the analysis of the data which was collected from the interviews, was related to the conceptual framework that was presented in chapter 2. The aim of defining the community roles during the crisis was to provide a better comprehension of the way local institutions act and support residents in the context of community resilience. Ultimately, providing lessons that may result in improvements that can be made to benefit the neighborhoods' future resilience and the fulfilment of institutional roles in this context.

The following section concludes the gathered results and answers the research questions. The findings of the study argue that the institutional or formal actors' resilient acts are related to social capital, community leadership, problem solving activities, and an information-sharing environment. Moreover, the findings show that community resilience can be facilitated and stimulated through the factors and relationships between factors in the presented conceptual framework. The study also discovered elements that frustrated the possibility of resilient acts in Bospolder-Tussendijken.

7.1 Answering the research questions

The main research question in this thesis "*To what extent are local institutions resilient in their cooperation with local communities, during a crisis?*", was presented to research this goal and the identified knowledge gap. The data in the case study was collected through the conducted semi-structured interviews with a total of 47 respondents. The interview transcripts were translated into quantitative and qualitative data, for use in the analysis. Part of the data was then used to apply the framework upon, which showcased the dynamics within the community of Bospolder-Tussendijken that led to the emergence of problem-solving network and initiative Delfshaven Helpt.

To summarize the results that were found during the study, the research sub questions will be answered.

7.1.1 SQ1: What is community resilience and how can it be facilitated?

Community resilience is influenced by several factors that are simultaneously able to facilitate it. The literature has shown that there are five main elements that influence the resilience within a community, namely: community leadership, social capital, engaged or resilient governance and problem solving abilities. The presented community resilience facilitation framework shows these factors are also related to each other. Through the interaction of these elements, whose characteristics are mainly represented by people in a community, the resilience in a community can be fostered. This is again displayed by applying the framework in a context-specific situation, namely that of the COVID-19 pandemic, its effects on the BoTu community and the emergence of problem-solving initiative Delfshaven Helpt that provided a degree of

relief in the community. Concluding, in this context community resilience entailed the ability of the community to adjust their social processes to cope with the changing situation caused by a crisis.

7.1.2 SQ2: Which problems and challenges (stressors) are the local communities of BoTu facing, as a result of COVID-19?

The neighborhoods Bospolder and Tussendijken (BoTu) face different problems and challenges. As previously stated, Bospolder and Tussendijken are two of the poorest neighborhoods in the Netherlands. Carrying a label of being ‘disadvantaged’ caused by social problems like unemployment, high indebtedness and low quality of housing in the community. Resulting from the interviews during this study, new stressors were: the need for food & groceries, a lack of digital devices, increasing loneliness & isolation, loss of work & finances, children at home & lack of living space, developmental delay in children, garbage & dirt in the streets and school’s loss of supervision on children. During the crisis, following the spread of COVID-19, the existing challenges in the community expanded with new problems. This may likely be the case in other communities that face a crisis, especially socio-economically disadvantaged communities. Therefore, it is important for a community and its local institutions to be capable of acting resilient.

7.1.3 SQ3: What are the institutional policies and guidelines regarding crises that affect the local community?

Though policies and guidelines were generally implemented on a national level, which were communicated during nationally broadcasted speeches, municipalities had a degree of freedom in their choice to go beyond the national measures to prevent further impact of the pandemic within the municipality. The main national policy to fight the pandemic was a so-called intelligent lockdown. The interviews that were held in Bospolder-Tussendijken reflected multiple policies and guidelines that affected the neighborhoods.

Firstly, entry to supermarkets was limited, also formation of groups was not allowed and group formation was met with fines. This also meant initiatives that required meeting were limited. Additionally, the local weekly street market was temporarily closed down and local businesses suffered the same fate. Hygiene measures were advised and physical contact was discouraged, which was supported by the guideline to keep 1.5-meter distance from others in public and private spaces.

Eventually, schools were temporarily closed and companies were urged to work from home. Though, these policies were made with the intent to limit the risk of the health crisis. The policies formed a significant frustration for acts of resilience by local institutions and community members, as seen in table 4 and 5 in Chapter 5.

7.1.4 SQ4: How do local communities and institutions take initiative to tackle challenges in times of crisis?

Following the government’s declaration of a health crisis, the magnitude of this problem caused the local community, BoTu, turned to collective action relatively fast. The community as a whole undertook different initiatives to face the challenges that were presented in the past period of the crisis. The conceptual framework in Chapter 5 also portrayed the emergence of the initiative called Delfshaven Helpt. This community-initiated initiative was also active in the neighborhood, providing a problem-solving network existing of local institutions and the local

community. Some formal and informal actors in the community were also able to change their role, using their expertise and resources in new ways to benefit the resilience within the community, this can also be seen in table 4 and 5. This shows that the ability of institutions and a community to collaborate and fulfil useful functions has a positive impact on the resilience within communities, since this allows them to tackle challenges collectively, by combining their individual strengths.

7.1.5 SQ5: What can local communities and institutions learn from experiences and contribute to the resilience of local communities for the future?

There were many lessons to be learned about community resilience from experiences within the BoTu community. Firstly, the impact of a crisis causes stressors and challenges to increase in a relatively weaker social-economic community. Secondly, policies that affected the community during the crisis, were introduced on a national level, with little regard to a community's characteristics. This caused frustration of resilience in some instances. As a result of strong existing social and professional networks, the residents and initiatives or informal actors, as a whole undertook different initiatives and made role changes to face the challenges that were presented as a result of the crisis. Role changes were also made by formal actors. The role of institutions, or formal organizations was present in several of these activities. Mainly, in the Delfshaven Helpt initiative, formal organizations were highly involved. Lastly, though residents are familiar with setbacks, they are overall involved in the community and initiatives. There remains a need for more municipal support that fulfils useful functions.

7.2 Answering the main research question

The previous findings from the sub-questions lead to the answering of the main research question:

To what extent are local institutions resilient in their cooperation with local communities, during a crisis?

The local institutions, or formal actors, in Bospolder-Tussendijken, can be considered to be resilient in their cooperation with the local community, or informal actors, due to multiple reasons. Firstly, when contacted by community members, many local institutions joined forces with community members to form a problem-solving network, making resources available to tackle challenges that arose as a consequence of the crisis. This enables the community to be resilient. Secondly, several local institutions also changed or adapted their roles within the community to fulfil a function that was needed in the community and accommodate the local residents. These acts combined have facilitated the resilience in the community to a certain extent, during this crisis period. Thus, formal institutions that display these actions can be considered resilient in their cooperation

However, on the other hand, there is still room for improvement in the resilient attitude of institutions. In example, if one takes a look at actions of the municipality. Due to the crisis, the guidelines of the local municipality advised its employees against meeting with residents, which meant being limited in the support these employees would be able to provide the community. Furthermore, the absence of community specific policies may have been a missed opportunity for facilitation. Instead, this absence may have caused frustrations with community members, because national policies ignored the local customs and ingrained shared vision within the

community. Additionally, institutions initially fully closed meeting places that residents are used to visit for information exchange, instead of finding another useful function for these valuable meeting and information points. Moreover, several valuable informal initiatives faced financial difficulties and received no support, due to the fact that these initiatives were not registered to the supported business category at the Dutch chamber of commerce. This exposes that there is still room for growth in the attitude or cooperation of local institutions, towards and with local communities.

Concluding, local institutions have shown that they are indeed able to be resilient in their cooperation with local communities, more so in time of crisis. Though, there are still improvements to be made to better match the needs and implement the input of local communities and its members. Institutions should look that they do not, limit the capacity of a community for its resilience to prevail.

One of the goals of this thesis was to research community resilience in BoTu, by determining how formal and informal institutions play their part during crises. Likewise, the aim of the research was to produce new insights or frameworks that can be used in further research and applied in practice by the Veldacademie. The provided framework in chapter 2, as well as table 5 and 6, can be valuable to the Veldacademie to apply during analyses to identify facilitators and frustrations to community resilience. For future research multiple case studies can be done to further validate or expand the presented framework. As previously stated, this study can also be used for future comparison of the state of the neighborhood, which Veldacademie is currently monitoring. Another interesting subject for further study is the minimization of frustrations to community resilience. If actors are able to minimize or perhaps remove the frustrations to their resilient acts this could significantly improve a community's resilience. Additionally, it would be beneficial to find what causes the lack of action by local institutions in some situations, as the lack of actions also disabled several community actors.

8 References

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Appendices

Appendix A

RESILIENT GOVERNANCE DURING CRISES: COVID-19 in community BoTu Rotterdam

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Abstract. Due to the current pandemic caused by COVID-19, its impact has again become clear that resilience is essential within cities and communities. An important aspect of this community resilience is the relationship between local institutions and local communities. To discover how this dynamic between formal and informal actors, and networks changes during crises, a literature study was done to find out how community resilience can be facilitated. From this study a conceptual framework for the facilitation of resilience was created. An exploratory case study was done of the community BoTu Rotterdam, in the Netherlands, to research in which extent a resilient attitude is embodied by local institutions in cooperation with local communities and validate the framework. Through resilient governance and community leadership, social capital can be enabled and activated to allow problem-solving within a community, fostering greater resilience within communities. Moreover, formal and informal actors made role switches to fulfil a useful function in the community. These role changes were facilitated or frustrated by several factors, ranging from absence or presence of formal actors, social network access or lack thereof and digital resources.

Keywords: community resilience, crisis management, covid-19

Introduction

When contemplating cities, one can say that they are rapidly evolving. Nowadays, the wellbeing of people in cities is built on a complex network of institutions, infrastructure and information. Yet, cities are areas in which pressures or abrupt disruptions develop that could lead to societal breakdown, physical collapse or economic distress (Rockefeller Foundation, 2015). Worldwide, cities have been confronted with impactful phenomena. Some of these are crisis events, which are out of human control, making them inevitable. Still, it is naturally in a city's best interest to have the ability to adequately responds to these events and recover the state of the communities afterwards. Therefore, cities need to be resilient.

The definition of resilience in a city or communities within the city, slightly differs across literature. In the case of New Orleans, Colten (2008) calls resilience "a community or region's capability to prepare for, respond to, and recover from significant multihazard threats with minimum damage to public safety and health, the economy, and national security". In context of communities, resilience can be defined as the capacity to withstand or adapt with change (Mehmood, 2016), through the management and engagement of community resources by community members to thrive in such an uncertain environment (Magis, 2010; Matarrita-Cascante et al., 2017).

Several studies show there is an existing dynamic between formal community actors, like local institutions that make policies amongst other activities, and informal community actors, like residents that self-organizes the fulfilment of functions in a community (Colten, 2008; Edelenbos. 2018). However, two things remained unclear to the authors: (1) how the relationship and roles of local institutions and communities manifest, during times of crisis, and (2) how local institutions could facilitate community resilience. In this paper a literature study is done to create a conceptual framework for the facilitation of resilience in communities. Furthermore, a case study was done in Rotterdam community to find to what extent local institutions are resilient in their cooperation with community members during times of crisis. In this case study semi-structured interviews were held. These types of interviews allow for in-depth questioning as the interview is directed by interviewees' response (Stuckey, 2013).

The following section provides the literature study. Section 3 presents the conceptual framework that was developed to illustrate how community resilience can be facilitated. To demonstrate the framework, it is also applied to a community problem-solving initiative in Rotterdam, the Netherlands. This case can be found in section 4. Section 5 explains the methodology behind the conducted interviews and section 6 presents the results of these interviews and their relation to the conceptual framework. The final section discusses the findings and lends itself to a conclusion of the study.

Literature study: How to facilitate community resilience

To come to an understanding of methods to facilitate community resilience, several concepts and insights came forward which could be grouped into three themes. Therefore, the literature that is reviewed is related to the following themes: monitoring & facilitating resilience, crisis management and policy & governance.

Facilitating resilience

Community resilience has many facets and can be viewed from multiple predefined in numerous ways. Ross and Berkes (2014) explored community resilience from the perspectives to understand, enhance and monitor the concept. Regarding the monitoring of resilience, they provide six aspects that can be taken into account: (1) Persistence, staying and acting within the community. (2) Problem solving, ability to tackle increasingly difficult problems. (3) Leadership, community leaders and self-organization. (4) Social capital, social networks. (5) Engaged governance and (6) Proxies for resilience, for example government statistics. These six aspects seem to be very much public-centric. Public-powered community resilience in vulnerable areas may also help in building social and territorial cohesion around a shared vision (Imperiale and Vanclay, 2016).

More facilitating social key processes are outlined by Walsh (2007) who researched strengthening of family and community resilience, in the context of major disasters. Under these key processes fall organizational patterns like flexibility to adapt and re-stabilize; economic and institutional resources. Also, communication or problem solving processes like clear and consistent information sharing, as well as collaborative decision-making, planning, preparedness and resourcefulness. Communication has also been highlighted by Spialek and Housen (2018) who concluded that communication designed to validate knowledge about disasters and share stories has been correlated with stronger expectations of group resilience. Additionally, Vos and Sullivan (2014) mention, that improving collaboration between authority response organizations and citizens is useful but simultaneously a simplification, since crisis communication is actually created in a multi-actor arena.

As previously mentioned, a recurring subject in facilitation of social resilience literature is social capital. Magis (2010) defines social capital as “the ability and willingness of community members to participate in actions directed to community objectives”. However, this definition can be expanded to social networks that facilitate actions or access to several resources (Bourdieu, 1983; Coleman, 1988). According to the US National Research Council (2011), social capital is a key source of resilience on which private-public collaborations depend. When examining a health crisis in Canada, Lisnyj and Dickson (2018) found a high significance to elements of social capital to facilitate the community’s resilience in direct and indirect ways. Since social capital’s significance is high in terms of resilience, increasing it can be considered favorable. Simultaneously, because of social capital’s importance to community resilience, the degree of its presence or lack thereof, could translate into the degree of local resilience.

Crisis management

Resilience may be easiest to perceive in times of crisis. Therefore, research by Williams et al. (2017) aimed to integrate resilience with crisis management. The authors provide a process view of the fusion of crisis management and resilience. This view shows the duality and interaction of types of adversity, resilience development and actions, positive outcomes and the possible negatives. Adversities may be “routine” hardships or develop into discontinuous events. In case of a routine hardship, crisis management may rely on human and social capital to avoid catastrophe or halt its evolution. In case of a major disturbance, a need for positive cognitive and behavioral responses are needed that are reinforced through context.

