

Transitioning towards Sustainability: What are we waiting for?

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2018

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Thesis submitted for completion of Master of Strategic Leadership towards Sustainability,
Blekinge Institute of Technology, Karlskrona, Sweden.

Abstract:

There is growing consensus that humanity is being confronted with a sustainability challenge of which the severity has never been known to modern man. This pressing situation is demanding solutions and alternatives to change the path of society. At the community level, grassroots movements have emerged around the world as a way of striving to develop local sustainability. This research studies the Transition Movement, a popular, global community-based movement. The aim of this study is to evaluate if a Transition Initiative is effective in moving a local community towards sustainability. The definition of sustainability used in the research is taken from the Framework for Strategic Sustainable Development (FSSD) which comprises of eight sustainability principles (SPs); three ecological SPs and five social SPs. To this end, an analytical-evaluative case study of a single Transition Initiative was conducted in which semi-structured interviews, a survey and document analysis were all used as sources of information. The researchers chose a small-scale Transition Initiative, conducting the case study on the village of Ungersheim, France. The results revealed that the actions of Transition are contributing to progressing Ungersheim towards sustainability, both socially and ecologically. The research also revealed how the Transition is being done and what critical factors allowed for success. The study finally deduces a set of strategic guidelines that may be used for further longitudinal research cross-evaluating Ungersheim to other small-scale community transitions.

Keywords: Transition Movement, small-scale community transitions, sustainability, FSSD.

Statement of Contribution

Our team faced difficulties in the first phase of starting the thesis. The process of the thesis from the start to the end cannot be explicit and easily expressed in a word, it has been a winding road. In this path, a lot of obstacles intervened with us such as language barrier, life event, personality of process-oriented, and so on. In the end, all difficulties of experience brought us opportunities to have a dialogue about our roles and ourselves, and to build a strong bond as a team. The more we went through the path of thesis, the more we got to ‘Trust each other’, our team is diverse but we created a shared mental model and a vision of what we want to achieve and what is important for us. We co-created the design and the structure of the thesis and equally contributed to finishing the tasks that needed to be done.

Fernanda is the proposer of this thesis topic. She was named as the ‘sunshine’ of the team and she kept us motivated. She is a great communicator, her character of kindness and brightness helped to communicate with people in the village, where we conducted this research. She is also good at organizing and playing the role of manager, but she was hesitant to take this part. Even though she stepped into that position and played a significant role for us in terms of time keeping.

Cisco is a philosopher. He brought overview and structure to the thesis. He took the role of the editor and with a great amount of love and commitment finalized the document beautifully. He has a strong lava for structural obstacle, which brought a lot of discussion to us both in the context of the thesis and out of it. On top of it, his lava was a seed for cultivating our shared mental model, which helped us to profoundly understand each others values.

Keigo is the master observer. He took the role of team-mirror, if something was going on in the process. He stepped up to address “that something”, which was needed to talk about. He was very cooperative and gave feedback to the team as a team-mirror. Furthermore his ability to illustrate and find metaphors was a key insight and a fresh perspective on things. At the same time, his humorous personality brought a lot of smile and laugh; generating positive energy to tackle the thesis work.

This whole experience broadened our horizon and gave us confidence in our future. The future always imply uncertainty, which can be seen as tough and severe, but we now know more than ever that we can go through the unpredictable storm with love and trust.

荒井慶悟  Fernanda Pia

Acknowledgements

We would like to express profound gratitude to all walks of our thesis journey.

First of all, we want to show gratitude to the lovely people of Ungersheim. We were warmly welcomed and felt like at second home in Europe, their actions and reflections gave us a lot of inspiration and guided us towards a greater positive worldview.

Specifically, we want to thank Madame Schermesser and Monsieur Mensch for their time and contribution into helping us organise the fieldwork, for the openness and for the support expressed through all the process.

We also want to give grateful appreciation to Rob Hopkins, Ben Brangwyn, Tom Henfrey and Giuseppe Feola, who supported and inspired us with their interviews. Their wonderful insight expanded our view and was very informative, inspirational, and helpful. In addition, their attitude and actions enable us to re-trust that change is possible. A special thanks to Amber Porton who help us connect to the Transition Network.

Thank you to the creators of the film *Qu'est-ce qu'on attend?* [What are we waiting for?] for demonstrating a positive story of what can be done to change the world. Communicating stories of alternatives is important work to inspire change.

Kindly thanks to Ted and Alex for their help during the early process of the thesis. As well as to all MSLS classmates who approached to offer help and took care of us. They are all fourth member of our thesis team; The Happy Revolution.

Greatly thanks to Daniel, who helped us a lot to conduct fieldwork in Ungersheim with love and humor.

We gratefully acknowledge the cooperation from the advisors; Jessica and Pierre. Jessica's patience, kindness and messages of encouragement allow us to keep on track. Pierre's valuable feedback on structure and research methods improved the outcomes of this research. We also want to thank Merlina, who gave first inspiration of the Transition concept to us and supported us for structuring the research question and the research interviews.

Special thanks to Cat and Lily for opening their house and hearts to us, we spent wonderful moments in Aspo island. Spending time together brought greatly peaceful time for us, that time was a lighthouse on the thesis journey.

Another big love for family and friends, who have been supporting and encouraging us throughout the study period.

Finally, giving a big hug to Dalai Lama and his book, *A Call for a Revolution*, it enlightened our creativity to finish the thesis with love and trust.

Executive Summary

Introduction

The Earth is in the time of the Anthropocene, an age where human actions have become the main driver of ecological change on a planetary scale (Steffan et al., 2011). This change has come rapidly and drastically as, “in a little over two generations – or a single lifetime – humanity has become a planetary-scale geological force” (Steffen et al., 2011, 11). Accompanying such change to our global ecological system are significant environmental, social and economic challenges of which the severity humanity has never faced. In essence, the impacts of human activities are pushing the equilibrium of the Earth to new thresholds which could result in catastrophic consequences for the planet and its many inhabitants.

The sum of these individual challenges defines what is known as the sustainability challenge. With the causes and effects interrelated in a myriad of unpredictable, multidimensional and uncertain ways, it suggests that the sustainability challenge operates as a *wicked problem* – a problem that is inherently complex in nature, where uncertainty is high and solutions are not obvious (Rittel and Webber, 1973; Funtowicz and Ravetz, 1993). Consequently, at a time when the future seems most uncertain, there is no clear path forward.

In 2006, inspired by two aspects of the sustainability challenge, a group of residents in the town of Totnes, England decided to try to change their community to become more resilient to potential shocks from climate change and peak oil. With that the Transition Movement was born and has since spread to over 1,100 localities in over 43 countries worldwide. This movement, predicated on a positivist story of the future, has been exemplified by scholars within transition studies as a prominent and viable option for local transitions towards sustainability.

However, through a pre-study of the Transition Movement, a research gap was discovered within existing academic literature. When it comes to assessing the movement, little research has been carried out to measure and evaluate the sustainability impacts of Transition Initiatives. While some scholars have recognized this gap and called for further evaluative research, determining success of Transition Initiatives is further complicated by the lack of clear parameters from which to determine success or failure. With more work left to be done in assessing the Transition Movements effectiveness in transitioning towards sustainability, this study provides such an assessment by applying two conceptual frameworks that combine to offer a principled definition of sustainability to determine success within a small-scale Transition Initiative.