Nespeca et al. (2020) lay the focus on actors. According to their study, actors have to coordinate by mutually adjusting their activities, to achieve a common goal. As they state that the ability to effectively self-organize is considered to be beneficial during crises. The researchers go on to provide a framework that is able to assess whether information in crisis management supports self-organization. This framework is based on several components, namely: actors, roles, groups, coordination, information management, operations and the environment. This framework provides a way to look at the existing make-up of formal and informal environment within communities and bring attention to its actor roles and interaction.

One example of ways how actors interact with their environment is displayed in an article by Linnell (2014). He discusses Swedish citizen response in crisis. Linnell found that there was a range in grassroots initiatives that connected with wider crisis management. These initiatives existed of organized, semi-organized and non-organized volunteers. Where semi-organized and non-organized volunteers may be potential resources for enhancement of community resilience.

Comes (2016) points out three challenges that are recurrent during crisis responses and need improvement. The first challenge entails transitioning from preparedness to crisis response. Secondly, there lies a challenge in connecting significant community actors to each other. Finally, she adds the challenge of designing systems and tools for feedback from communities to incorporate into coordination and planning. To tackle these challenges Comes presents a design framework that should focus on the forming of expert networks with changing roles; fast communication and coordination support in distributed networks; ad hoc reasoning to address challenges and changes. These findings also complement the framework presented by Nespeca et al. (2020).

Policy & governance

Crisis management in the context of resilience is often enacted through policies and governance. According to Stark and Taylor (2014), policy efforts often fail and are fragile. Therefore, it proves necessary to find out which relevant policies are in place of a community and learn how they are implemented. Wilson (2013) also mentions how policy and resilience interact. Most successful policies are directed at the needs of specific communities and based on the correct timing of implementation. Nonetheless, state policies can often contribute to a decrease in the resiliency of a community. The study shares, community-level actors can't always be left to act autonomously to guide resilience pathways. Instead, a form of external regulation of resilience building may be suitable. Adding that, in most situations, the government must play some part in directing and shaping the transformation to strong community resilience.

This coincides with the statements of Stark and Taylor (2014) who insisted on local state control. Though, local customs may still influence decision-making and in this way help in bridging social capital at community level. The influence of customs or culture is also addressed by Hills (2000). Hills adds that the most important aspect in promoting resilience is the useful fulfillment of a function by an institution.

Furthermore, successful resilient acts are more likely by initiatives who seek to communicate with other residents, as opposed to those that do not. This may be due to the fact that communities are dealing with complex challenges that are easier to tackle as a collective (Edelenbos et al., 2018). Which would explain why, the greater a community's capacity for self-governance the better able it is to deal with these complex challenges (Grube & Storr, 2013). The authors describe that self-governance depends on: (1) social coordination capacity, (2) social capital access, (3) shared perspectives leveraging, and (4) social networks.

According to Kapucu and Sadiq (2016), governments should cooperate with community stakeholders on disaster planning and community recovery goals. Here, the community capacity or social capital serves as input for multi-level network governance, that builds community disaster resilience. As previously stated in the literature review from Doff (2017), community capacity influences community resilience. Edelenbos (2018), Grube & Storr (2013) and Kapucu & Sadiq (2016) all allude to this. Thus, policy may be more effective when it aids community capacity.

Conceptual framework: Facilitating community resilience

Literature tells us which values should be embodied to facilitate resilience. More importantly, the literature shows how elements from different fields impact community resilience. Using aspects of the Berkes and Ross' (2014) framework to monitor resilience as a starting point, concepts from literature can be connected to create a conceptual framework on the interaction of factors for facilitation of resilience, depicted in figure 1. The framework highlights how the interaction of *social capital*, *engaged governance*, *community leadership* and *problem solving abilities*, in an *information sharing and multi-level communicative environment* influence the persistence and resilience of a community. Additionally, the conceptual model reflects findings from Nespeca et al. (2020), where the engaged governance and community leadership factor reflect actors and the problem solving ability reflects activities.

This section provides an in-depth discussion of the conceptual framework and its elements, as well as the relationship between the elements and how they foster facilitation of community resilience.

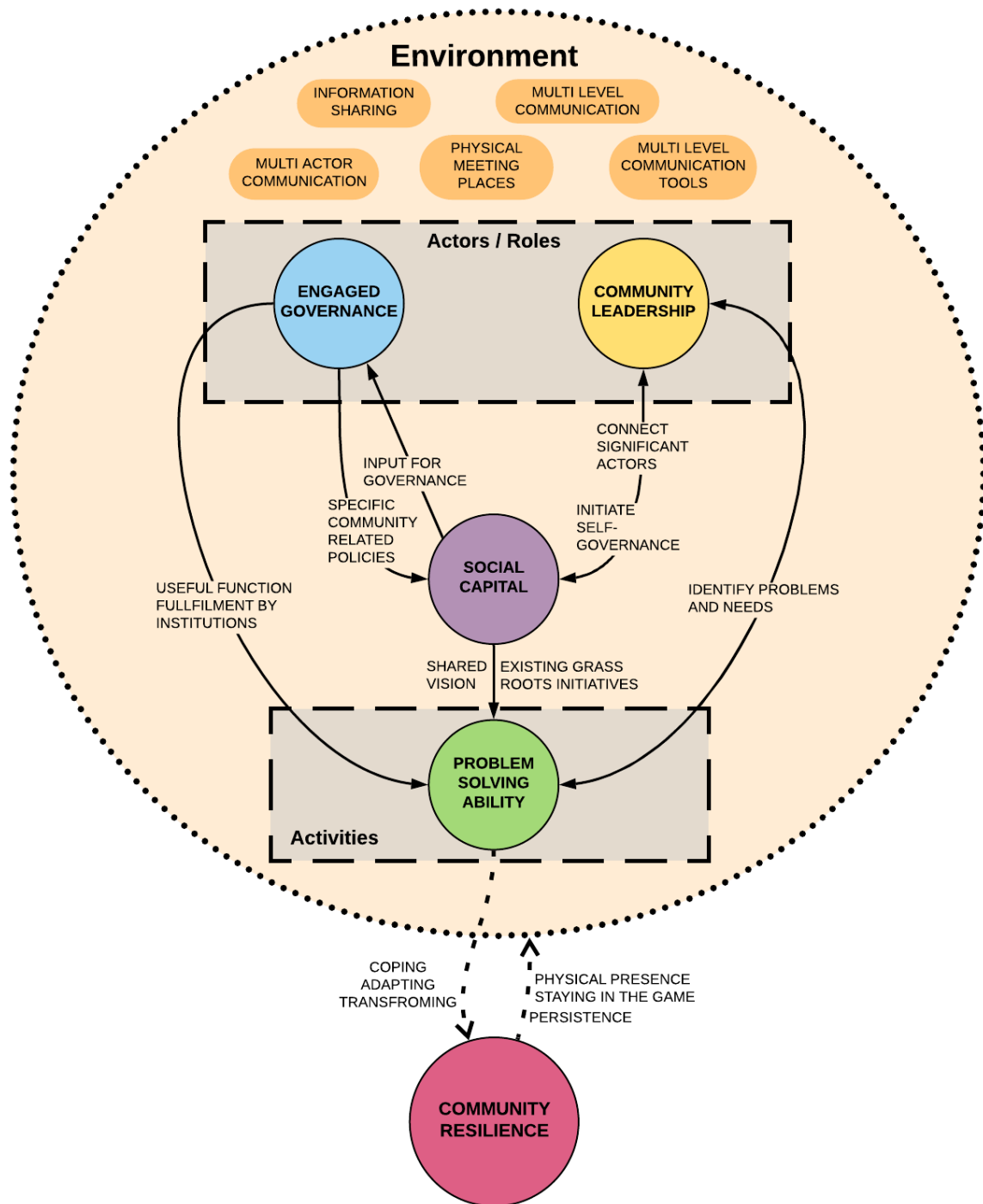


Fig 1. Conceptual framework: facilitating community resilience

Environment

Looking at the environment in which the framework should be applied, communication is highly recommended. According to studies communication between multiple actors, aid in problem solving and allows communities to tackle bigger problems, therefore a communicative environment is beneficial. To provide this benefit, the environment in which the rest of the framework exists, is characterized by *information sharing, multi-level communication, multi-actor communication, physical meeting places and tools that enable this type of communication.* (Walsh, 2007; Spialek & Housen, 2018; Nespeca et al., 2020; Grube & Stor, 2013; Berkes & Ross, 2014).

Community leadership

According to a study by Seixas and Davy (2008), leadership can be regarded as a significant predictor of success in functioning as a bridge between community and so-called higher levels or formal authorities (Berkes & Ross, 2014). Therefore, community leadership, *self-governance and self-organization* both influence and are influenced by social capital (Grube & Storr, 2013). Connecting significant actors, who may play part in community leadership, is seen as a challenge, but as one that adds value (Comes, 2016). Moreover, proper community leadership identifies needs and deals with problems (Berkes & Ross, 2014).

Social capital

Magis (2010) described social capital as “the ability and willingness of community members to participate in actions directed to community objectives.” Though Berkes and Ross (2014) refer to networks. Therefore, for this framework, this definition is more similar to social networks that facilitate actions or access to several resources (Bourdieu, 1983; Coleman, 1988). Adding on the influence social capital has on community leadership, social capital also provides the *shared vision and the existing grassroots initiatives* that connect with wider assignments to solve problems (Grube & Storr, 2013; Imperiale & Vanclay, 2016; Linnell, 2014). Also, social capital should serve as input for authorities for multi-level network governance (Kapucu & Sadiq, 2016).

Engaged governance

Engaged governance relates to agency groups that participate in co-governing or co-management procedures (Berkes & Ross, 2014). This type of governance reflects resilient governance and cooperation that is subject in this study. Engaged governance should *reciprocate the received input it gets from social capital, with community specific policies*. This tends to be more successful than non-community related policies and may be needed in shaping community resilience (Wilson, 2013). Moreover, an important factor in the facilitation of resilience is the *fulfillment of useful functions* by institutional governance (Hills, 2000).

Problem solving abilities & community resilience

Finally, the problem solving abilities represent the combination of the previous factors that together enable the tackling of difficult problems within a community. This could take shape in the form of abilities of the community, like consistent information sharing, collaborative decision-making, planning, preparedness and resourcefulness, as previously stated. Problem solving ability could take the form of a problem solving network. These abilities result in three possible capacities of social resilience: *coping, adapting and transforming* (Keck & Sakdapolrak, 2013). In this context, coping refers to a short-term focused and reactive response. Here problems are solved through directly available resources. Adapting relates to a long-term proactive response, where prevention is the goal through lessons from previous experiences. Transforming applies to a long-term participative capacity. This allows people to access resources, socio-political support from government, and participation in decision-making processes, Keck and Sakdapolrak reported. Finally, the degree of resilience determines the *persistence* of the actors *physically staying in the community* (Berkes & Ross, 2014).

Case study: COVID-19 in the BoTu Rotterdam community

As the world is currently struck by a pandemic caused by virus COVID-19, countries and cities worldwide are trying to cope with the consequences. Though, how grave this health crisis appears to be, it provides an opportunity that may expose new findings in the workings of community resilience. The previous sections provided a theoretical view on the subject. This led to a conceptual framework to facilitate community resilience. To be able to apply the framework and establish a better understanding of the interactions between formal and informal networks in a community, the Bospolder-Tussendijken neighborhood (BoTu) in the city of Rotterdam, will serve as case study.

Rotterdam has the ambition to increase its resilience and create a so-called Resilient Rotterdam (Resilient Rotterdam, 2017). Part of this resilient Rotterdam is the Rotterdam-West neighborhood Bospolder-Tussendijken. The research and knowledge institute Veldacademie, is monitoring a project in this neighborhood called

'Veerkrachtig Bospolder-Tussendijken 2028', which translates to “Resilient Bospolder-Tussendijken 2028”. This project has been initiated by local organizations in collaboration with the municipality of Rotterdam.

The goal of the Resilient BoTu project is to develop the resilience of the neighborhood’s residents, so they become able to deal with challenges and changes in their life. Veldacademie’s neighborhood monitor report (2020) states, the neighborhood development project aims to create Rotterdam’s first resilient neighborhood. Moreover, the report states that in the long term, as a result, the initiators expect positive developments in the following areas of health, safety, parenting climate, informal care, more sustainable lifestyle and local economy.

Simply stated, this project is to make the neighborhood and its residents more resilient and for the neighborhoods’ socio-economic factors to reach the social urban average (Veldacademie, 2019). To attain this goal, the project focuses on four parts, namely:

5. Measuring local social development.
6. Mapping social networks
7. Multiplying social returns on investments
8. Documenting the governance processes

As part of the project this study focuses on the second and fourth constituent of the project, mapping social networks and the documenting of governance processes. The municipality of Rotterdam explicitly stated that Bospolder-Tussendijken (BoTu), should be seen as a testing ground for the rest of the city. Additionally, during the preparations for this research a pandemic has ensued, due to the coronavirus COVID-19. Therefore, one can state there currently is a high relevance for researching and monitoring community resilience during these impactful events.

These so-called testing ground neighborhoods, Bospolder and Tussendijken, contain 14.500 residents and approximately 7100 households, these households contain a relatively high amount of kids, since more than 20% of the neighborhood is under the age of 18 years old, while the percentage of elders is below average with 11% (Gemeente Rotterdam, 2020). Both neighborhoods have a high diversity of residents. Almost 80 percent of the neighborhood’s community has an immigrant background, of which almost 70 percent has a non-western background (Gemeente Rotterdam, 2020). Furthermore, Veldacademie states that Bospolder and Tussendijken are two of the poorest neighborhoods in the Netherlands. The neighborhoods have an image that can be described as ‘disadvantaged’. This is due to a high concentration of social problems such as unemployment, high indebtedness and low quality of housing in the area's.

Despite this public image, many locals are actively involved in neighborhood initiatives. Though, a lot of these local projects rely on subsidies, while the energy of local residents are not inexhaustible, and administrative procedures are also fragmented. Currently, market parties are now also involved and together with residents they bundle their energy to reduce the social problems in the area (Veldacademie, 2020).

Method

To uncover findings from real-world experience this study collected data through the BoTu case study, existing of semi-structured interviews. The interviews were recorded and transcribed with the consent of interviewees, so they could be further analyzed afterwards. For the analysis, the transcriptions were attributed codes. These interviews were conducted and transcribed in collaboration with Veldacademie.

Data collection

The study applied semi-structured interviews, which enabled the collection of rich and systematic data (Corbin & Strauss, 2015). The questioning remained conversational, allowing the interviewer to delve more closely into specific issues. This flexibility assisted the researcher in clarifying the uncertainties that might emerge during the interview. Using the Veldacademie’s interview questions from their “Startfoto Monitor Veerkracht in Bospolder-Tussendijken” as a reference, a new list of interview questions to conduct this research, was developed, based on the intention to find factors that facilitate resilience and relate these factors to the conceptual framework in section 3.

Interviews were partly held with members of the Veldacademie’s current network that were involved in the ‘Startfoto Monitor’. This allows for a side by side comparison, from the same perspective, on the current and previous state of the neighborhood. The remaining interviews were done with actors from currently existing personal networks within the community. The participants can be found in Table 1, which shows the number of interviews and participants, since some participants were interviewed multiple times.

Table 1 Data collection, including the participant type, the number of interviews and participants contacted each type, and affiliations of several participants.

Participant Type	Interviews	Participants	Affiliation
Formal	(35)	(22)	
Municipal Employee (ME)	8	4	Rotterdam Municipality, Area Committee
Foundation (F)	18	12	WMO, Delfshaven Cooperatie ...
Healthcare / Education (HE)	4	4	IZER, Nicolaas, Bibliotheek Rotterdam, Peuter&co
Community Leader (CL)	5	2	Geloven in, Ayasofya
Informal	(29)	(25)	
Community Member (CM)	12	11	Botu12, Dakpark, Gijsingsflat ...
Community Foundation (CF)	15	12	Zelfregiehuis, Nablijfklas, Verbindingskamer ...
Healthcare / Education (HE)	2	2	Bouwkeet, Martial Arts Rotterdam

From the literature review one can conclude that the subject of community resilience is quite extensive. Therefore, the time interviewees normally have available may not be enough to reach the full scope of the topic completely. Furthermore, the questions and results introduced in this study rely on clarification of participants' memories. Therefore, the interviews consisted of two parts. First, a short description about the study was shared. After, the semi-structured interview was conducted and recorded. Finally, contact information was collected, in case follow-up was needed.

Data Analysis

The interview recordings were transcribed and analyzed with the help of coding and analysis tool called Atlas.ti 8. The coding method consisted of a detailed reading of the transcripts and identifying text describing relevant parts for study with regards to the research questions. This resulted in theme-based code groups that addressed global subjects. Following, these identified codes were all reassessed distinguished in detail. If a related subject was identified a new code was created. The codes were grouped after finishing the process, attributes and interrelations were identified. Additionally, quotes from the interviews were retrieved to illustrate each of the characteristics and connections. Finally, code counting was done to confirm the number of codes.

This resulted in a coding scheme of 8 code groups regarding resilience, consisting of 65 codes in total. These code groups were: (1) COVID aid requests, (2) Policies and guidelines, (3) Activities and initiatives, (4) Triggers for collective action, (5) Facilitation of resilient acts, (6) Frustration of resilient acts, (7) Lack of actions, (8) Lessons and learning points. The complete list of codes can be found in Table 2. Furthermore, 2 code groups regarding the actors are part of the coding scheme. Here the distinction is made between formal and informal actors. This distinction is mainly based on the divide that was made in the Veldacademie's Startfoto Monitor (2020). Institutions and organisations that are top-down structured, have decision-making power and influence, or may have ties to the municipality, were considered to be formal actors. Whereas foundations or bottom-up initiatives that are mainly initiated by local residents were considered to be informal actors. In total, 22 formal actors and 23 informal actors were identified and resulted in table 3 and 4 of section 6.

Moreover, role changes of these actors were determined. Following the study of Nespeca et al. (2020), roles are characterized by five factors: (1) responsibilities, which are specific or duty-related to a role, (2) capabilities, which refer to the ability to perform certain activities, (3) information, which is needed or access is granted to, (4) domain,

refers to the expertise that can be carried to another work field and (5) status, regarding formal and informal roles. Changes in roles were characterized using a similar approach and can also be found in table 3 and 4 of section 6.

Table 2 Final coding scheme, categories and subcategories

Category	Subcategory	# Codes	Example quote
COVID aid requests	Food & Groceries	15	<i>".. help with a food or diapers, or they suddenly run out of money, or well, sometimes they just ask for groceries, for example." – (9:9)</i>
	Digital devices	16	<i>"..a typical help request that arises from the people who do not have digital resources" – (8:14)</i>
	Loneliness & isolation	26	<i>"Yes, the elderly needed someone, because they were just alone. Loneliness." – (63:11)</i>
	Work & finances	32	<i>"You have a lot of people in Bospolder-Tussendijken who just can't make ends meet." – (53:1)</i>
	Developmental delay	4	<i>".. my son was thinking nice; the teacher doesn't see that I'm not paying attention" – (3:50)</i>
	Children at home & lack of living space	34	<i>"When you hear of people in the neighborhood who are now living on 15 square meters with three children, yes that's intense." – (8:1)</i>
	Garbage & dirt	10	<i>".. it's probably because people sit at home and make a lot more mess at home." – (45:5)</i>
	School's supervision on children	5	<i>".. of course, they also notice that a number of children just kind of disappeared." – (46:14)</i>
Policies and guidelines	Limited supermarket entry	4	<i>"And there you are, waiting in line for you to go in." – (15:7)</i>
	Fines	2	<i>"So there was a fine, mega fine of about 7000 euro was handed out."- (10:13)</i>
	No formation of groups	13	<i>".. everything that was organized and done in a group, that has not happened anymore."- (25:1)</i>
	Hygiene measures	9	<i>".. you have to be able to adjust, and put your mask on." – 65:1</i>
	Lockdown	5	<i>"... when the lockdown had just been announced it was very quiet for the first few weeks." – (44:4)</i>
	Local street market closed	3	<i>"because the market has less the food bank, the Islamic food bank has less. – (56:25)</i>
	Closing down local businesses	4	<i>"No but we have to close, so we can't open." – (21:4)</i>
	Limit meeting initiatives	19	<i>".. we were not able to carry out any activities until the beginning of June, so to speak, because we had to be closed as well."- (41:1)</i>
	1.5 Meter & Physical contact guideline	34	<i>"How can we guarantee that one and a half meters, preferably two meters of distance." – (18:4)</i>
	Closing schools	8	<i>"I think we all know that schools had to close for a while." – (3:4)</i>
	Work from home	20	<i>".. considering working from home and all, I have a daughter, so yeah I'm just home a lot." – (22:2)</i>
Nationally broadcasted speeches	3	<i>"I notice that people are very much looking forward to tomorrow's press conference." – (15:1)</i>	
Activities and initiatives	Phone calls or Hotline	17	<i>"we have a phone line, but also actively make phone calls." – (53:31)</i>
	Flower initiative	19	<i>"Well neighbors who were on the street and gave people a flower, to cheer them up." – (66:8)</i>
	Food & Groceries	40	

			<p>“.. we distributed 750 food parcels in the neighborhood and that's the tip of the iceberg.” – (53:10)</p> <p>“We put our heads together and created Delfshaven Helpt.” – (4:1)</p> <p>“.. a number of home visits were made to see how residents are doing.” – (23:3)</p> <p>“Then I bought 20 liters of hand sanitizer and sold half in smaller units. I donated the other half.” – (62:11)</p> <p>“So we had 159000 euro and we bought 1040 laptops for that.” – (54:11)</p> <p>“Meanwhile, the trash group has started, and 'schoon en mooi botu', will organize a waste collecting festival in August...” – (56:27)</p> <p>“.. has taken up the plan to do small scale sports, homework supervision with these children.” – (4:7)</p> <p>“And hence our, corona pop-up store, which we are now working on.” – (53:12)</p>
Triggers for collective action	Existing networks	56	<p>“I think the reason why it came about so quickly in this district, or rather quite Delfshaven, is because in recent times, years already, investments have been made in the resilience of various networks.” – (12:1)</p>
	Shared vision	45	<p>“.. the openness to do things for others and you see that the solidarity is very present.” – (20)</p>
	Informing	15	<p>“.. it started by informing people about the corona measures.” – (59)</p>
	New networks	7	<p>“One of our goals in the coming months is to keep that contact really warm.” – (57)</p>
	Magnitude of problem	8	<p>“Sometimes it turns out to be such a serious problem that a volunteer is not sufficient.” – (9)</p>
	Already active residents & initiatives	46	<p>“I think the residents from, well, the Bospolder-Tussendijken or Delfshaven, has always done this.” – (53)</p>
	Key person	19	<p>“There are really other people, who stand up as a key figure, so to speak.” – (16)</p>
Facilitation of resilient acts	Formal organisations	59	<p>“we are one of the leaders together with the City of Rotterdam and a number of other partners.” – (23)</p>
	Digital resources	51	<p>“A core group I'm in also has a WhatsApp group.” – (24)</p>
	Networks	50	<p>“.. with networking and doing things, like what am I good at or what are you good at.” – (34)</p>
	Switching roles	33	<p>“But shouldn't I actually take a big step forward? And I didn't choose that in the first place.” – (15)</p>
	Cooperating initiatives	51	<p>“Everyone has their own expertise and their own knowledge and skills and I think I have always been in favour of cooperation.” – (24)</p>
	Central hubs	3	<p>“.. from here we made and delivered the food parcels.” – (23)</p>
Frustration of resilient acts	Policy, process and guideline	50	<p>“Actually, the motto was to stay at home.” – (68)</p>
	Limited network access or utilization	39	<p>“.. those elderly people ... they're lonely, but they don't want to admit it.” – (43)</p>
	Financial constraints	21	<p>“Self-reliance in the financial sense that you really want, is suddenly gone.” – (37)</p>
	Closed meeting places	20	<p>“Neighborhood houses are still closed.” – (50)</p>
	Inefficient communication	53	

			<i>".. but that resulted in a message every three seconds. So that was also a bit, uh, intense." – (22)</i>
Lack of actions	Absence of formal organizations	36	<i>" A neighborhood director at city management... just says cheerfully ... no working from home is fine, the residents know how to find me." – (51)</i>
	Reaching more local residents	22	<i>"There are still networks and groups that are not directly reached with traditional media and through traditional channels."</i>
	Finances & SPI codes	13	<i>"While we are really crucial and we hear that from the municipality, but we don't get help especially financially." – (60)</i>
Lessons and learning points	Familiar with setbacks	5	<i>"If you fell off your bike once, you get up faster the second time it happens." – (62)</i>
	Need for better knowledge-sharing	13	<i>"Of course there is so much knowledge that is apparently not shared with each other." – (39)</i>
	Involved local residents	27	<i>".. it's as if there's an active resident under each paving tile." – (59)</i>
	Locals initiate initiatives	26	<i>"The role of the municipality is very small in the Delfshaven area compared to other areas, while a lot is happening." – (53)</i>
	Central support point	2	<i>"...now because they can call one number, so everything actually comes up." – (57)</i>
	Acting without official permission	5	<i>"They should actually ask their manager if that is allowed. But some officials do not do that for many appointments at the moment." – (56)</i>
	Influence on governance	20	<i>"In part, I also see a simple loss of democratic tools for residents." – (8)</i>
	Uninvolved youth	19	<i>"So for young people there is too little and with that whole new 'Rotterdam well-being', it is left far too much to young people's initiative." – (59)</i>
	Long term needs	39	<i>"..seize the crisis as an opportunity to do a number of 'business as usual' things in a different way." – (16)</i>
	More municipal support	16	<i>"..the support of the municipality could have been better." – (59)</i>
	Value of meeting places	25	<i>"..houses of the neighborhood closed. While often information could be obtained. That was now gone." – (61)</i>
	Develop digital skills of elders	4	<i>"we can now, for example, stimulate the elderly a little more for digitization." – (24)</i>
	Overview of initiatives	4	<i>"Is there such a list with the contact persons of these organizations and also what they do?" – (37)</i>
	Importance of visibility and trust	54	<i>".. it is necessary to see people just to keep the contact as good as it was..." – (33)</i>

Results

The analysis of the interviews, identifies similar factors that are part of the conceptual framework, can be identified and placed into the framework, to reflect the relationship and dynamics of community resilience in the Bospolder-Tussendijken case. As an example of how to apply the framework, figure 6 shows the identified actors and factors in the emergence of community initiative Delfshaven Helpt. This collaborative initiative became prominent in facilitating resilience in the community by combining formal and informal actors. Figure 6 shows how the actors

and their relationships fit in the context of the conceptual framework. The following sections shall discuss this further.

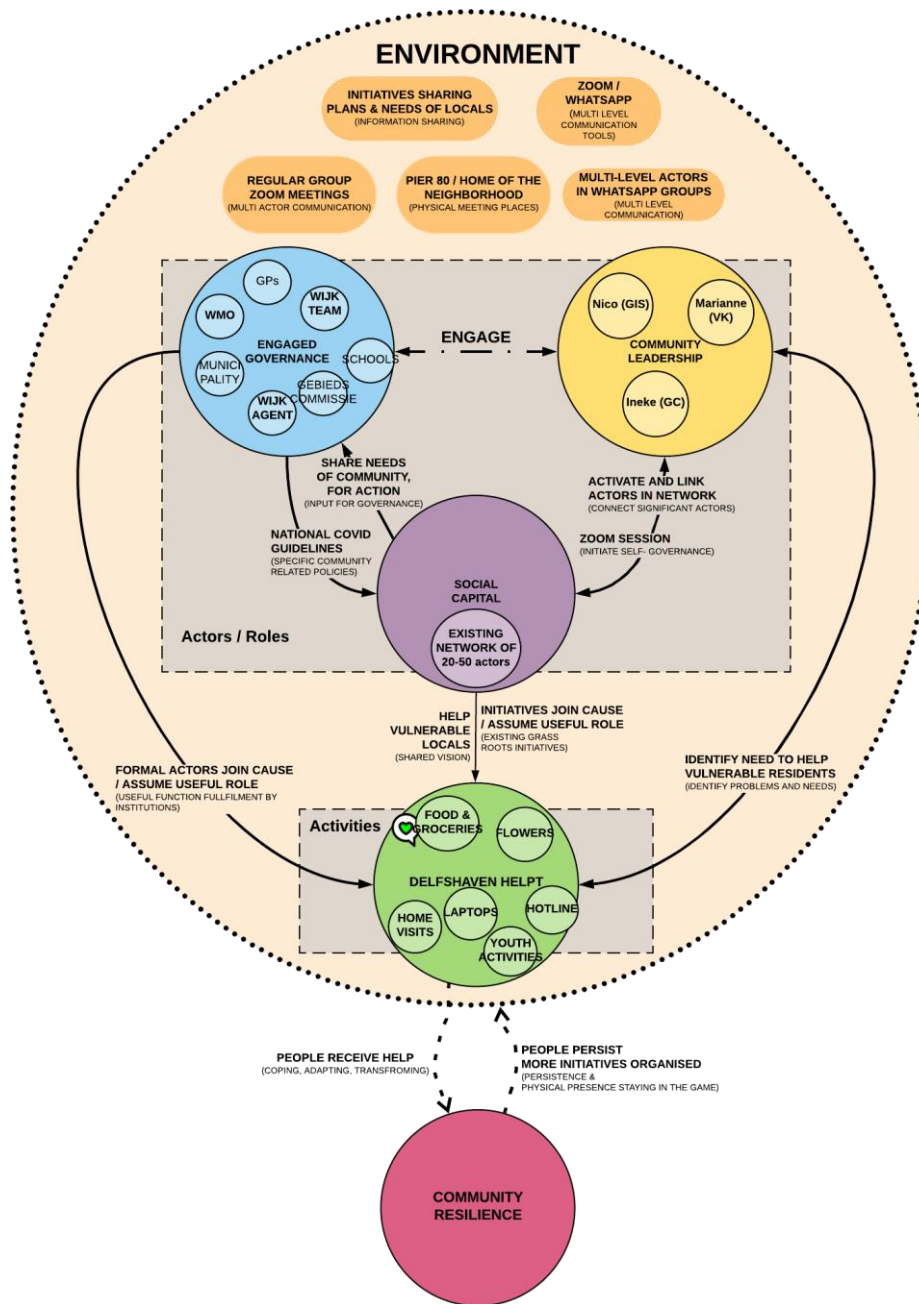


Fig 2. Conceptual framework: Facilitating community resilience, the emergence of Delfshaven Helpt

Actors and roles

In the conceptual framework, the actors and roles play a significant part. The factors in this element of the framework consist of existing actors that are related to the neighborhoods Bospolder and Tussendijken. With the skills, knowledge and preferences that actors hold, the dynamics between community leadership, social capital and resilient governance, a multi-actor setting, lay the groundwork for problem solving or, in this case, the emergence of Delfshaven Helpt.