In designing an analytical-evaluative framework for research on small-scale community transitions, Forrest and Wiek (2014, 69) asked themselves the question, “*Are they [Transition Initiatives] actually increasing the sustainability of the community, and if so, to what is change attributable?*” The purpose of the framework is to support case study research on small-scale community transitions towards sustainability. The framework is designed around five guiding questions: *What was done? How was it done? What was the impact on the community? What was accomplished in terms of sustainability? What were the critical factors?* These questions were used in conjunction with the following framework to guide and structure the research.

The Framework for Strategic Sustainable Development (FSSD) is a conceptual framework that is used to navigate, understand and address the sustainability challenge. The FSSD provides a structuring and interrelational model to clarify the differences and interrelationships between elements of different character in the sustainability context. Furthermore, a principled definition of sustainability is offered with eight sustainability principles that combine to form the boundary conditions of a sustainable society; within these principles society may continue to function and evolve, outside of which it cannot. With the comprehensiveness of the framework, the research is able to appraise the different components of a Transition Initiative while assessing if and how a Transition Initiative aligns with the FSSD definition of sustainability success.

Therefore, the purpose of this paper is to conduct an analytical-evaluative case study of a single Transition Initiative to measure and evaluate success, contributing research to a limited knowledge pool in this field of small-scale community transitions. In a time when all options for the future must be explored, this popular grassroots movement may offer insight into the potential and validity of local and bottom-up solutions to the sustainability challenge.

Research Questions

- 1) How does a Transition Initiative align with the definition of sustainability provided by the FSSD?
- 2) What critical factors allow for alignments or misalignments?
- 3) What strategic guidelines can be deduced from the conditions that may support successful small-scale transitions towards sustainability?

Methods

Qualitative research was selected as the most appropriate approach to conduct a descriptive assessment of the sustainability success of a Transition Initiative because it offers a flexible research approach that can help to answer wicked questions related to the human experience. To do so qualitative research applies research characteristics such as, the subjective nature of research, the acknowledgment of multiple realities, conducting research in the natural setting of the subjects in study, embracing of the researcher as the instrument of data collection, and using descriptive reporting. A research design was created in two separate phases. The first phase, a pre-study, involved understanding the Transition Movement and exploring the possibility of a research gap to assess and validate sustainability success within the movement, therefore creating the knowledge foundation and contextual basis to inform the direction of the second phase of the research design. The pre-study involved exploring existing literature focused on the Transition Movement and conducting interviews with experts in the field of transition.

The second phase of the research involved conducting a qualitative case study of a Transition Initiative, using the case to unearth an in-depth evaluation to answer the research question. A single case study approach was selected over a comparative approach to provide an analysis of qualitative depth that could thoroughly examine the success of a single Transition Initiative in a systematic way. The research methods used included interviews, survey, and documentation review.

Ungersheim, a small village in the Alsace region of France, was selected as the case study site.

The site was selected using criteria from the analytical-evaluative framework of Forrest and Weik (2014). Ungersheim became a Transition Initiative in 2011 when it formalized a plan of 21 actions for the 21st century. Eleven interviews were conducted with practitioners actively involved in the Transition Initiative of Ungersheim. Through the interviews 110 codes were organized into sixteen themes; four *inductive themes*, which emerged directly from the data, and twelve *a priori themes*, based upon the structure and sustainability definition of the FSSD.

Results

The results section presented an overarching narrative of the Transition in Ungersheim based on the stories, experiences and opinions of the interviewees as well as certain survey results. That narrative was presented through four sections: exploring the Transition as a concept, the Transition in Ungersheim, sustainability success in Ungersheim, and strategic guidelines that may have allowed for success.

First, themes related to the Transition concept, as interpreted by practitioners in Ungersheim, presented results of how the Transition is defined and what might motivate the incorporation of the concept. What emerged is that the Transition is generally perceived as relating to personal behavioural and inner change. What seemed to motivate this desire for change were critiques related to individualism, consumerism and globalization as destructive forces of societal design. These findings suggested that the interviewees, all folks involved in the Transition Initiative, were aware of certain elements of the sustainability challenge before the Transition and acknowledged that change is necessary.

Second, using the lens that sustainability success is but an aspect of a more complex and interactive system, themes related to the Transition in Ungersheim were explored in greater depth. The findings suggested that municipal leadership and citizen engagement are key components to the Transition, with participatory democracy serving as an important tool to support the interaction between the two. However, there were many more elements and components at play that interrelated to define the initiative, including the 21 actions separated into the three themes of *food sovereignty*, *energy independence*, and *intellectual autonomy*.

Third, results related to sustainability success were presented using the eight sustainability principles of the FSSD. Success here was determined by violations or alignments to these principles. Generally, the research provided evidence that Ungersheim is on a pathway towards some sustainability success as a result of the Transition actions. For example, much improvement has been made in terms of transitioning to renewable sources of energy, developing a local food system based on organic agriculture, and developing the social fabric and well-being of the community through participation in the Transition. However, violations also emerged in the research, such as a dependency on individual automotive transportation, the prevalence of industrial agriculture surrounding the village, and limitations to residential participation in the Transition. It should also be noted here that the interviews conducted for the research was with individuals actively involved within the Transition in Ungersheim. Taking a broader perspective, it must be stated that there are violations and structural obstacles that exist within the village towards realizing sustainability that were not covered in this research.

Fourth, themes related strategic guidelines and critical factors that may have allowed for success were explored. Here, communication strategies were the primary factor shared by the interviewees. Communication brings awareness of the challenges while providing Ungersheim

as a positive example of the future. Also discussed was top down-bottom up collaborative approach between municipality officials and residents, mutually benefiting one another and the Transition.

Discussion

The Transition in Ungersheim, unique to many other Transition Initiatives, emerged from the leadership of the mayor. According to Rob Hopkins, founder of the Transition Movement, it is a massive advantage for the village to have a leader inspired to stimulate grassroots action from the top. The actions of the Transition emerged in Ungersheim organically, even before the Transition Movement existed, as awareness of social and environmental issues was present with certain key figures within Ungersheim. The mayor for example, a former union activist, was long motivated by social justice. Independent farmers in the village were shifting towards alternative and ecological-friendly methods well before the Transition. As awareness grew, more actions emerged over time. In 2011, Ungersheim officially became a Transition Initiative, creating the formalized plan of 21 actions. The Transition Movement offered a flexible and unifying platform to align the actions and communicate to others what was being done.

The backbone of the Transition in Ungersheim is collaboration: participatory democracy as a tool to ensure interaction between the municipality and those residents involved in the Transition; volunteerism a means of getting actions done; publicity and knowledge exchange between Ungersheim and the Transition Movement; and resource exchange between Ungersheim and other political levels in France.

From such a collaborative approach, the efforts of the Transition have progressed the community toward social sustainability. Key to success is having grassroots participatory effort strengthen the community and build trust, developing the adaptive capacity of the community while weaving a strong social fabric amongst those who participate in the Transition. That said, the social success is limited in that only a small percentage of the residents in Ungersheim are actively involved in the Transition. Ecological sustainability has successes as well, although there is more to be done. Having the support of the municipality allowed for the allocation of resources to develop agricultural, renewable energy, and conservation projects that make steps toward aligning to ecological sustainability.

The narrative of the Transition in Ungersheim has to the description of critical factors and strategic guides that allow for success, outlined in the table below.

Challenges, Critical factors and Strategic Guidelines of the Transition in Ungersheim

Challenge	Critical Factors	Strategic Guidelines
Lack of awareness	Transition Concept as a vision	Telling a story: <i>If you say an opinion, it creates a wall. If you tell a story, it creates a bridge.</i>
	21 actions for the 21 st Century as a story	
	Publicity as a communication tool	
Individualism	Participatory democracy	Collaboration: <i>Faster alone, further together.</i>
	Top-down and bottom-up collaboration	
	Demonstrating successful actions	

Resistance to change	Access of resources for actions	Be the example: <i>Setting an example is not the main means of influencing others, it is the only means.</i>
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The *Transition concept* was a critical factor to the narrative of Ungersheim because it provided the story of an international movement with a positive vision of the future that the village could adopt to create its own story of Transition. That story is the *21 actions for the 21st Century*. While this narrative has increased internal awareness, *publicity* has been a critical factor for Ungersheim to increase the external awareness of the Transition.

Participatory democracy is a critical factor to overcome individualism and stimulate collaboration. Mentioned through the research, participatory democracy is a guiding method within the Transition to tap into a diversity of voices to make the wisest decisions for the village. The *top-down and bottom-up* collaboration of the municipality and residents of Ungersheim allow for collaboration and collective genius to harness the full capacity of the village.

To overcome resistance, the Transition in Ungersheim strives to demonstrate *positive and visible outcomes from their actions*. The examples serve to influence participation and further action. Gaining *access to resources* and demonstrating the financial viability of the actions is also crucial to overcome resistance.

From these critical factors, three suggested strategic guidelines emerged: telling a story through the Transition, multi-scalar collaboration, and being the example. It is recommended that the strategic guidelines are used for longitudinal research across case studies rather than taken as generalized guidelines that apply to all contexts.

Conclusion

The research demonstrated that the Transition in Ungersheim is supporting progress towards sustainability, as defined by the FSSD. The collaborative effort between the municipality and residents of the community demonstrates a recipe that allows for social sustainability progress through participation in Transition efforts, and ecological sustainability progress through infrastructure, energy and agricultural projects funded and supported by the municipality. That said, there are limitations and violations to sustainability in Ungersheim that fall out of the scope of the Transition Initiative and therefore this research. Overall, while there is more work to be done, the Transition Movement in Ungersheim has taken steps towards sustainability.

Glossary

Analytical Evaluative Framework: The purpose of the framework is to support research on small-scale community transitions towards sustainability. Forrest and Wiek designed the framework to assess sustainability success of community transition outcomes and to evaluate transition pathways in order to identify potential critical factors allowing for success (Forrest and Wiek, 2014).

Complex system: Complex systems can be described as the relationship and interactions between numerous elements that behave in non-linear or chaotic ways, making it impossible to predict the systems evolution or effects. The slightest modification or change in any part may have direct implications on the whole, potentially causing enormous and uncertain transformations over time (Chen, 2016).

COP21: COP21 is an abbreviation of the 21st ‘Conference of Parties’. It refers to the international meeting conducted in Paris, in 2015, to address climate change. The conference negotiated the Paris Agreement, a global agreement on the reduction of climate change.

Fossil fuels: Fossil fuels are fuels created within the earth’s crust, over extended periods of time, due to the extreme pressure that fossilized plants, animals and other organisms are subjected to. Fossil fuels include fuels such as coal, oil, and natural gas.

FSSD: FSSD stands for Framework for Strategic Sustainable Development. It is a conceptual framework that helps users to understand and solve complex sustainability challenges by providing concepts and tools which allow for a strategic and systematic approach to planning and acting in relation to the transition from a current, unsustainable society to a sustainable one.

Greenhouse gases (GHG): Greenhouse gases are gases found in our planet's atmosphere, and produced by human industrialization and activity. These gases trap and reflect radiation back to the biosphere.

Permaculture: Permaculture is a design and practice, which aims for building harmonious and permanent relationship between humans and nature. It was coined and developed by Bill Mollison and David Holmgren during the late seventies.

Resilience: Resilience is the ability to tackle a difficulty by using its own adaptive capacity.

Transition Concept: Transition as a concept was proposed by Rob Hopkins in the early 2000 and it originated as a response to the climate change and peak oil challenges. Transition calls for communities to rearrange the structures of society to be more independent on fossil fuels and gives ideas on how to do it. The concept and information is open for everyone.

Transition Initiative: Transition initiative is a town, a village, a city, a group, an organization, etc which employs the concept of Transition.

Transition Movement: Transition movement refers to the groups of people around the world that has adhered to the concept of Transition. The Transition Movement has now spread rapidly to over 1,100 initiatives in over 43 countries worldwide (Feola and Him, 2016).

Transition Network: Transition Network is an organization, which aims for supporting and encouraging people to get involved in the concept of Transition.

Socio-ecological system: The socio-ecological system is the space where human society and the earth interact in a complex way.

Sustainability challenge: The challenge faced by human society due to the unsustainable practices of today's civilization. These unsustainable practices are due to mistakes in the societal design and they hinder the capacity of the Earth to regenerate and support life.

Sustainability Principles: There are eight sustainability principles, they are based on scientific knowledge and describe what society must stop doing in order to become sustainable. The eight principles are divided in two parts: the ecological sustainability principles and the social sustainability principles. In a sustainable society, nature is not subject to systematically increasing of 1.) Concentrations of substances extracted from the Earth's crust, 2.) Concentrations of substances produced by society, and 3.) Degradation by physical means. Within that society, people are not subject to structural obstacles to 4.) Health, 5.) Influence, 6.) Competence, 7.) Impartiality, and 8.) Meaning-making.

5LF: 5LF stands for Five Level Framework, it is a framework for Planning in Complex Systems, which was developed to help solve complicated problems in complex systems and was designed for problem analysis, decision making and creation of strategic action plans. The framework is composed of 5 stages: system level, success level, strategic level, actions level and tools level. All levels are interrelated and the understanding of the system, success and strategy level is crucial to identify the appropriate actions and tools to use.

List of Abbreviation

5LF: Five Level Framework

FSSD: Framework for Strategic Sustainable Development

SPs: Sustainability Principles

GHG: Greenhouse gases

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1 Introduction

“Setting an example is not the main means of influencing others, it is the only means.”
– Albert Einstein

In a world full of stories of crisis, chaos, conflict, and uncertainty, it is becoming ever easier to point out all that is going wrong. Stories that provide an example of hope, of inspiration, and of success seem to be fewer and further between. This thesis aims to provide a descriptive account of such an example, assessing the validity and success of a community in transition towards sustainability. The inquiry is premised on a research question offered by Forrest and Wiek (2014): *“Are they actually increasing the sustainability of the community?”* The research will focus on a single community initiative within the Transition Movement, a global grassroots movement aimed to build community-level sustainability to mitigate the impacts of potential environmental, social, political and economic shocks. The intention of undertaking such a qualitative case study is to understand the sustainability success of an initiative, determining what elements and factors might allow for or limit success, and to suggest strategic guidelines that may support similar initiatives.

1.1 The Sustainability Challenge

The Earth is a complex system (Steffen et al., 2011). Complex systems can be described as systems with many components that interact with each other in numerous complex, non-linear or chaotic ways, making it counterintuitive to predict the system’s evolution or effects. The slightest modification or change in any part of the system may have direct implications on the whole, potentially causing enormous and uncertain transformations over time (Chen, 2016). Many systems include subsystems; for example, the Earth system is composed of subsystems such as the atmosphere, lithosphere, hydrosphere, and biosphere. Human society is another subsystem that refers to the social system humanity has created to fulfill its collective needs. The relationship between the biosphere and human society is the socio-ecological system, and the erratic and turbulent interaction of these subsystems defines what is known as the sustainability challenge.