1.1.1 Community leadership

The development of problem solving abilities, started with the community leadership factor. As seen in the framework, community leadership identifies problems and needs. The origin of Delfshaven Helpt lies within the identification of vulnerable people’s need for help. This was identified by a combination of three actors that acted

on this. Firstly, one actor shared this problem online. This was followed by two actors internalizing the need and starting the initiation of self-governance that community leadership is able to manifest through influencing social capital. Though, prior to this the three actors engaged and met with the governance actors: ‘wijkteam’ or community team, welfare organisation WMO Radar and the community police officer. Regarding the problems and needs that arose during this period the one category of the coding scheme can be placed in identification of the problem and needs identification, namely *COVID aid requests*.

1.1.2 Engaged governance

In Bospolder-Tussendijken, the role of resilient governance is fulfilled by formal actors in the neighborhood. These actors stand closer to government and thus are sometimes part of enforcing or implementing policies. These policies affect the community, as well as social capital, as can be seen in the framework. During the research most policies were nationwide policies, with a small degree of variances within municipalities. The code category that represents these policies in the framework is: *Policies and guidelines*. During the emergence of Delfshaven Helpt, the community leadership actors had a meeting with the governance actors to discuss the needs and problems within the community, following the crisis, policies and guidelines that were implemented due to COVID-19.

1.1.3 Social capital

Following the meeting between the actors representing the governance and community leadership factors, self-governance was initiated by activating the social capital or social network that is present in the community. According to the interview with the leadership actors, an online meeting was organized. The meeting consisted of 20 to 50 actors, according to the leadership actors, the exact amount remained unclear.

One factor that enables social capital to be utilized for problem solving is shared vision. Accordingly, the vision and mission to support local residents in need was widely adopted within the existing social network, that similarly played a crucial role in enabling social capital, and facilitates the problem-solving and emergence of Delfshaven Helpt. This shared vision is also one of the subcategories in the category related to social capital in the framework, namely *Triggers for collective action*. Conformingly, shared vision was mentioned 45 times during the interviews. Where existing networks are mentioned 56 times as a factor to trigger collective action.

1.1.3.1 Role changes in Bospolder-Tussendijken

During the study the actors that are part of the social fabric in Bospolder-Tussendijken have been identified. Due to the COVID-19 pandemic, some of these actors have changed their original role to accommodate the need for help. This has been done through Delfshaven Helpt, but also outside of Delfshaven Helpt, initiatives have taken on the challenge to support residents within the neighborhood and beyond. The occurrence of role changes also has been mentioned 33 times during the interviews.

Role changes were made both by formal actors that lay in the resilient governance factor of the conceptual framework, as well as informal actors represented by the social capital factor of the framework. Table 3 presents a list of recognized formal actors, alongside information on role change sand type of role changes. Furthermore, the table reflects the activities that they have undertaken, which can be found in the coding scheme category *activities and initiatives*. The table also implements the coding categories *facilitators for resilient acts* and *frustrations for resilient acting*, for each actor. Table 4 presents a similar list for informal actors.

Table 3. Formal actors’ role changes and activities, *(NED: Not enough data)

ACTOR	ROLE CHANGE?	TYPE OF CHANGE	ACTIVITIES (CODE)	FACILITATOR (CODE)	FRUSTRATIONS (CODE)
AYASOFYA	Yes	<i>Capabilities</i>	Phone calls or Hotline; Food & Groceries; Flower initiative	Networks; digital resources;	Closed meeting places
CENTRUM JEUGD GEZIN	NED*	-	-	-	-
DELFSHAVEN COOPERATIE	Yes	<i>Responsibilities</i>	Delfshaven Helpt	Formal organisations; cooperating initiatives; networks; digital resources	-
HUISARTS & IZER ZORG	Yes	<i>Information</i>	Delfshaven Helpt; Home visits	Digital resources; networks; cooperating initiatives	Inefficient communication
FONDSEN	Yes	<i>Capabilities</i>	Delfshaven Helpt; Laptops; Food & Groceries	Networks; cooperating initiatives	-
FRONTLLIJN	NED	-	-	-	-
GEBIEDSCOMMISSIE (AREA COMMITTEE)	Yes	<i>Responsibilities; capabilities;</i>	Delfshaven Helpt	Formal organisations; cooperating initiatives; networks; digital resources	Inefficient communication
GELOVEN IN SPANGEN	Yes	<i>Responsibilities; capabilities</i>	Delfshaven Helpt; Giveaway shop	Cooperating initiatives; networks; formal organisations	-
GEMEENTE ROTTERDAM	Yes	<i>Information, status</i>	Delfshaven Helpt;	Networks; central hub	Closed meeting places; Policy, process, guideline
HAVENSTEDER	Yes	<i>Capabilities; domain</i>	Giveaway shop; Delfshaven Helpt	Formal organisations; cooperating initiatives; Networks	-

JONG DELFSHAVEN	Yes	Capabilities	-	Central hub; cooperating initiatives	Policy, process, guideline; Closed meeting places
JUMBO	Yes	Capabilities; domain	Food & Groceries;	Cooperating initiatives; Formal organisations	Limited supermarket entry
MEVLANA MOSKEE	Yes	Capabilities	-	-	-
PIER 80	Yes	Capabilities	Food & Groceries;	Central hub; cooperating initiatives	Closed meeting places; 1.5m guideline
RABOBANK	NED	-	-	-	-
SCHOLEN	Yes	Responsibilities; capabilities	Youth activities	Digital resources	School closes; Work from home
UNILEVER	Yes	Capabilities	Food & Groceries	Networks; cooperating initiatives; formal organisations	-
VRAAGWIJZER	Yes	Information	Delfshaven Helpt	Cooperating initiatives; formal organisations	1.5m guideline; Policy, process, guideline
WIJKAGENT (LOCAL POLICE OFFICER)	Yes	Information	Delfshaven Helpt	Formal organisations;	-
WIJKTEAM (COMMUNITY TEAM)	Yes	Capabilities; information	Delfshaven Helpt; Food & groceries; Home visits;	Networks; cooperating initiatives; digital resources; formal organisations	Inefficient communication; 1.5m guideline; Policy, process, guideline
WIJKVERPLEEGKUNDIGE (DISTRICT NURSE)	Yes	Information	Delfshaven Helpt; Home visits	Formal organisations; digital resources; cooperating initiatives	Inefficient communication
WMO RADAR	Yes	Capabilities; status; information	Delfshaven Helpt; Food & groceries; Home visits; Cleaning initiative; Youth activities	Central hub; networks; cooperating initiatives; formal organisations	1.5m guideline; Closed meeting places

Table 3 shows that of the 22 formal actors that were identified during the analysis of the interviews, 19 changed their roles. There was not enough data on the remaining 3 actors to determine whether they changed their roles or not. The most common type of role change was a change in *capabilities*, meaning these actors changed or expanded their activities. This is followed by the *responsibilities* role change, which mostly occurred alongside a role change in capabilities. Most of the formal actors had activities that were related to Delfshaven Helpt and their role changes were mostly facilitated by the collaboration of formal organisations and cooperating initiatives. Two of the main frustrations for the formal actors were inefficient communication and the closed meeting places.

Table 4. Informal actors' role changes and activities

ACTOR	ROLE CHANGE?	TYPE OF CHANGE	ACTIVITIES (CODE)	FACILITATOR (CODE)	FRUSTRATION (CODE)
BESOUK	No	-	-	-	-
BOTU12	Yes	Responsibilities, capabilities	Flower initiative; Delfshaven Helpt	Networks	Inefficient communication; Policy, process, guideline
BOUWKEET	Yes	Capabilities	Phone calls or Hotline; Youth activities	Digital resources	-
DAKPARK	Yes	Capabilities	Food & Groceries	Formal organisations	-
DELSHAVEN HELPT	Yes	Responsibilities, capabilities, status, information	Delfshaven Helpt; Food & Groceries; Laptops; Home visits; Phone calls or Hotline	Networks; formal organisations; digital resources; cooperating initiatives	Inefficient communication
DELSHAVEN LOKAAL	Yes	Responsibilities	Delfshaven Helpt	Networks; cooperating initiatives	-
SPEEL-O-THEEK KLEIN DUIMPJE	NED	-	-	-	-
MARKT VISSERIJPLEIN	No	-	-	-	Policy, process or guideline; 1.5m guideline; Restricted market
RMC	No	-	-	-	Financial constraints; 1.5m guideline
SCHIEZICHT	Yes	Capabilities	Flower initiaive	Networks; cooperating initiatives	Closed meeting place
SPONSORS	Yes	Capabilities	Laptops, Food & Groceries, Giveaway shop	Networks; formal organisations	-
STICHTING ONTMOETING	No	-	-	-	Work from home; 1.5m guideline
TAEKWANDO CLUB	No	-	-	-	1.5m guideline
TEAM TOEKOMST	Yes	Capabilities	Youth activities	Closed schools	-
THUIS IN WEST	Yes	Responsibilities	Delfshaven Helpt	Cooperating initiatives; networks	-
VROUWEN EMANCIPATIE CENTRUM	NED	-	-	-	-
VERBINDINGSKA-MER	Yes	Responsibilities, capabilities	Delfshaven Helpt	Networks; digital resources; cooperating initiatives	-

VLUCHTELINGEN VOOR VLUCHTELINGEN	Yes	<i>Domain</i>	Small or own initiative	Cooperating initiatives	Policy, process or guideline; inefficient communication, closed meeting places
VOESELBANK ROTTERDAM	No	-	Food & Groceries	-	-
VOESELBANK ISLAM	Yes	<i>Capabilities</i>	Food & Groceries, Small or own initiative	Networks; digital resources; formal organisations	Inefficient communication; Policy, process, guideline
VOESELTUIN	No	-	-	-	Policy, process, guideline
ZELFREGIEHUIS	Yes	<i>Capabilities</i>	Flower initiative	Networks, digital resources	Policy, process, guideline
ZORGVRIJSTAAT	Yes	<i>Domain</i>	Delfshaven Helpt	Networks, digital resources	Inefficient communication

The identified informal actors made less role changes than their formal counterparts, table 4 shows. In most cases, this was due to frustrations disabling their abilities. In other cases, like Voedselbank Rotterdam, the actors did not change roles because their current role remained relevant in the changed environment. Voedselbank provided groceries, which was a great aid request. Of the 23 identified informal actors, 14 actors changed their roles, 7 actors did not change their roles and there was not enough data on the final 2 actors. The type of role change that most often took place was again the *capabilities* type role change. Similar to the formal actors' role changes, this is followed by the *responsibilities* role change type. Apart from Delfshaven Helpt, which appears several times as an activity of the informal actors, informal actors also had a focus on smaller initiatives which were sometimes their own or they shared flowers in the neighborhood to support the local morale. Most of the informal actors' role changes were facilitated as a result of having or being part of a network. Furthermore, the deployment of digital resources has aided these actors. The frustrations that informal actors that did not change their role faced, were primarily the social distancing guideline that urged people to keep at a distance of 1.5 meters and policies halted the gathering of groups of people. The frustrations of informal actors that were capable of changing their roles, were similarly policies, processes and guidelines, as well as inefficient communication

Activities

Another important part of the conceptual framework. In activities element of the framework the factor of problem solving activities reside. In the case of Bospolder-Tussendijken, this factor is reflected by the Delfshaven Helpt initiative. According to Nespeca et. al (2020) the activities element is divided in coordination, consisting of networking and role changes, information management, consisting of info collection, evaluation, processing and sharing. Lastly, operations are a part of the activities element.

1.1.4 Problem-solving activities: Delfshaven Helpt

The process of interaction within the actors' element of the framework eventually led to the emergence of Delfshaven Helpt. This initiative could be considered a problem-solving network with the specific and challenging mission to support residents of the Delfshaven district that are in need, during the COVID-19 pandemic.

1.1.5 Coordination

Coordination entails new connections and changes in roles and relationships. Regarding new connections, the Delfshaven Helpt initiative consisted of resilient governance actors, grassroots initiatives and the initiating community leadership actors. As previously stated, regarding the formal actors 12 of the 22 identified actors were linked to Delfshaven Helpt. Looking at the informal actor, 6 of the 23 identified actors were part of Delfshaven Helpt and the Delfshaven Helpt network. One example of a role change that were linked with Delfshaven Helpt by a formal actor is that of healthcare professionals, like general practitioners. This group of actors changed their role by exchanging information about vulnerable patients that need a form of support that can be fulfilled through Delfshaven Helpt.

1.1.6 Information management

Considering information exchange, the management of information is a relevant subject within the activities element. The collection, evaluation, processing and sharing of information all took place within the Delfshaven Helpt initiative. Digital resources were crucial in the facilitation of information management within the context of Delfshaven Helpt, as a lot of communication took place through these means. One noteworthy comment, is the fact that this part of the activities has been brought up as the cause of *inefficient communication*, a frustration of resilient acts. several times. This applied to both formal and informal actors, as can be seen in Table 3 and Table 4.

1.1.7 Operations

Operations reflect the physical activities that have been undertaken within the environment. In the case of Delfshaven Helpt, this relates to the code category *activities and initiatives*. Actors in the Delfshaven Helpt network organized several activities in response to the help requests that were present in the community. These activities and initiatives included: a caller hotline, groceries and food packages, home visits, distribution of laptops for studying, gifting flowers, a giveaway shop and youth activities.

Community resilience

Initially, the problem-solving network and initiative Delfshaven Helpt emerged as a coping strategy. The initiative was meant to restore the pre-existing well-being in the community, after the impact that the COVID-19 pandemic had on the neighborhood and its residents. From the fact that most locals remained in the neighborhood, persisting as a community, one may determine that the community was indeed resilient. This has also been attested by multiple respondents.

Delfshaven Helpt has made a contribution to facilitation of the community's resilience. According to the interviews this facilitation has been made possible by different factors combined. These factors are also found in the coding category *Facilitation of resilient acts*. A factor that was mentioned 59 times was the collaboration with formal organisations. This refers to the formal actors or resilient governance actors that joined and supported initiatives. Allowing initiatives access to greater resources to solve problems and meet needs within the community. One example is the gesture made by grocery concerns Unilever and Jumbo that both supported the initiative to provide groceries to the community.

The use of digital resources was mentioned 51 times. As previously mentioned much of the communication between actors in the network was through digital devices. Mobile communication applications, like WhatsApp were used to form communication groups. Additionally, video conferencing software, like Zoom, was used to have online meetings. Other relevant factors were networks, which is very much related to social capital and was mentioned 50 times, and role changes that were made by several actors and organisations (mentioned 33 times).

Moreover, a factor of significance was cooperating initiatives (mentioned 51 times). According to respondents, initiatives cooperating with each other facilitated the resilience because of the common goal or shared vision. Previous to this clear goal, there may have existed some form of competitiveness between initiatives.

Finally, though it has just been mentioned 3 times, a central hub also had a contribution to facilitation of the acts and initiatives in Bospolder-Tussendijken. Pier 80, also known as a 'Home of the Neighborhood', which originally is a meeting place, was utilized as a central hub, that allowed storage of goods and functioned as a workplace for formal actors in the community.

These resilience-facilitating factors not only played a part in the contribution of Delfshaven Helpt, but likewise in the many other initiatives that were organized by individual locals. This is also reflected by the coded sub categories: *involved local residents*, *initiatives led by residents* and *small or own initiatives*. These sub categories explain the high level of activity of locals in Bospolder and Tussendijken. The majority of active initiatives are initiated and led by locals. Residents in the neighborhood can also be considered relatively involved and therefore start their own initiatives. One of the initiators of the Delfshaven Helpt initiative also mentioned that they are accustomed to filling the gaps that people expect the municipality to fulfil. When asked if they do not have the idea that they are jumping into a gap that normally should or could be filled by the government? The response was that they always do.

Lessons

1.1.8 Frustrations of resilient acts

Though community resilience has been facilitated to an extent by the activities and initiatives that took place, as well as Delfshaven Helpt, there also have been circumstances that frustrated resilience acts from both formal and informal actors. This can be found in the coding category: *Frustration of resilient acts*. Among these circumstances were the *closed meeting places*, *financial constraints*, *inefficient communication and policies, processes and guidelines*. Another identified frustration was the *limited access to or utilization of networks*.

Closed meeting places, hindered the possibility of people gathering together and sharing information. A lot of information was spread with the help of digital media. However, not the entire demographic of the neighborhood is able to deal with digital or social media, so one of the WMO youth workers shared

Financial constraints limited especially actions of individuals and informal actors. Due to the pandemic some initiatives had to halt usual operations and therefore endured a financial hit, one of which was Stichting RMC.

As noted while discussing information management, inefficient communication has also been a frustration, this has been the case during communication with digital resources, as well as communicating with local residents, who were not always aware of existence of initiatives. Flyers were used to create awareness, but these did not always seem to be effective.

Policies, processes and guidelines were also a significant frustration to resilient actions, as they were mentioned 51 times. One example is the fact that municipality employees were not allowed to meet to discuss with partners or collaborators.

1.1.8.1 Lack of action

A specific type of frustration was the lack of action from local institutions or formal actors. Informal actors in the local community were the only group suffering from the consequences of this lack of action by institutions. Firstly, in some cases there was an *absence of civil servants and organizations*, when they were needed. Secondly, there have been instances where there could have been done more to *reach a bigger group* in the community. Lastly, there have been valuable informal initiatives that took a financial hit during the crisis but did *not receive any financial support*. This was due to a missing administrative code at the Dutch chamber of commerce, and nothing was done to rectify the situation.

1.1.9 Contribution possibilities

During the interviews there have also been made remarks that were valuable as learning lessons for local institutions that may improve the community's resilience when acted upon. The first lesson is that even though in general the local residents are in a less favorable socio-economic situation, this may cause them to have an above average resilient attitude. This is possibly due to the fact that they are *familiar with setbacks* because of their socio-economic position.

This may also affect the lesson that *residents are overall involved in the community and locals are often times initiating initiatives*. Following, interviewees have mentioned a need for *a better knowledge sharing method* and the experience that *a central support point* and an *overview of existing initiatives* are favorable to the community. One learning experience regarding formal actors, is that it may be in the interest of the community's resilience to *act without official permission* of superiors. This has been done several times by municipal employees to bypass guidelines and facilitate activities. This act is also related to the *importance of visibility and trust* in the neighborhood. Bospolder and Tussendijken is a neighborhood that relies on social visibility as means to inform and engage.

Furthermore, there have been mentions that the community's *input and influence on the decision-making by governance* can be improved. This has been the case in the municipality's decision to sell the building, that was used by the informal actor Zelfregiehuis' community initiative, to real estate investors. Due to the fact that Zelfregiehuis supported the resilience of a group in the community, the residents voiced their disapproval of the decision in multiple ways, but the sale of the building still went through. One interviewee stated that the municipality sometimes organize feedback moments, but does not follow through with actions

Another similar lesson is that there is *need for more support from the municipality*. According to one of the community leadership respondents, the COVID-19 pandemic made it easier than before, to collaborate with the municipality. Though, for this collaboration to prevail the municipality should offer some infrastructure themselves and that is actually limited, one area committee member stated.

Since meeting places were closed as a consequence of the measures to prevent the spread of COVID-19, *the value of meeting places* also became clear in light of community resilience. As previously stated, meeting places like Pier 80, 'Home of the neighborhood', are an environment in which some locals get their information or help with other aspects of their lives. The relative *uninvolvement of the youth* is an experience that may also be related to this lack of meeting places. As there are not many meeting places for the youth in Bospolder and Tussendijken, they usually meet outside. This was also the case when schools closed and meeting in groups was not advised by the guidelines. In addition, youngsters were also more likely to consider the possibility the crisis being a conspiracy theory. This was most likely based on information gathered from social media. Causing the need for youth workers to reinforce the seriousness and health risks.

The current pandemic and its social-distancing measures have induced the realization that it can be beneficial for *elders to develop their digitally skills*. In the cases that elders were digitally skilled, they also used their devices to communicate and maintain social relationships. Finally, there have been multiple comments on the *long term need* of initiatives and collaborating problem-solving networks like Delfshaven Helpt. Developing the initiative from a coping mechanism into a long-term participative collaboration network.

Discussion

This section provides the results of section 6 and the relation to the previously presented research on three fields within community resilience: resilience facilitation, crisis management, governance & policy, and the questions: (1) how the relationship and roles of local institutions and communities manifest, during times of crisis, and (2) how local institutions could facilitate community resilience.

Findings and scientific contribution

The study analyzed the case of Bospolder-Tussendijken, according to the proposed framework for facilitation of resilience in section 3.

With regards to facilitation of community resilience, the research recognizes that there are several triggers for the collective action within a community. These triggers coincide with the research of Berkes and Ross (2013). That stated people-place connections, values and beliefs, social networks and leadership are key strengths and characteristics in community resilience. These characteristics display overlap with a study that report initiatives' success is more likely when seeking to communicate with other residents, as opposed to those that don't (Grube & Storr, 2013).

The case study has similarly shown that in cases when formal and informal actors collaborate, the ability to solve problems within a community may be facilitated better than when this collaboration is not present. This has been portrayed especially regarding the availability of resources and utilization of social capital. An example of this is seen in the emergence of Delfshaven Helpt, a collaborative initiative between formal and informal actors that allowed to impact a greater group within the community than other informal initiatives did on their own. Previous studies have highlighted this as well (Walsh, 2017; Berkes & Ross, 2013; US National Research Council, 2011). It must be said that the existing social network within the BoTu community may have had a significant influence on this development. Whereas in other communities in Rotterdam, where there is not such an extensive social network in place, emergence of similar initiatives did not occur. Though, this case study does not fully support Wilson's (2013) finding that community-level actors can't always be left to act autonomously to guide resilience pathways, it does agree with the Hills' (2000) idea that an important aspect in the facilitation of resilience is the effective fulfillment of a function by an institution. This shows that the relationship between local institutions and communities can improve and institutions also take on new roles, during a crisis.

During the period of the case study, the policies and guidelines that affected the community were mostly nationally imposed. The case study shows that on several occasions this has led to being a frustration to the ability to act resilient. Wilson (2013) also warned for the possibility that state policies can often contribute to a decrease in the resiliency of a community. Municipalities were able to have slight flexibility in the policies, but the municipality did not so much as to incorporate the community's local customs, which could have provided a benefit to the community's ability to act (Stark & Taylor, 2014; Wilson, 2013). In some sense, one could say the community's capacity was limited by the imposed guidelines. Additionally, because community capacity influences community resilience (Edelenbos, 2018; Grube & Storr, 2013; Kapucu & Sadiq, 2016) policy may have been more effective and facilitative if it aided or at least not limited the community capacity.

The interviews and framework shows that the facilitation of resilience is subjective to an information sharing environment. The use of digital resources or devices has acted as a great facilitator in the communication between actors, especially informal. Which is no surprise since previous research also showed that lesser organized volunteers apply the use of ICT and social media more than hierarchically voluntary organizations (Linnell, 2014). Therefore, the aim to develop technological means to allow collective contributions of residents during crises (Vos & Sullivan, 2014; Comes, 2016), is very much justified. Even more so, because a crisis, where physical movement and meeting is limited, possibly makes both formal actors or authorities and informal actors and residents, prone to isolation.

In crises, or major disturbances, social capital can be an effective resource to deploy for the facilitation of community resilience. Previous research makes a distinction between routine hardships and major disturbances, and the way both should be handled. Considering the utilization of social capital only to be valuable in routine hardships (Williams et al., 2017). However, this statement may ask for an expansion as the results in Chapter 5 show that also partly thanks to social capital in BoTu, the major disturbance that was caused, by the pandemic, allowed the facilitation of resilience and therefore could be tackled. Showing that the framework could be applied to both routine hardships and major disturbances or crises.

This finding also follows the logic of Linnell (2014), who discusses that semi-organized and non-organized volunteers may be potential resources for enhancement of community resilience.

Following, the case study reflects one of the challenges of crisis response, that revolved around the connection between significant community actors to each other (Comes, 2016). Comes proposed a framework that focused on the forming of expert networks with changing roles; fast communication and coordination support in distributed networks; ad hoc reasoning to address challenges and changes. With the relationship between local institutions and communities in mind, the focus of Comes' framework could be considered a well painted picture of a desired situation. Such a desired situation resembled the likes of the Delfshaven Helpt initiative, that emerged from the availability and activation of the present social capital in the community. Since social networks or social capital facilitates actions or access to several resources (Bourdieu, 1983; Coleman, 1988), this could also mean the knowledge or experiences of the actors within the network (Nespeca et. al, 2020). This allows the actors or existing grassroots initiatives in these social networks to change their role and assume a useful role in the context of solving problems and resolving needs in the community through Delfshaven Helpt. Therefore, again one can say that given the right conditions, the relationship between local communities may become more close-knitted and result in improved collaboration and role adaption. In chapter 4, the example of Delfshaven Helpt shows clearly that the proposed and applied framework, which incorporates research from Nespeca et al., (2020) provides a model to map such developments.

This study show how previous literature can be related to each other to present a framework to map the facilitation of community resilience. Using the Bospolder-Tussendijken neighborhood as a case to research the facilitation of resilience and apply the framework, resulted in the support and extension of the existing literature. Further, the study resulted in learning lessons, in Chapter 5, that can be enlightening and useful for further research.

Limitations

There are several limitations to this study. First of all, only one researcher was used to analyze all the 64 interviews in this study. Furthermore, the number of schools interviewed was limited to one, therefore making the school's perspective less represented. In addition, in the interviews used in this study individual residents, that do not represent an initiative, may have been underrepresented, being just 12 of the 64 interviews. This could provide another interpretation of the situation in the neighborhood. Moreover, this study has a time constraint, while the health crisis is still ongoing and developments may take place after the writing of this thesis. Therefore, this study has a greater focus on the beginning of the health crisis.

Conclusion

Local institutions, or formal actors, in Bospolder-Tussendijken, can be considered to be resilient in their cooperation with the local community, or informal actors, due to multiple reasons. Firstly, when contacted by community members, many local institutions joined forces with community members to form a problem-solving network, making resources available to tackle challenges that arose as a consequence of the crisis. This enables the community to be resilient. Secondly, several local institutions also changed or adapted their roles within the community to fulfil a function that was needed in the community and accommodate the local residents. These acts combined have facilitated the resilience in the community to a certain extent, during this crisis period. Thus, formal institutions that display these actions can be considered resilient in their cooperation

However, on the other hand, there is still room for improvement in the resilient attitude of institutions. In example, if one takes a look at actions of the municipality. Due to the crisis, the guidelines of the local municipality advised its employees against meeting with residents, which meant being limited in the support these employees would be able to provide the community. Additionally, institutions initially fully closed meeting places that residents are used to visit for information exchange, instead of finding another useful function for these valuable meeting and information points. Moreover, several valuable informal initiatives faced financial difficulties and received no support, due to the fact that these initiatives were not registered to the supported business category at the Dutch chamber of commerce. This exposes that there is still room for growth in the attitude or cooperation of local institutions, towards and with local communities.