There is growing consensus that humanity is being confronted with a sustainability challenge, of which the severity has never been known to modern man (Kiron et al. 2012; Worldwatch Institute, 2013). The impacts of human activities are pushing the equilibrium of the Earth system to new thresholds that could result in catastrophic consequences for the planet and its many inhabitants (Rockström et al., 2009). Since the beginning of the Industrial Revolution, global society has grown exponentially in both population and resource use (Steffen et al., 2011). This period, known as the Anthropocene, has seen human action become the primary driver of ecological change (Steffen et al., 2011). The speed of this change must be appreciated as, *“In a little over two generations—or a single lifetime—humanity...has become a planetary-scale geological force”* (Steffen et al., 2011, 11). This growth has been accompanied by the exponential increase in waste and pollution (Steffen et al., 2011). Furthermore, social problems such as inequality, poverty and malnutrition, to name but a few, have become systematically worse, thus weakening the social fabric of many communities and regions around the world. According to a report by the United Nations (2013), more than one billion people are still living in extreme poverty, and income inequality within and among many countries has been rising. Simultaneously, excessive consumption and production patterns have resulted in huge economic and social costs, and are now endangering life on the planet (United Nations, 2013).

The systematic degradation of the biosphere is, by definition, constraining people's ability to lead prosperous lives and is making human society more vulnerable to unforeseen shocks. The very conditions that allow for societal welfare are being undermined in a systematic way (Broman and Robèrt, 2017). Before moving beyond the tipping point towards catastrophe, humanity must learn to fundamentally alter its relationship to the planet we all inhabit (Steffen et al., 2011). Humanity, as a planetary-scale geological force, must address social and environmental issues before it is too late. Sustainability will only be realized if social systems, and the individuals who comprise those systems, shift toward protecting, preserving and restoring the Earth (Mehlmann et al., 2010). It is crucial then to start acting with and through more sustainable behaviours.

Humanity nonetheless continues to systematically amplify the challenges on the socio-ecological system. Although unprecedented change is urgently needed, there is no clear solution or an obvious path forward. The challenges and their causes are interrelated in a myriad of unpredictable and uncertain ways (Hartman et al., 1999; Kahane, 2010), leading to the suggestion that the sustainability challenge operates as a complex system. It is therefore considered a wicked problem—a problem that is complex in nature, where uncertainty is high and solutions are not obvious (Rittel and Webber, 1973; Funtowicz and Ravetz, 1993).

Addressing a wicked problem at a planetary scale requires moving beyond linear and reductionist thinking that strives to separate the measurable elements of a problem to engineer predictable and well-controlled solutions by manipulating the parts (Hjorth and Bagheri, 2006). In contrast, when navigating a complex problem, the whole system must be examined as an interconnected whole instead of separating the elements into manageable components. This is the basis of systems thinking, a non-linear and organic approach that considers the whole system by focusing on the interactions and relationships between elements (Hjorth and Bagheri, 2006). Such an approach allows for complexity without being overwhelmed, understanding that there are structures, patterns and events that underlie complex challenges (Hjorth and Bagheri, 2006). A systems approach is useful as a strategic approach to address sustainability because it demonstrates the interconnectedness of seemingly separate aspects of society and the Earth. It is through robust, well-structured systems thinking that the complexity of the sustainability challenge might be navigated towards strategic and wise action.

Below, two elements of the sustainability challenge are presented. While only elements of a much more complex system, climate change and peak oil are the two aspects of the sustainability challenge that inspired the Transition Movement. Given the focus of this paper, those elements must be discussed in greater detail.

1.1.1 Climate Change

Climate change refers to the rise in average surface temperatures on Earth. Over the past one hundred years, the global average temperature has increased by approximately 0.6 °C and is projected to continue to rise at a rapid rate (Root et al., 2003). Preliminary reviews of scientific literature and surveys of climate scientists indicate striking agreement with the primary conclusions of the Intergovernmental Panel on Climate Change (IPCC): atmospheric change is being caused by human activities as anthropogenic greenhouse gases (GHG) have been responsible for most of the unequivocal warming of the Earth's average global temperature over the second half of the 20th century (Van der Linden et al., 2015). Carbon dioxide (CO₂) released by the combustion of fossil fuels is the primary source (IPCC Fifth Assessment Report, 2014).

On a global level, CO₂ emissions grew by 40% between 2000 and 2015 (International Energy Agency, 2017). Economic and population growth continue to be the most important drivers of increases in CO₂ emissions from fossil fuel combustion. Between 2000 and 2010 the contribution of population growth has stayed almost the same to the previous thirty years, while the contribution from economic growth has strongly increased (IPCC, 2014). The two main activities relying on fuel combustion are energy production and transport (International Energy Agency, 2017).

The increase in atmospheric CO₂ and the subsequent warming temperatures are presenting dramatic repercussions to both natural and human systems all around the world. Examples of environmental impacts are ocean acidification, glacier loss, sea level rise, declining arctic sea ice, and extreme weather events like droughts and floods (IPCC, 2014). Accelerated sea-level rise will be one of the most significant effects of global warming. Global mean sea level has risen more than 0.2 m since 1880 and continues rising at above 4 mm/yr (Hardy, 2016). Many species of fauna and flora are increasingly at risk of extinction due to climate change, a trend that is projected to continue (IPCC, 2014). Socially, global warming is forecasted to undermine food security and compromise water availability, which could lead to greater displacement of people and result in more violent conflict (IPCC, 2014). Moreover, in such a socio-ecological climate, poverty reduction and reversing the trend of economic inequality will be more difficult to achieve as resource availability diminishes (IPCC, 2014). Such examples showcase the complexity of the climate change challenge. This is precisely why a whole-systems perspective is needed to address the sustainability challenge.

The urgency to avoid the continued warming of the Earth has become evident. To do so will require substantial and sustained reductions in GHG emissions (IPCC, 2014). The causes and consequences of climate change are global and therefore demand humanity at large to act with international cooperation accompanied by national, regional and local policies and actions on many different fronts (IPCC, 2014). The Transition Movement was inspired to act on a community and individual level, raising awareness of the impacts of climate change and the correlating use of fossil fuels. The movement strives to empower localities to be part of the cooperation needed to reduce the warming temperatures at the level where emissions happen.

1.1.2 Peak Oil

Beyond climate change, the second element of the sustainability challenge that inspired the Transition Movement is the concept of peak oil, a term used to describe the point in time when, globally, society reaches the maximum point of oil extraction after which extraction rates will be in terminal decline. In other words, it is the point when oil availability will systematically decrease and, because of its increasing scarcity, become an increasingly expensive commodity.

With global population now over seven billion and still increasing, along with a growing middle class, particularly in emerging economies such as Brazil, Russia, India, China and South Africa, a future with a higher demand of products and services, and therefore fossil fuels, seems likely (United Nations Report, 2013). The question is then not if peak oil will be reached, but when. According to North (2010), peak oil is one of the crises humanity will face as an element of the sustainability challenge in the decades to come. What is most concerning about peak oil is humanity's dependency on the availability of oil.

Fossil fuels are the lifeline of globalization. There is a high dependency on fossil fuels for the creation of energy. More than 80% of electricity, heating and transport rely on fossil fuels

(International Energy Agency, 2017). Furthermore, fossil fuels support the production of everyday products such as agrochemicals for industrial agriculture, plastic and polyester. Since global economic structures are highly dependent on fossil fuels, the decrease of oil availability may have harsh and unpredictable effects on every aspect of society. With proper preparation and adaptation, however, the consequences of an inevitable future with less oil may lead to positive opportunities for the transition toward sustainability.

The Transition Movement seeks to contribute to sustainable development and a positive post-fossil fuel world by encouraging the development of local economies and supporting independence from oil consumption, which is one of the major causes of climate change. However, the question remains: How much is the movement contributing to the global transition towards sustainability? Does it apply a systems thinking perspective to the sustainability challenge, and, if so, to what extent?

1.2 The Transition Movement

1.2.1 Transition as a conceptual discourse

Given the urgency of the sustainability challenge, transition discourses are emerging with particular richness, diversity and intensity as scholars, politicians and civilians all seek to develop and identify trajectories that guide society towards sustainable futures (Escobar, 2016; Luederitz et al., 2017). As such, the concept of ‘transition’ has come to occupy considerable space within academic, political and social realms (Escobar, 2016; Audet, 2016; Brown et al., 2012). In parallel, as humanity struggles to mitigate further damage on the socio-ecological system, scholars increasingly suggest that incremental change is no longer sufficient; many call for profound, epochal change (Escobar, 2016; Hjerpe et al., 2017).

Transition can simply be described as changing from one state to another, yet the word is now being used as a concept to describe processes, practices and philosophies of radical change and their relation to possible sustainable futures (Escobar, 2016; Brown et al., 2012). For example, in an address by the European Commission, transition was equated to a fundamental shift: “*The transition to a low carbon, resource-efficient economy demands a fundamental shift in technology, energy, economics, finance and ultimately society as a whole*” (European Commission, 2016, 4). Escobar (2016) calls this focus on radical cultural and institutional change a hallmark of transition discourse, a contemporary plea for “*a transition to an altogether different world*” (Escobar, 2016, 453). Given the recent emergence of this discourse, it offers an appropriate gateway into the diversity of current processes and practices striving to address the sustainability challenge in a transformative way.

Hajer and Versteeg describe discourse as, “*an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices*” (2005, 176). Transition as discourse is no different; it is heterogeneous rather than uniform. The discourse percolates into a wide range of places and practices, from grassroots initiatives such as the Transition Movement, to the field of transition management, to international environmental agreements and documents such as the Rio+20 Summit and the 2015 Paris climate agreement (Audet, 2016). Scholars writing on transition discourse highlight the different approaches and narratives that frame the discourse (Escobar, 2016; Luederitz et al., 2017; Hjerpe et al., 2017; Audet, 2016; Brown et al., 2012).

Within this multitude of narratives, each scholar identifies the prominence of a strong localist and grassroots transition discourse.

Luederitz et al. (2017) highlight the *transition movement narrative*, a citizen-led pathway towards sustainability that advocates localism through novel solutions to sustainability challenges by promoting local governance, culture and economy. Hjerpe et al. (2017) identify *grassroots transitions* as a body of transition literature focused on community-based initiatives, experimentation and social innovation through concrete action within a locality. Audet (2016) frames *localist transition discourses* as bottom-up approaches to transition in which local actors are the drivers of change, experimenting with suitable place-based solutions to transport, energy, food, and waste challenges. Brown et al. (2012) highlight *local experiments* in transition discourse as niches of creativity and alterity in which a transition to sustainability can find a unique form. All mention the Transition Movement as a prominent example within this particular field. As claimed by Escobar (2016), the Transition Movement is one of the most concrete proposals for a transition to a post-fossil fuel society that truly embodies a radical transition. Therefore, located within the emerging transition discourse, this popular grassroots movement may offer insight into the potential and validity of local and bottom-up solutions to the sustainability challenge.

1.2.2 History of the Transition Movement

The Transition Movement emerged from the work of Rob Hopkins, a teacher at Kinsale College, along with his students, when in 2005 they created an energy descent plan for the town of Kinsale, Ireland (Hopkins, 2011). Energy descent plans are visions of a post-fossil fuel future that cover relevant community aspects such as local food production, renewable energy, sustainable buildings, waste treatment, healthcare, and transportation (Bay, 2013). The resulting document, titled ‘Kinsale 2021: An Energy Descent Plan’, applied permaculture design principles to the intentional weaning of Kinsale off oil-dependency. The plan was well received by the public and unanimously supported by the Kinsale Town Council (Hopkins, 2011). When Hopkins decided to move to Totnes in the United Kingdom, he and fellow educator Naresh Giangrande further developed the concepts of the Kinsale energy descent plan into a model for Totnes. In 2006 ‘Transition Town Totnes’ became the first Transition Initiative and the movement was born.

The conceptual underpinning of the Transition Movement is rooted in permaculture thinking (Aiken, 2012). Describing permaculture as the ‘design glue’ underlying the movement, Hopkins defines it as, “*in essence, a design system for the creation of sustainable human settlements*” (Hopkins, 2008, 136). Although rooted in permaculture thinking, the Transition Movement is inspired by and built around the climate change crisis and the need for energy descent related to peak oil (Mälgand et al., 2014; Bay, 2013). According to Hopkins, the dual challenges of peak oil and climate change are “*the two drivers of the Transition concept and the two greatest challenges facing humanity at the beginning of the 21st century*” (2008, 17). He further claims that “*Climate change says we should change, whereas peak oil says we will be forced to change. Both categories state that fossil fuels have no role to play in our future, and the sooner we can stop using them the better*” (Hopkins, 2008, 27). In other words, it is not without a sense of urgency that the Transition Movement seeks to discover solutions to the social, economic and ecological implications of climate change and peak oil—challenges the movement associates with a dysfunctional global economy (Grossmann and Creamer, 2017).

While Hopkins acknowledges the horrors of what could happen if nothing is done to address these sustainability challenges, the movement chooses to focus on the possibilities of what could be achieved through community-led action by promoting a positive, solutions-focused vision of a post-oil future (Hopkins, 2008; Grossmann and Creamer, 2017). The challenges facing humanity are taken as opportunities to move away from an integrated global economy towards localized economies that may be more ‘resource-poor’, yet also more healthy, enjoyable and fulfilling (North, 2010). Hopkins argues that a future with less oil can be preferable to the present (Hopkins, 2008). The Transition Movement is the embodiment of that claim.

1.2.3 The Transition Movement Method

The Transition Movement aims to inspire, encourage, connect, support, and train individuals and communities around the world to rebuild resiliency and redesign their localities to reduce CO2 emissions by becoming less dependent on fossil fuels (Power, 2016). The emphasis of the movement is a bottom-up approach to local development that fosters community-led initiatives aimed at creating such lower energy futures (Mehmood, 2016). These Transition Initiatives embody the movement’s intentions by striving to transition their communities away from high environmental impact, high energy consumption, and high carbon emissions (Mälgand et al., 2014). While there is no one-size-fits-all model for the movement, the main goal is to reinstate local resiliency, described as the ability to adapt to significant changes by generating local, unique and creative experiments (Boudinot and LeVasseur, 2016; Mälgand et al., 2014). Rather than get stuck on the magnitude of the challenges, the Transition Movement embraces community, relocalization and resiliency—three interlinked concepts within the method—as solutions to global sustainability challenges.