Concluding, local institutions have shown that they are indeed able to be resilient in their cooperation with local communities, more so in time of crisis. Though, there are still improvements to be made to better match the needs and implement the input of local communities and its members. Institutions should look that they do not, limit the capacity of a community for its resilience to prevail.

This research has made the exploratory attempt to comprehend the dynamics of community resilience by investigating the resilience of the BoTu neighborhoods and residents, while determining how formal and informal actors fulfil their roles in community resilience, during crises. The provided framework in section 3, as well as the method to determine actors' role changes shown by table 3 and 4 can be valuable to researchers to apply during analyses to identify facilitators and frustrations to community resilience. Even though, the aim of the research is

to produce new insights or frameworks that can be used in further research and applied in practice, the field of community resilience is still relatively new and there remains future research that should be done to come to a greater consensus on elements within the subject of community resilience.

Firstly, multiple case studies can be done to further validate or expand the presented framework. As previously stated, this study can also be used for future comparison of the state of the neighborhood, which Veldacademie is currently monitoring. Another interesting subject for further study is the minimization of frustrations to community resilience. If actors are able to minimize or perhaps remove the frustrations to their resilient acts this could significantly improve a community's resilience. Additionally, it would be beneficial to find what causes the lack of action by local institutions in some situations, as the lack of actions also disabled several community actors.

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Appendix B

In figure 1, below, the research flow diagram is presented. The diagram shows the phases in the research. Furthermore, the questions and contents of each chapter, represented by the bigger box, as well as the resulting inputs and outputs of each phase are depicted.

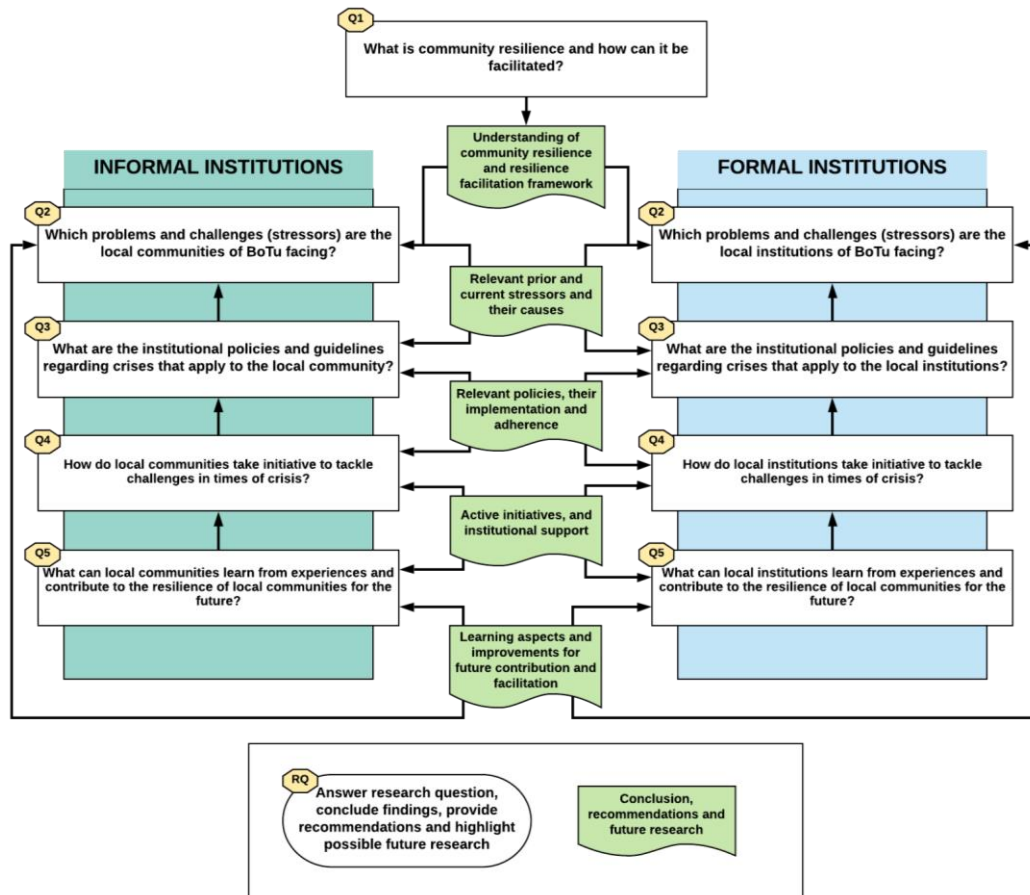


Figure 6 Research flow diagram

Appendix C

Definition of core concepts

The following table, provides an overview of the literature that is used in this review. The table shows the authors, year of publishing, themes and topics of each paper.

Author	Year	Scope / Theme	Topic
V. Nespeca, T. Comes, K. Meesters, F. B.	2020	Crisis management	A conceptual framework for the design of Disaster Management Information Systems
Doff, W,	2017	Concept of resilience	Resilience in local communities
Berkes, F., & Ross, H.	2013	Facilitating resilience	Integrated approach to community resilience
Walsh, F.	2007	Facilitating resilience	Major disasters and strengthening community resilience
Spialek, M. L., & Houston, J.B.	2018	Facilitating resilience	Citizen disaster communication and community resilience
Vos, M., & Sullivan, H. T	2014	Facilitating resilience	Community resilience in crises
Magis, K.	2010	Facilitating resilience	Social Sustainability Community Resilience
Lisnyj, K. T., & Dickson-anderson, S. E.	2018	Facilitating resilience	Post-disaster community resilience
Aldrich, D. P., & Meyer, M.A.	2014	Facilitating resilience	Social capital and community resilience
Linnell, M.	2014	Crisis management	Citizen response in crisis
Williams, T. A., Gruber, D. A., Sutcliffe, K. M., & Shepherd, D. A.	2017	Crisis management	Crisis management and resilience
Comes, T.	2016	Crisis management	Networked resilience
Stark, A., & Taylor, M.	2014	Policy, governance	Citizen participation, community resilience and crisis-management policy

Wilson, G. A.	2013	Policy, governance	Community resilience, policy corridors and the policy challenge
Hills, A.	2000	Policy, governance	Institutional Resilience as tool in Crisis Management
Kapucu, N., & Sadiq, A.	2016	Policy, governance	Disaster Policies and Governance
Edelenbos, J. Meerkerk, I. Van, & Schenk, T.	2018	Policy, governance	Community Self-Organization in Interaction With Government Institutions
Grube, L., & Storr, V. H.	2013	Policy, governance	capacity for self-governance and post-disaster resiliency

Appendix D

Interview questions and relation to conceptual framework and codes

<i>Questions</i>	<i>Code</i>	<i>Framework factors</i>
Hoe ervaart u de coronacrisis?	COVID aid requests, Lessons	Problem-solving, Community leadership
Hoe gaan mensen om met de crisis?	COVID aid requests, Activities and initiatives, Triggers for collective action, Lessons	Problem-solving, Community leadership
Hoe ervaart u dat de buurt veranderd is sinds de coronacrisis?	COVID aid requests, Policies and guidelines, Lessons	Environment
Zijn er veranderingen in het straatbeeld?	Policies and guidelines, Lessons	Environment
Welke behoeftes zijn in de buurt ontstaan naar aanleiding van de crisis?	COVID aid requests, Lessons	Problem-solving, Community leadership
Welke behoeftes zijn vervuld?	COVID aid requests, Activities and initiatives, Facilitation & frustration	Problem-solving, Community leadership, Social capital
Door wie zijn deze behoeftes vervuld? (informeel/wijk/formeel)	COVID aid requests, Activities and initiatives, Facilitation & frustration	Problem-solving, Social capital
Welke behoeftes zijn (nog) niet vervuld?	COVID aid requests, Facilitation & frustration, Lack of actions, Lessons	Community leadership, Problem-solving, Engaged governance, Social capital
Wie dient volgens u deze behoeftes te vervullen?	COVID aid requests, Lack of actions, Lessons	Community leadership, Problem-solving, Engaged governance, Social capital
Heeft u ondanks de maatregelen nog contact met buurtbewoners?	Policies and guidelines, Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Social capital, Environment
Hoe verloopt dit contact?	Policies and guidelines, Triggers for collective action, Lessons	Social capital, Environment
Heeft u nieuwe contacten opgedaan in de huidige crisis? Zo ja, welke contacten?	Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Social capital, Environment
Bent u contacten verloren naar aanleiding van de crisis?	Policies and guidelines, Facilitation & frustration, Lessons	Environment, Engaged governance
Op welke manier proberen buurtbewoners elkaar te helpen?	Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Social capital, Community leadership, Problem-solving
Zijn er nieuwe acties georganiseerd door buurtbewoners?	Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Problem-solving, Social capital, Community leadership
Zo ja, welke en door wie zijn deze initiatieven tot stand gekomen?	Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Problem-solving, Social capital, Community leadership
Welke rollen nemen bewoners op zich tijdens deze activiteiten? Bijv. Initiatief nemen, delegeren, uitvoerder.	Activities and initiatives, Facilitation & frustration, Lessons	Problem-solving, Social capital, Community leadership
Hoe heeft u over de acties gehoord?	Activities and initiatives, Triggers for collective action, Lack of actions, Lessons	Environment, Problem-solving, Engaged governance

Zijn er situaties ontstaan die u niet verwacht had in een periode als deze?	Policies and guidelines, Activities and initiatives, Triggers for collective action, Lack of actions, Lessons	Social capital, Engaged governance
Zijn er mensen opgestaan van wie u het niet verwacht had?	Activities and initiatives, Triggers for collective action, Lessons	Social capital, Engaged governance, Community leadership
Zijn er acties die bewoners willen organiseren, maar niet in staat zijn te organiseren?	Activities and initiatives, Facilitation & frustration, Lack of actions, Lessons	Social capital, Engaged governance
Zo ja, waarom zijn zij hier niet toe in staat?	Activities and initiatives, Facilitation & frustration, Lack of actions, Lessons	Social capital, Engaged governance
Hoe is voor uw gevoel de gemeente momenteel actief in uw wijk?	Policies and guidelines, Activities and initiatives, Facilitation & frustration, Lessons	Engaged governance, Community leadership
Bent u hier tevreden over?	Policies and guidelines, Activities and initiatives, Facilitation & frustration, Lack of actions, Lessons	Engaged governance, Community leadership
Hoe zijn voor uw gevoel de wijkambtenaren momenteel actief in uw wijk?	Policies and guidelines, Activities and initiatives, Facilitation & frustration, Lessons	Engaged governance, Community leadership
Bent u hier tevreden over?	Policies and guidelines, Facilitation & frustration, Lack of actions, Lessons	Engaged governance
Heeft u zelf een activiteit ondernomen naar aanleiding van de crisis?	Activities and initiatives, Triggers for collective action, Facilitation & frustration, Lessons	Social capital, Problem-solving

Uitbreiding op startfoto monitor
Algemeen
Wat is de naam van initiatief?
Wie is het initiatief begonnen?
Welke organisatievorm heeft het initiatief?
- Bewoners
- Stichting
- Vereniging
- Cooperatie
- Maatschappelijke organisatie
- Overheid
- Onderneming
- Onderwijsinstelling
- Informele groep
- Anders ...
Welke mediakanalen gebruikt het initiatief?
Op welke plekken/locaties is het initiatief actief?
Zijn deze plekken altijd (voor iedereen) toegankelijk?
In welke thema's is het initiatief actief?
Organisatievorm, capaciteiten, bronnen
Hoe groot is de betrokkenheid bij het initiatief?
- Totaal aantal mensen dat meewerkt?
o <i>Veranderd tijdens crisis?</i>
- Aantal rollen die aanwezig zijn binnen initiatief?
o <i>Veranderd tijdens crisis?</i>
▪ <i>Hoe vaak veranderen de rollen/zijn de rollen verandered?</i>
▪ <i>Hoe wordt dit bijgehouden?</i>
Welke eigenschappen/capaciteiten past het initiatief toe?
- <i>Zijn deze veranderd t.o.v. voor de crisis?</i>
Wordt er beroep gedaan op fysieke hulpbronnen door het initiatief?
- Zo ja, welke?
- Zo nee, waarom niet?
Netwerk
Hoe groot is de impact/schaal, hoeveel mensen ondersteunt het initiatief?
Werkt het initiatief samen met partijen/bewoners en op welke wijze?
- Wat gaat er momenteel goed in deze samenwerking?
- Wat gaat er momenteel mis in deze samenwerking?
Zijn er andere initiatieven/instituties die momenteel een aanvulling kunnen zijn voor het initiatief?
- <i>Op welke gebied is de aanvulling nodig/gewenst? (Bijv. bronnen)</i>
Hoe communiceert het initiatief met de instituties/wijk/bewoners/omgeving?
- <i>Hoe vaak vind er communicatie plaats?</i>
- <i>Welk medium wordt gebruikt?</i>
- <i>Is dit interactieve communicatie of in 1 richting?</i>
Welke informatie heeft/krijgt het initiatief?
Welke informatie wordt gecommuniceerd door het initiatief?
Doelstelling & activiteiten
Wat zijn de hoofdactiviteiten van het initiatief?

- Onder welk thema vallen ze?
<i>Zijn deze activiteiten veranderd door de crisis?</i>
- <i>Zijn er activiteiten bijgekomen?</i>
- <i>Zijn er activiteiten gestaakt?</i>
- <i>Waarom?</i>
Indien ja:
- Welke leerpunten presenteren zich in de schakeling tussen activiteiten, in crisis?
- Welke succespunten zijn ontstaan n.a.v. de schakeling tussen activiteiten, in crisis?
Hoe beïnvloeden de (nieuwe) activiteiten de bestaande rolverdeling binnen de initiatieven?
Hoe bevindt de doelgroep eventuele veranderingen in de activiteiten?
- Aanpassingsvermogen etc.
Methode
Is de uitvoering/werkwijze van de activiteiten van het initiatief momenteel anders?
- Nee, zoals gewoonlijk
- Ja, digitale vorm (videobellen etc.)
- Anders.. ?
Wat zijn de leerpunten en succespunten in de uitvoering?
Hoe bevindt de doelgroep eventuele veranderingen in de uitvoering?
- Aanpassingsvermogen
- Beschikbare bronnen
Mijlpalen
Wat zijn de meest belangrijke sleutelmomenten die hebben plaatsgevonden m.b.t. het initiatief?
- Bijv. minister toespraak, communicatiemomenten, verkrijgen van bepaalde informatie, (on)succesvolle handelingen van het initiatief, gerealiseerde facilitatie

Appendix E

Interview questions: Veldacademie startfoto monitor

Gegevens over het interview	
Naam van de interviewer(s) en onderwijsinstelling	
Wie wordt er geïnterviewd en wat is haar of zijn rol binnen het initiatief?	
Wat zijn de contactgegevens van de geïnterviewde? Voor eventuele vervolgvragen.	
Wat is de locatie van het interview?	
Wat is de datum en het tijdstip van het interview?	