Community is the main driver and the *raison d’être* of the Transition Movement (Aiken, 2017). It represents both a key process, with community engagement being the primary means of realizing the Transition vision, and also the destination, building resilient communities as the purpose of the work (Aiken, 2015). As both a means and an end, Transition practitioners place community at the centre of their work (Fernandes-Jesus et al., 2017). “Community” here is attached to place, such as a city, village or neighbourhood, and is characterised by small-scale local activity (Fernandes-Jesus et al., 2017; Aiken, 2015). Therefore, both community and place-attachment hold rich meaning for those within Transition Initiatives (Mälgand et al., 2014).

Community-led Transition Initiatives are emerging and evolving as a viable approach to community-level sustainability (Hopkins, 2008). The aim of an initiative is to act as catalyst for a community to discover its own answers to the challenges of climate change and peak oil through a process of “*unlocking what is already there*” (Hopkins, 2008, 136). It is the community that is the key agent of change (Fernandes-Jesus et al., 2017). This is demonstrated within the four assumptions of Transition Initiatives:

- 1) *That life with dramatically lower energy consumption is inevitable, and that it’s better to plan for it than to be taken by surprise.*
- 2) *That our settlements and communities presently lack the resilience to enable them to weather the severe energy shocks that will accompany peak oil.*
- 3) *That we have to act collectively, and we have to act now.*

- 4) *That by unleashing the collective genius of those around us to creatively and proactively design our energy descent, we can build ways of living that are more connected, more enriching and that recognize the biological limits of our planet.* (Hopkins, 2008, 134)

The Transition method offers a solutions-focused approach by working together to tap into the collective genius of a community and alter social, environmental and economic behaviours at the level in which change is assumed to occur within the movement, on the ground (Hopkins, 2008; Fernandes-Jesus et al., 2017; Aiken, 2015). Community engagement and action are the prerequisites and determinants for building the resilient and relocalized communities that Transition ultimately desires (Aiken, 2017).

Relocalization is defined by the movement as, *“The process by which a region, county, city or even neighbourhood frees itself from an overdependence on the global economy and invests its own resources to produce a significant portion of the goods, services, food and energy it consumes from its local endowment of financial, natural and human capital”* (Hopkins, 2008, 68). The Transition Movement consciously works at the local level because it is perceived as the most suitable scale for sustainable living in which a sustainable future is correlated to returning power back to communities (Hopkins, 2008). The argument is quite simple: localized economies import fewer resources from far away, therefore requiring less petroleum and decreasing dependence on nonrenewable resources (Boudinot and LeVasseur, 2016). It is believed that the empowerment of the local re-creates and re-inhabits the commons by embracing local citizens as powerful agents of change (Boudinot and LeVasseur, 2016). As stated by Aikens, *“global challenges are locally produced, and so too are their solutions”* (2015, 764). According to the Transition Movement, it is community action at the local level that rebuilds resilience (Hopkins, 2008).

Beneath this focus on local community empowerment lies the goal of the Transition Movement to cultivate the resilience that will enable communities to withstand shocks from the outside—shocks that may accompany climate change, peak oil, economic instability or any other manifestation of the global sustainability challenge (Hopkins, 2008). Mehmood (2016) defines social resilience as the ability of groups to proactively plan and strategically steer their communities to cope with external stresses and disturbances through their capacity for active learning, robustness, ability to innovate and adaptability to change. Rob Hopkins describes the three ingredients of a resilient system as diversity, modularity and tight feedback loops.

These ingredients support the vision of a resilient world built on the promotion of trust, strong social networks and adaptable groups collaborating with one another (Göpel, 2017). These components of a local resilient community are supported by the work of Missimer et al. (2017) on social sustainability, in which the adaptive capacity of a social system is what allows it to be sustainable over the long run. According to the research, diversity, learning, self-organization, trust, and common meaning are the essential aspects of adaptive capacity for social systems (Missimer et al., 2017)—aspects which are advertently or inadvertently core to the Transition Movement.

1.2.4 The Transition Movement Goes Viral

From its early beginnings in Totnes, the Transition Movement has now spread rapidly to over 1,100 initiatives in over 43 countries worldwide (Feola and Him, 2016). Initiatives have

developed in different contexts, both rural and urban, and at different scales, such as in schools and universities, neighbourhoods, villages, towns and cities. They are all citizen-led groups implementing the model and initiating the Transition process in their own communities.

Given the rapid growth of the movement, in 2007 the Transition Network was created as the operational structure of the movement to connect, encourage, nurture, support, and train the growing number of Transition Initiatives around the world, as well as to develop the movement's overall strategy and guidelines (Nicolosi and Feola, 2016). Transition Town Totnes serves as the central hub to the Transition Network. To become a recognized Transition Initiative by the Transition Network, the community embracing and experimenting with the Transition model must register with the Network and, after one year, meet certain criteria to become an active member.

1.2.5 Definition of Success for a Transition Initiative

According to the Transition Network, successful initiatives find a balance between the head, heart and hands. *The head* represents acting on the best information and evidence available and applying collective intelligence to find better ways of living. *The heart* values compassion and paying attention to the emotional, psychological, relational, and social aspects of the work. *The hands* represent turning visions and ideas into reality, initiating practical projects and starting to build a healthy economy in the place where the initiative is located. Central to this balance is a healthy group dynamic and abundant community involvement that increases the capacity of the initiative to step into action and make tangible changes. (Transition Network, 2016)

While these ingredients to success may be suggested by the Transition Movement, assessing the success of initiatives can be challenging as there are no clear parameters from which to determine success or failure. Both the Transition Network (<https://transitionnetwork.org>) and the Transition Research Network (<https://transitionresearchnetwork.org>) offer resources and stories aimed to share and inspire the countless possibilities of the Transition Movement and how it is unfolding around the world; however, evaluations of such success stories are difficult to find.

Even so, some scholars have begun taking steps towards assessing the success of Transition Initiatives (Feola and Nunes, 2014; Forrest and Wiek, 2015). Feola and Nunes (2014) broadcasted an evaluative research survey to initiatives across 23 countries, receiving 276 valid responses, to assess success. The research sought to measure success both subjectively and objectively. The subject evaluation consisted of a scale (e.g., *Overall, do you consider your Transition Initiative very successful, fairly successful, not very successful, or not successful at all?*) and questions related to the characteristics of success (e.g., *What do you think are the three most important characteristics of a successful transition Initiative?*) (Feola and Nunes, 2014, 235). The objective measurements considered the duration of the initiative, the number of members, and the progress made towards realizing objectives set by the Transition Network (Feola and Nunes, 2014, 235). The study found that the majority of initiatives considered themselves successful, citing membership and community engagement as important determinants of success. Feola and Nunes further cited cooperation with the Transition Network, with other Transition Initiatives, and with actors such as local authorities and businesses as essential to success. They concluded that success is defined along the lines of local context, social connectivity and empowerment, and contribution to environmental performance (Feola and Nunes, 2014).

Much work is left to be done in assessing Transition Initiatives regarding the effectiveness of their impacts in transitioning towards sustainability. A number of scholars are calling for further research to measure and evaluate the sustainability impacts of Transition Initiatives (Boudinot and LeVasseur, 2016; Feola and Nunes, 2014; Forrest and Wiek, 2015; Forrest and Wiek, 2014; Reeves et al., 2014). The purpose of this paper is to conduct an analytical-evaluative case study of a single Transition Initiative to evaluate success, thereby contributing research to a limited knowledge pool in this field of small-scale community transitions.