Algemene informatie	
Naam van het initiatief	
Wie is/zijn de initiatiefnemer(s)? Welke organisatie(s) of personen zijn het initiatief begonnen.	
Organisatievorm Kies welke organisatievorm het meest van toepassing is.	<input type="checkbox"/> Bewonersinitiatief/ project <input type="checkbox"/> Stichting <input type="checkbox"/> Vereniging, bv. sportvereniging, WVE <input type="checkbox"/> Coöperatie <input type="checkbox"/> Maatschappelijke organisatie, bv. kerk, welzijnsinstelling <input type="checkbox"/> (Semi)overheid, bv. gemeente, woningcorporatie <input type="checkbox"/> Bedrijf/Onderneming <input type="checkbox"/> Onderwijs- onderzoeksinstelling, bv. school, universiteit, IABR <input type="checkbox"/> Informele groep <input type="checkbox"/> Anders, namelijk
E-mail Algemene contactgegevens.	
Telefoon Algemene contactgegevens.	
Adres Algemene adresgegevens.	

Postcode Bv. 1234AB	
In welke wijk ligt het initiatief?	<input type="checkbox"/> Bospolder <input type="checkbox"/> Tussendijken
Website Bv. https://www.website.nl	
Social Media Kanalen Vul hier de link naar deze kanalen in.	<input type="checkbox"/> Instagram: ... <input type="checkbox"/> Twitter: ... <input type="checkbox"/> Facebook: ... <input type="checkbox"/> Anders: ...
Op welke locatie(s) is het initiatief actief? Op welke plek(ken) vind(en) de activiteiten plaats, vul waar mogelijk een adres en postcode in.	Plek 1: Plek 2: Plek 3: Plek 4:
Heeft/ hebben deze locatie(s) een publieke functie? Kan iedereen van de locatie gebruik maken tijdens openingstijden.	<input type="checkbox"/> Ja <input type="checkbox"/> Nee Evt. toelichting
Thema's Op welke thema's is het initiatief actief? Vink maximaal drie thema's aan die het meest aansluiten bij de activiteiten van het initiatief.	<input type="checkbox"/> Inspraak, belangen, politiek <input type="checkbox"/> Diversiteit, gelijkheid, vluchtelingen <input type="checkbox"/> Armoedebestrijding (bv. voedselbank, kledinginzameling) <input type="checkbox"/> Sociaal-maatschappelijke ondersteuning (bv. hulp bij schulden, administratie, opvoedingsondersteuning) <input type="checkbox"/> Praktische ondersteuning (bv. klusdiensten, boodschappen) <input type="checkbox"/> Emotionele/ psychologische ondersteuning (bv. huisbezoeken bij eenzame ouderen, praatgroepen) <input type="checkbox"/> Geloofsovertuiging, spiritualiteit <input type="checkbox"/> Activiteiten voor kinderen en jongeren <input type="checkbox"/> Activiteiten voor ouderen <input type="checkbox"/> Onderwijs, educatie (bv. taallessen, huiswerkondersteuning) <input type="checkbox"/> Buurtactiviteiten gericht op ontmoeting en gezelligheid (bv. opzomeren, samen koken, koffiedrinken) <input type="checkbox"/> Gezondheid, leefstijl <input type="checkbox"/> Sportactiviteiten <input type="checkbox"/> Creatieve activiteiten (bv. handwerk, knutselen) <input type="checkbox"/> Kunst en cultuur (bv. muziek, theater, dans, poëzie, boekclub) <input type="checkbox"/> Veiligheid, beheer en onderhoud <input type="checkbox"/> Natuurbehoud, tuinieren, dierenwelzijn <input type="checkbox"/> Duurzaamheid, milieu, energie <input type="checkbox"/> Stimuleren ondernemerschap <input type="checkbox"/> Werktoeleiding (bv. sollicitatietraining) <input type="checkbox"/> Stedelijke inrichting, architectuur <input type="checkbox"/> Anders

Organisatievorm, capaciteiten en hulpbronnen	
Hoe groot is het actief betrokkenen binnen het kernteam van het initiatief? Het kernteam bestaat uit bewoners/vrijwilligers en medewerkers die structureel en intensief betrokken zijn bij het initiatief/netwerk. Vul het (geschatte) aantal in.	<input type="checkbox"/> ... Betaalde medewerkers <input type="checkbox"/> ... Vrijwilligers, bewoners <input type="checkbox"/> ... Vrijwilligers, tegenprestatie <input type="checkbox"/> ... Stage
Hoe groot is het aantal betrokkenen buiten het kernteam? Denk hierbij aan bewoners/vrijwilligers die af en toe bijdragen aan het initiatief.	<input type="checkbox"/> ... Betaalde medewerkers <input type="checkbox"/> ... Vrijwilligers, bewoners <input type="checkbox"/> ... Vrijwilligers, tegenprestatie <input type="checkbox"/> ... Stage
Wonen de leden van het kernteam in het gebied?	<input type="checkbox"/> Alle leden wonen in het gebied <input type="checkbox"/> Groot deel van de leden wonen in het gebied <input type="checkbox"/> Sommige leden wonen in het gebied <input type="checkbox"/> Geen leden wonen in het gebied
Hoeveel betaalde uren besteden de leden van het kernteam samen gemiddeld aan het initiatief? Maak een schatting van alle betaalde uren per week.	<input type="checkbox"/> 1 - 10 <input type="checkbox"/> 11 - 20 <input type="checkbox"/> 21 - 50 <input type="checkbox"/> 51 - 100 <input type="checkbox"/> 101 - 200 <input type="checkbox"/> 200+
Hoeveel onbetaalde uren besteden de leden van het kernteam samen gemiddeld aan het initiatief? Maak een schatting van alle onbetaalde uren per week.	<input type="checkbox"/> 1 - 10 <input type="checkbox"/> 11 - 20 <input type="checkbox"/> 21 - 50 <input type="checkbox"/> 51 - 100 <input type="checkbox"/> 101 - 200 <input type="checkbox"/> 200+
Hoe wordt het initiatief gefinancierd? Geef hier de financieringsbronnen aan. (Aanvullend op vrijwilligersarbeid)	<input type="checkbox"/> Subsidie <input type="checkbox"/> Fondsen <input type="checkbox"/> Opbrengsten eigen activiteiten <input type="checkbox"/> Lidmaatschap <input type="checkbox"/> Giften <input type="checkbox"/> Anders, ...
Ontvangt het initiatief verder nog ondersteuning? Denk daarbij bv. aan trainingen van de medewerkers, gratis advies, materiaal.	
Over welke opleiding beschikken de leden van het kernteam?	<input type="checkbox"/> De meeste leden van kernteam hebben een wo/hbo-opleiding <input type="checkbox"/> De meeste leden hebben een beroepsopleiding <input type="checkbox"/> De meeste leden hebben geen afgeronde beroepsopleiding <input type="checkbox"/> Weet niet of onbekend

Over welke specifieke capaciteiten beschikken de leden van het kernteam? Geef hier aan welke eigenschappen van bijzonder belang zijn voor het uitvoeren van (de activiteiten van) het initiatief. Denk aan juridische kennis, creatieve of technische vaardigheden, leiderschap.	Eigenschappen van bijzonder belang voor de werkzaamheden bij het initiatief: <input type="checkbox"/> ... <input type="checkbox"/> ... <input type="checkbox"/> ... <input type="checkbox"/> ...
Hoe divers is het kernteam samengesteld op het gebied van etnisch/culturele achtergrond?	<input type="checkbox"/> Alle leden van kernteam hebben dezelfde achtergrond <input type="checkbox"/> De meeste leden van kernteam hebben dezelfde achtergrond <input type="checkbox"/> De leden hebben verschillende achtergronden
Hoe is de genderverdeling in het kernteam?	<input type="checkbox"/> Alleen vrouwen <input type="checkbox"/> Alleen mannen <input type="checkbox"/> Overwegend vrouwen <input type="checkbox"/> Overwegend mannen <input type="checkbox"/> Gevarieerd
Hoe divers is het kernteam samengesteld op het gebied van leeftijd?	<input type="checkbox"/> Overwegend 65+ <input type="checkbox"/> Overwegend 44 - 64 <input type="checkbox"/> Overwegend 25 - 44 jaar <input type="checkbox"/> Overwegend jongeren 14 - 24 jaar <input type="checkbox"/> Gevarieerd
Wat zijn de fysieke hulpbronnen van het initiatief? Denk daarbij aan het gebouw, ligging, tuin, gereedschap.	

Netwerk	
Op welke schaal werkt het initiatief?	<input type="checkbox"/> Straat <input type="checkbox"/> Buurt <input type="checkbox"/> Wijk <input type="checkbox"/> Stad <input type="checkbox"/> Regionaal <input type="checkbox"/> Landelijk <input type="checkbox"/> Internationaal
Hoe communiceert het initiatief met zijn omgeving?	<input type="checkbox"/> Nieuwsbrief <input type="checkbox"/> Nieuwsberichten op website <input type="checkbox"/> Facebook <input type="checkbox"/> Twitter <input type="checkbox"/> Instagram <input type="checkbox"/> Via persoonlijke contacten <input type="checkbox"/> Via meerdere kanalen <input type="checkbox"/> Anders, namelijk:
Aantal volgers Twitter	
Aantal volgers Instagram	

Aantal volgers Facebook	
Hoe typeer jij het netwerk van het initiatief voornamelijk? Een netwerk zijn de contacten en relaties tussen betrokken personen en/of organisaties. Deze kunnen naar binnen gericht (contact voornamelijk in eigen groep) zijn of naar buiten gericht (veel contact met andere groepen).	<input type="checkbox"/> Meer naar binnen gericht <input type="checkbox"/> Meer naar buiten gericht Geef korte toelichting:
Met wie werkt het initiatief structureel samen? Benoem de partners die vaak/ structureel betrokken zijn?	
Hoeveel bezoekers trekken de activiteiten van het initiatief gemiddeld per week? (Inclen van toepassing)	
Met wie zou het initiatief meer willen samenwerken? (Inclen van toepassing)	
Met wie werkt het initiatief niet goed samen? Licht antwoord zo mogelijk toe. (Inclen van toepassing)	
In welke instituties heeft het initiatief veel vertrouwen?	<input type="checkbox"/> Scholen <input type="checkbox"/> Welzijnswijk <input type="checkbox"/> Woningcorporatie <input type="checkbox"/> Gemeente (Stedelijk) <input type="checkbox"/> Gemeente (Gebied) <input type="checkbox"/> Landelijke overheid <input type="checkbox"/> Politie

Doelstelling en activiteiten (Wat)	
Schrijf in één zin op wat het initiatief doet.	

Welke concrete problemen wil het initiatief oplossen of adresseren?	
Wat zijn de hoofdactiviteit(en) van het initiatief?	
Zijn de activiteiten voor iedereen toegankelijk? Kan iedereen zonder voorwaardes en belemmeringen aan de activiteiten deelnemen.	<input type="checkbox"/> Ja <input type="checkbox"/> Nee Toelichting:
Onder welk hoofdthema vallen de hoofdactiviteiten van het initiatief vooral?	<input type="checkbox"/> Werk, taal & schulden <input type="checkbox"/> Zorg, jeugd & opvoeden <input type="checkbox"/> Energie, wonen & buitenruimte <input type="checkbox"/> Anders, namelijk ...
Onder welk leefveld vallen de hoofdactiviteiten van het initiatief vooral?	<input type="checkbox"/> Wonen <input type="checkbox"/> Werk en Inkomen <input type="checkbox"/> Dagelijkse voorziening (bv. supermarkt, bakker, kapper) <input type="checkbox"/> Onderwijs <input type="checkbox"/> Gezondheid, Zorg en Ondersteuning <input type="checkbox"/> Openbare buitenruimte <input type="checkbox"/> Cultuur en Recreatie <input type="checkbox"/> Lokale economie en bedrijvigheid <input type="checkbox"/> Veiligheid
Op welke doelgroep richt het initiatief zich vooral?	<input type="checkbox"/> Kinderen 0-11 jaar <input type="checkbox"/> Jongeren 11-21 jaar <input type="checkbox"/> Volwassenen <input type="checkbox"/> Ouderen <input type="checkbox"/> Kwetsbare groepen, bv. vluchtelingen, daklozen <input type="checkbox"/> Geen specifieke groep <input type="checkbox"/> Anders, namelijk ...
Welke doelgroep maakt voornamelijk gebruik van het initiatief?	<input type="checkbox"/> Kinderen 0-11 jaar <input type="checkbox"/> Jongeren 11-21 jaar <input type="checkbox"/> Volwassenen <input type="checkbox"/> Ouderen <input type="checkbox"/> Kwetsbare groepen, bv. vluchtelingen, daklozen <input type="checkbox"/> Geen specifieke groep <input type="checkbox"/> Anders, namelijk ...