1.3 Analytical-Evaluative Framework for research on small-scale community transitions

One of two key frameworks used for this research is an analytical-evaluative framework, designed by Forrest and Wiek (2014). The purpose of the framework is to support research on small-scale community transitions towards sustainability. Forrest and Wiek designed the framework to assess the success of community transition outcomes in relation to sustainability and to evaluate transition pathways in order to identify potential critical factors allowing for success (Forrest and Wiek, 2014). Here pathways are defined as transition processes, which include key tools, methods, events, and decisions that link an intervention to a sustainability outcome (Forrest and Wiek, 2014). The evaluative-analytical framework offers a means of gathering the needed evidence to make such an assessment.

Forrest and Wiek created the framework to allow for flexible use; they did not create it as a prescriptive tool. The framework invites considerable latitude for variation and diverse methods within the proposed steps (Forrest and Wiek, 2014). The steps of the framework are organized into three components: first, a descriptive analysis of outcomes of a community transition; second, a sustainability appraisal of outcomes; and third, the identification of critical factors that allowed for the outcomes (Forrest and Wiek, 2014). Central to the design of the framework are five core questions related to the transition that, “*guide analysis toward discovery of possible causal variables and processes that lead to outcomes*” (Forrest and Wiek, 2014, 70). Each step of the framework has an associated guiding question, with the exception of stage one, *case selection and initial data collection*. Stage two of the framework, the *case analysis*, is broken into five steps. The framework is detailed in Table 1.1.

Table 1.1: The Analytical-Evaluative Framework for research on small-scale community transitions (Forrest and Wiek, 2014)

Stage	Guiding Question	Description
Stage 1: Case selection and initial data collection	N/A	Cases are selected based on general criteria defined in chapter 2.1.2 of the research methods. Examples of ideal initiative types include Transition Initiatives, ecovillages, community land trusts, and so forth.

Stage 2, Step 1: Identify Interventions	<i>What was done?</i>	The starting point for analysis is to identify and describe the interventions delivered through the initiative. Within each intervention, of interest is the purpose of the intervention, the delivery actions, and the immediate outputs.
Stage 2, Step 2: Reconstruct pathways to outputs	<i>How was it done?</i>	The purpose of this step is to gain insight into the transition as a process. It is helpful to identify key tools, methods, events and processes that caused outcomes from the interventions.
Stage 2, Step 3: Analyze proximal outcome	<i>What was the impact on the community?</i>	Proximal outcome analysis explains the impact of interventions on community life. Specifying the effects on the community requires indicating a change in the community as an apparent result of the transition process or interventions.
Stage 2, Step 4: Sustainability appraisal	<i>What was accomplished in terms of sustainability?</i>	The objective of a sustainability appraisal of individual interventions and of the transition overall is to evaluate the relative change in community sustainability because of the transition process or interventions.
Stage 2, Step 5: Link critical factors to outcomes	<i>What were the critical factors?</i>	The final step of the case analysis combines findings from the path reconstruction and sustainability appraisal steps to make tentative suggestions about which critical factors led to strong outcomes.

The aim of the framework is to generate evaluative studies of transition initiatives and to inspire greater uptake of evaluation practices within these communities (Forrest and Wiek, 2014). Using the framework within a single case can contribute to further developing the transition process of that community by identifying successes as well as critical factors that resulted in success, while potentially providing insights for other communities. Such research can lead to more effective interventions and transitions (Forrest and Wiek, 2014). Furthermore, according to Forrest and Wiek (2014), knowledge synthesis from many evaluative case studies may allow for meta-studies which can identify patterns and generalizations across transition initiatives, beginning to build theory and evidence-informed guidance for community transition practitioners and policy makers. The ultimate goal is to derive practical guidelines for small-scale community transitions, gleaning and synthesizing the findings across many case studies (Forrest and Wiek, 2014).

The researchers opted to use this framework because of its alignment with the research question and design; the researchers had already crafted a research question with the intention of undertaking an in-depth qualitative study of a single Transition Initiative upon discovering the framework. Of significance to the researchers is the intention of the framework's design to conduct research on small-scale community transitions towards sustainability. The authors of the framework further suggested certain examples of such small-scale community transitions, which included Transition Initiatives (Forrest and Wiek, 2014). Finally, given the flexibility of the framework, the researchers could use it in conjunction with the Framework for Strategic Sustainable Development, explained below. The combined use of the two frameworks will be further discussed in chapter 2.2.2.1 of the research methods.

1.4 The Framework for Strategic Sustainable Development

The second key framework used for this study is the Framework for Strategic Sustainable Development (FSSD). Rooted in the concern for humanity to transition toward a sustainable future, the FSSD emerged in the early 1990's with a cross-disciplinary group of Swedish scientists who were aware of the lack of a unifying and operational definition of sustainability. These scientists understood that such a definition would be crucial to achieving successful collaboration across disciplines and sectors to solve the complex sustainability challenges at hand (Broman and Robèrt, 2017). As a result, they began a consensus process of scientific inquiry aimed at developing such a definition and approach. The process led to over twenty-five years of ongoing scientific critique, improvements and iterations, and ultimately resulted in what is now widely known as the FSSD (Broman and Robèrt, 2017).

The FSSD is a conceptual framework that helps users understand and solve complex sustainability challenges by providing concepts and tools that allow for a strategic and systematic approach to planning and acting in relation to the transition from a current, unsustainable society to a sustainable one. The features of the FSSD used in this research include a five-level model that structures and distinguishes the inter-relationship of fundamentally different phenomena, and a principled definition of sustainability (Broman and Robèrt, 2017). These features are detailed below to provide further context for the research.

To address the complexity of the sustainability challenge, the FSSD adopts a structuring and interrelational model that is used to clarify the differences and interrelationships between entities of different character in the sustainability context (Broman and Robèrt, 2017). This is done using the Five Level Framework (5LF), a conceptual framework that can be used for planning, decision-making, and problem analysis in complex systems. The model helps to structure information and understand the interrelationships between the five levels: the systems level, success level, strategic guideline level, actions level, and tools level. In the case of the FSSD, when the sustainability context is applied as a lens to each level within the 5LF, the resulting five level model is useful to strategically address the sustainability challenge by offering a supporting methodology which organizes and clarifies various elements of the complex challenges. Table 1.2 below includes a description of the levels within both the 5LF and the FSSD.

Table 1.2: The 5LF and FSSD (Broman and Robèrt, 2017)

Level	5LF	FSSD
Systems Level	The information relevant to scope of a given system in which planning or actions occur.	The systems level the global socio-ecological system and an overview of the sustainability challenge.
Success Level	The definition of success within the given system based on basic principles.	The success level is defined by compliance with the sustainability principles, described in detail below.
Strategic Guidelines Level	The strategic guidelines used to select actions as part of a plan to move towards the definition	The strategic guidelines level includes guidelines for how to approach the principled definition of success in a strategic way. Within the FSSD, the

	of success within the given system.	guidelines include backcasting from success and the use of generic prioritization questions.
Actions Level	The concrete actions that follow the strategic guidelines and are taken to move towards success.	The actions level includes all concrete actions that help to move the global socio-ecological system towards sustainability.
Tools Level	The tools that support the planning process of moving towards success.	The tools level includes all tools that support efforts to reach global sustainability.