<p>Wat zijn de kernwaarden van het initiatief? Kernwaarden verklaren waarom je dingen doet. Kernwaarden zijn ook vaak omschreven in de missie.</p>	
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Geschiedenis en mijlpalen	
<p>In welk jaar is het initiatief gestart?</p>	
<p>Wat was de concrete aanleiding om het initiatief te starten? Was er een bepaald momentum? Is er bv iets gebeurd in de wijk? Is het initiatief een reactie op een ontwikkeling/ gebeurtenis?</p>	
<p>Welke mijlpalen zijn bereikt? Een mijlpaal is een belangrijke gebeurtenis of resultaat waarmee een tijdperk wordt afgesloten of de strategie van het initiatief is veranderd.</p>	
<p>Mijlpaal 1: beschrijving + datum</p>	
<p>Mijlpaal 2: beschrijving + datum</p>	
<p>Mijlpaal 3: beschrijving + datum</p>	
<p>Mijlpaal 4: beschrijving + datum</p>	

<p>Mijlpaal 5: beschrijving + datum</p>	
<p>Kan het initiatief aan een historische ontwikkeling(en) gekoppeld worden? Was er een historisch gebeurtenis van belang voor het initiatief? Denk aan een moment of periode in het verleden van de plek, het onderwerp of de initiatiefnemer. Vul hier ook een jaartal in.</p>	
<p>Wat is de relatie tussen de historische ontwikkeling en het initiatief?</p>	
<p>In de media: beschrijving + datum Is het initiatief in het nieuws geweest? Waarom en wanneer?</p>	

Werkwijze/ Methode (Hoe)	
<p>Werkt het initiatief volgens een bepaalde methode?</p>	
<p>Benoem drie succesfactoren van het initiatief</p>	
<p>Benoem drie knelpunten van het initiatief Knelpunten zijn dingen waar je tegenaan loopt.</p>	

Appendix F

Table 3 Final coding scheme, categories and subcategories

Category	Subcategory	# Codes	Example quote
COVID aid requests	Food & Groceries	15	<i>".. help with a food or diapers, or they suddenly run out of money, or well, sometimes they just ask for groceries, for example." – (9:9)</i>
	Digital devices	16	<i>"..a typical help request that arises from the people who do not have digital resources" – (8:14)</i>
	Loneliness & isolation	26	<i>"Yes, the elderly needed someone, because they were just alone. Loneliness." – (63:11)</i>
	Work & finances	32	<i>"You have a lot of people in Bospolder-Tussendijken who just can't make ends meet." – (53:1)</i>
	Developmental delay	4	<i>".. my son was thinking nice; the teacher doesn't see that I'm not paying attention" – (3:50)</i>
	Children at home & lack of living space	34	<i>"When you hear of people in the neighborhood who are now living on 15 square meters with three children, yes that's intense." – (8:1)</i>
	Garbage & dirt	10	<i>".. it's probably because people sit at home and make a lot more mess at home." – (45:5)</i>
	School's supervision on children	5	<i>".. of course, they also notice that a number of children just kind of disappeared." – (46:14)</i>
Policies and guidelines	Limited supermarket entry	4	<i>"And there you are, waiting in line for you to go in." – (15:7)</i>
	Fines	2	<i>"So there was a fine, mega fine of about 7000 euro was handed out."- (10:13)</i>
	No formation of groups	13	<i>".. everything that was organized and done in a group, that has not happened anymore."- (25:1)</i>
	Hygiene measures	9	<i>".. you have to be able to adjust, and put your mask on." – 65:1</i>
	Lockdown	5	<i>"... when the lockdown had just been announced it was very quiet for the first few weeks." – (44:4)</i>
	Local street market closed	3	<i>"because the market has less the food bank, the Islamic food bank has less. – (56:25)</i>
	Closing down local businesses	4	<i>"No but we have to close, so we can't open." – (21:4)</i>
	Limit meeting initiatives	19	<i>".. we were not able to carry out any activities until the beginning of June, so to speak, because we had to be closed as well."- (41:1)</i>
	1.5 Meter & Physical contact guideline	34	<i>"How can we guarantee that one and a half meters, preferably two meters of distance." – (18:4)</i>
	Closing schools	8	<i>"I think we all know that schools had to close for a while." – (3:4)</i>
	Work from home	20	<i>".. considering working from home and all, I have a daughter, so yeah I'm just home a lot." – (22:2)</i>
Nationally broadcasted speeches	3	<i>"I notice that people are very much looking forward to tomorrow's press conference." – (15:1)</i>	
Activities and initiatives	Phone calls or Hotline	17	<i>"we have a phone line, but also actively make phone calls." – (53:31)</i>
	Flower initiative	19	

	Food & Groceries	40	<i>"Well neighbors who were on the street and gave people a flower, to cheer them up." – (66:8)</i>
	Delfshaven Helpt	31	<i>".. we distributed 750 food parcels in the neighborhood and that's the tip of the iceberg." – (53:10)</i>
	Home visits	18	<i>"We put our heads together and created Delfshaven Helpt." – (4:1)</i>
	Small or own initiative	29	<i>".. a number of home visits were made to see how residents are doing." – (23:3)</i>
	Laptops	19	<i>"Then I bought 20 liters of hand sanitizer and sold half in smaller units. I donated the other half." – (62:11)</i>
	Cleaning activities	5	<i>"So we had 159000 euro and we bought 1040 laptops for that." – (54:11)</i>
	Youth activities	20	<i>"Meanwhile, the trash group has started, and 'schoon en mooi botu', will organize a waste collecting festival in August..." – (56:27)</i>
	Giveaway shop	6	<i>".. has taken up the plan to do small scale sports, homework supervision with these children." – (4:7)</i>
			<i>"And hence our, corona pop-up store, which we are now working on." – (53:12)</i>
Triggers for collective action	Existing networks	56	<i>"I think the reason why it came about so quickly in this district, or rather quite Delfshaven, is because in recent times, years already, investments have been made in the resilience of various networks." – (12:1)</i>
	Shared vision	45	<i>".. the openness to do things for others and you see that the solidarity is very present." – (20)</i>
	Informing	15	<i>".. it started by informing people about the corona measures." – (59)</i>
	New networks	7	<i>"One of our goals in the coming months is to keep that contact really warm." – (57)</i>
	Magnitude of problem	8	<i>"Sometimes it turns out to be such a serious problem that a volunteer is not sufficient." – (9)</i>
	Already active residents & initiatives	46	<i>"I think the residents from, well, the Bospolder-Tussendijken or Delfshaven, has always done this." – (53)</i>
	Key person	19	<i>"There are really other people, who stand up as a key figure, so to speak." – (16)</i>
Facilitation of resilient acts	Formal organisations	59	<i>"we are one of the leaders together with the City of Rotterdam and a number of other partners." – (23)</i>
	Digital resources	51	<i>"A core group I'm in also has a WhatsApp group." – (24)</i>
	Networks	50	<i>".. with networking and doing things, like what am I good at or what are you good at." – (34)</i>
	Switching roles	33	<i>"But shouldn't I actually take a big step forward? And I didn't choose that in the first place." – (15)</i>
	Cooperating initiatives	51	<i>"Everyone has their own expertise and their own knowledge and skills and I think I have always been in favour of cooperation." – (24)</i>
	Central hubs	3	<i>".. from here we made and delivered the food parcels." – (23)</i>
Frustration of resilient acts	Policy, process and guideline	50	<i>"Actually, the motto was to stay at home." – (68)</i>

	Limited network access or utilization	39	<i>".. those elderly people ... they're lonely, but they don't want to admit it." – (43)</i>
	Financial constraints	21	<i>"Self-reliance in the financial sense that you really want, is suddenly gone." – (37)</i>
	Closed meeting places	20	<i>"Neighborhood houses are still closed." – (50)</i>
	Inefficient communication	53	<i>".. but that resulted in a message every three seconds. So that was also a bit, uh, intense." – (22)</i>
Lack of actions	Absence of formal organizations	36	<i>" A neighborhood director at city management... just says cheerfully ... no working from home is fine, the residents know how to find me." – (51)</i>
	Reaching more local residents	22	<i>"There are still networks and groups that are not directly reached with traditional media and through traditional channels."</i>
	Finances & SPI codes	13	<i>"While we are really crucial and we hear that from the municipality, but we don't get help especially financially." – (60)</i>
Lessons and learning points	Familiar with setbacks	5	<i>"If you fell off your bike once, you get up faster the second time it happens." – (62)</i>
	Need for better knowledge-sharing	13	<i>"Of course there is so much knowledge that is apparently not shared with each other."- (39)</i>
	Involved local residents	27	<i>".. it's as if there's an active resident under each paving tile." – (59)</i>
	Locals initiate initiatives	26	<i>"The role of the municipality is very small in the Delfshaven area compared to other areas, while a lot is happening." – (53)</i>
	Central support point	2	<i>"...now because they can call one number, so everything actually comes up." – (57)</i>
	Acting without official permission	5	<i>"They should actually ask their manager if that is allowed. But some officials do not do that for many appointments at the moment." – (56)</i>
	Influence on governance	20	<i>"In part, I also see a simple loss of democratic tools for residents."- (8)</i>
	Uninvolved youth	19	<i>"So for young people there is too little and with that whole new 'Rotterdam well-being', it is left far too much to young people's initiative."- (59)</i>
	Long term needs	39	<i>"..seize the crisis as an opportunity to do a number of 'business as usual' things in a different way." – (16)</i>
	More municipal support	16	<i>"..the support of the municipality could have been better."- (59)</i>
	Value of meeting places	25	<i>"..houses of the neighborhood closed. While often information could be obtained. That was now gone." – (61)</i>
	Develop digital skills of elders	4	<i>"we can now, for example, stimulate the elderly a little more for digitization." – (24)</i>
	Overview of initiatives	4	<i>"Is there such a list with the contact persons of these organizations and also what they do?" – (37)</i>
Importance of visibility and trust	54	<i>".. it is necessary to see people just to keep the contact as good as it was..."- (33)</i>	

Appendix G

Table 4 Actors coding scheme

Category	Actor	# Codes	Example quote
Actors formal	Ayasofya	6	".. they immediately started a campaign, they actively approached our older members over the phone, called them all and asked if they need anything?" (36)
	Centrum Jeugd Gezin	8	"If you have any questions, you can always come here if you come around two, someone from the CJG can always help." (34)
	Delfshaven Cooperatie	10	"Before the municipality of Rotterdam came up with leaflets about keeping a distance, that had already been circulated in the Delfshaven Cooperatie for a long time." (11)
	Huisarts & IZER Zorg	20	"... the most important thing was really the contact between the GP practice, the neighborhood team and well-being, WMO radar." (35)
	Funds	20	"In itself there is quite a bit of support from different funds..." (16)
	Frontlijn	3	"... Frontlijn also normally comes within the gates to help people." (3)
	Area committee	22	"So initiatives and welfare parties. So in combination with the area committee." (5)
	Geloven in Spangen	9	"That initiative is also in collaboration with Unilever, geloven in spangen and the municipality" (25)
	Municipality of Rotterdam	40	"So we have that emergency number Delfshaven Helpt and it also includes the neighborhood team, which includes the municipality of Rotterdam." (23)
	Havensteder	9	"And I thought hey they just have buildings. I said can you provide a free property?" (54)
	Jong Delfshaven	4	".. Jong Delfshaven is not officially open, but people can just sit here .." (45)
	Jumbo	2	"750 food parcels were made at the Jumbo downstairs." (23)
	Mevlana Mosque	1	"You also work with a mosque here, right? Yes, Mevlana." (42)
	Pier 80	19	"So it is also a support point, say, for professionals from the neighborhood, who work from the houses of the neighborhood. and the initiatives are also taking place .." (55)
	Rabobank	2	"At least I know that for those laptops that Rabobank has sponsored." (9)
	Schools	5	"We have of course also looked after the children of parents from vital professions." (3)
Unilever	6	"So it was a very nice collaboration from a large chain such as Unilever .." (26)	
Vraagwijzer	7	".. we cannot make a home visit, but also the neighborhood team and vraagwijzer and all other organizations do not go on a home visit .." (24)	
Local police	14	".. let's sit together tomorrow. The local police officer was there .." (59)	

	Neighborhood team	29	<i>".. in the network via the neighborhood team, so actually all over a very broad way those flyers were used."</i>
	Neighborhood nurse	14	<i>".. in that sense you can always look from okay who is best off here. Or the district nurse if there is a medical issue." (57)</i>
	WMO Radar	22	<i>".. WMO radar is .. say, it's more just all those neighborhood coaches who are active and just sit in the meetings and do things." (26)</i>
Actors informal	Besouk	1	<i>"... the initiative has come to a standstill because no festivals may be organized." (31)</i>
	Botu12	3	<i>"So we... helped set up the Delfshaven Helpt project in delfshaven." (10)</i>
	Bouwkeet	6	<i>"As a team we went into the neighborhood to deliver all those packages, so we were able to have contact there," (46)</i>
	Dakpark	6	<i>"During Ramadan, they gave away all that food, hot meals." (45)</i>
	Delfshaven Helpt	31	<i>"Our mission: how do we help the residents of Delfshaven through the corona period." (4)</i>
	Delfshaven Lokaal	5	<i>"Delfshaven Helpt was assembled in no time from an x number of different networks, including Delfshaven Lokaal" (17)</i>
	Klein Duimpje	1	<i>"I then had Klein Duimpje and there fell Bospolder, Tussendijken .." (34)</i>
	Markt Visserijplein	11	<i>".. but also the Schiedamseweg and the market, you always come across people." (68)</i>
	RMC	4	<i>"We do the most with the youngsters, so we give homework guidance." (41)</i>
	Schiezicht	5	<i>"Bring some flowers and ... pick up what people actually find important and what do they dare to do." (37)</i>
	Sponsors	6	<i>"A lot of money has been raised with sponsorship" (5)</i>
	Stichting Ontmoeting	3	<i>".. we mainly help people who have problems who need housing, in principle people with complex problems. (33)</i>
	Taekwando Club	1	<i>"... if you ask that question from the sports club perspective, well the activities have stopped and yes, that also has an impact on the income of the club." (21)</i>
	Team Toekomst	9	<i>".. the children for an hour and then they take a walk, so that the mother can also breathe. Or they help with homework. " (10)</i>
	Thuis in West	1	<i>"We are now putting together a core team where, I am part of that, but also the Delfshaven Cooperatie, Thuis in West." (17)</i>
	Vrouwen Emancipatie Centrum	2	<i>"..The women here from VEC, pier 80, where we just visited. These are really women who leave home for the first time and start with a little participation. " (59)</i>
	Verbindingskamer	9	<i>"I was then called by Verbindingskamer and they matched me." (38)</i>

Vluchtelingen voor Vluchtelingen	4	<i>"From the beginning we said we are an aid organization and we will continue to be. Because it cannot be that you run away in times of need. " (32)</i>
Voedselbank Rotterdam	3	<i>"The food bank is of course running at full speed" (11)</i>
Voedselbank Islam	10	<i>"..we didn't actually miss a week." (39)</i>
Voedseltuin	5	<i>"..we are a foundation and our charity is to grow food for users of the food bank .." (49)</i>
Zelfregiehuis	9	<i>".. the Zelfregiehuis, which is busy greening balconies .." (22)</i>
Zorgvrijstaat	5	<i>"And that zoom conference tomorrow, yes, it is a Zorgvrijstaat ..." (15)</i>