The second feature of the FSSD used in this research addresses the initial concern which drove the Swedish scientists to develop the framework in the first place: the need for a unifying, operational and science-based definition of sustainability. Most commonly, success in the sustainability context is defined by a normative statement given by the Brundtland Commission: “[*We want for humanity*] *development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (Broman and Robèrt, 2017, 22). This statement, while popular, is a value judgement that is neither operational nor science-based. The definition of sustainability provided by the FSSD aims to depict within what conditions the Brundtland definition could be achieved.

Eight basic Sustainability Principles (SPs) were defined as scientifically-proven principles which combine to form a principled definition of sustainability and establish the boundary conditions of a sustainable society. Within these principles, society may continue to function and evolve; outside of them, it cannot. The eight SPs are considered design principles which guide innovation and action and are intentionally non-prescriptive in that they do not define what sustainability is but rather what it is not. The SPs are the constraints within which society can continue to function and evolve, and, as such, they combine to form the boundary conditions in backcasting, strategic planning and redesigning for sustainability (Broman and Robèrt 2017). The following eight SPs provide the FSSD’s definition of sustainability and form the foundation for discussions of sustainability in this paper. The first three principles relate to ecological sustainability whereas the five following principles relate to social sustainability:

In a sustainable society, nature is not subject to systematically increasing...

1. ...concentrations of substances extracted from the Earth’s crust;
2. ...concentrations of substances produced by society;
3. ...degradation by physical means;

And, in that society, people are not subject to structural obstacles to....

4. ... health;
5. ... influence;
6. ... competence;
7. ... impartiality;
8. ... meaning-making. (Broman and Robèrt, 2017)

The researchers selected the FSSD as a guiding framework because it allows users to assess any type of organization, group or system in a systematic way. Furthermore, the FSSD

acknowledges the interconnected nature of the sustainability challenge, it is science-based, and it offers a principle-based definition of sustainability. The FSSD has been applied to municipalities, businesses and non-governmental organizations. The comprehensiveness of the framework allows the researchers to appraise the different components of a Transition Initiative in a structured and operational manner. Additionally, the principled-definition of sustainable success, composed of the eight sustainable principles, allows the researchers to assess if a selected Transition Initiative aligns with the FSSD definition of success.

1.5 The Research Gap

Evidence is the hallmark of science and with the growing academic attention on community-led Transition Initiatives as a possible option for creating sustainable futures, producing evidence to evaluate these initiatives is a major task for sustainability researchers (Caniglia et al., 2017). When it comes to assessing Transition Initiatives, however, little evaluative research has been carried out regarding the effectiveness of their environmental impacts. A number of scholars have claimed that further research is required to measure and evaluate the sustainability impacts of Transition Initiatives (Boudinot and LeVasseur, 2016; Feola and Nunes, 2014; Forrest and Wiek, 2015; Forrest and Wiek, 2014; Reeves et al., 2014). Beyond academic nuance and vigor, conducting evidence-based evaluations can support sustainability transitions to accelerate progress by coordinating learning across similar case studies (Luederitz et al., 2017).

In this vein, Forrest and Wiek (2014) claim a large number of analytical-evaluative case studies are needed to build an empirical knowledge base of critical factors that make initiatives more or less successful with respect to progress toward sustainability. They ask the simple question regarding community Transition Initiatives: *“Are they actually increasing the sustainability of the community, and if so, to what is change attributable?”* (Forrest and Wiek, 2014, 69). In line with other scholars, Forrest and Wiek (2014) call for the accumulation of data through many evaluative case studies that will permit the advancement of community transition knowledge as a pathway to sustainability. Their contribution to this meta study is, *“an analytical-evaluative framework for the purpose of guiding case studies toward producing evidence from which practical guidelines for transitions can be derived”* (Forrest and Wiek, 2014, 66), the framework discussed earlier and adopted for this study.

Thus, the purpose of this research project is to contribute an analytical-evaluative case study that incorporates a scientific understanding of ecological and social sustainability. Using the unifying and operational definition of sustainability provided by the FSSD, the intention of this study is to offer a descriptive account of a community’s transition towards sustainability.

1.6 Research Question

It can be concluded that with all the small-scale community transition efforts occurring, such as the viral nature of the Transition Movement, there is a need for greater academic research to assess these efforts and their potential for successful transitions toward sustainability. Such research will contribute to the academic and non-academic pursuit of viable solutions to the sustainability challenge.

This research adopts a system thinking perspective that success in transitioning toward sustainability is an aspect of a complex system and process. The interrelated elements of these

systems must be understood to grasp success and the conditions which allow for it. Thus, this study focuses on the following questions:

1. How does a Transition Initiative align with the definition of sustainability provided by the FSSD?
2. What critical factors allow for alignments or misalignments?
3. What strategic guidelines can be deduced from the conditions that may support successful small-scale transitions toward sustainability?

2. Research Methods

This chapter will focus on the research design and methods that were adopted for this study.

2.1 Qualitative Research

Qualitative research can be defined as social research that focuses on investigating the way people interpret and make sense of their ideas and experiences (Savin-Baden and Major, 2013). Such research is extremely diverse given the enormity of social contexts, ideas and experiences that exist globally. To accommodate such diversity in the social sciences, rather than using rigid methods or strategies, the qualitative approach aligns around shared characteristics of research; for example, the subjective nature of research, the acknowledgment of multiple realities, conducting research in the natural setting of the subjects in study, embracing of the researcher as the instrument of data collection, and using descriptive reporting (Savin-Baden and Major, 2013). Aligning around research characteristics rather than rigid methodologies allows qualitative research the flexibility to embody *“a unique approach that can help researchers answer wicked questions about human action and experience”* (Savin-Baden and Major, 2013, 16). Given the aim of this study as a descriptive account of the sustainability success of a specific social phenomenon in a selected context, a Transition Initiative, qualitative research was identified as the most appropriate approach for this study.

2.1.1 Research Design

Using a qualitative approach, the research design was created in two separate phases. The first phase, a pre-study, involved understanding the Transition Movement and exploring the possibility of a research gap to assess and validate sustainability success within the movement, therefore creating the knowledge foundation and contextual basis to inform the direction of the second phase of the research design. This was done using an iterative literature review coupled with semi-structured interviews with a reference group of experts in the Transition Movement field. The purpose of the interviews was to validate the literature, as well as further understand measures of sustainability success and how evaluative techniques are used within the Transition Movement.

Phase two of the research involved conducting a qualitative case study of a Transition Initiative, using the case to unearth an in-depth evaluation to answer the research questions. The purpose of the second phase was to answer the study research questions by conducting fieldwork, the

process of collecting raw data from the research setting (Savin-Baden and Major, 2013). The research methods deployed included interviews, survey, and documentation review.

2.1.2 A Case Study Approach

A case study approach was selected as a focus of the research to undertake an in-depth examination of the sustainability success of a Transition Initiative. Conducting a case study is a qualitative research approach that is focused, intensive, and, “*that investigates a contemporary phenomenon within its real-life context*” (Savin-Baden and Major, 2013, 153). The focused scope of a single case was selected rather than a comparative study of multiple cases in order to provide an analysis with qualitative depth.

Selecting a case was conducted using the criteria and parameters defined by Forrest and Wiek (2014), outlined in Table 2.1 below. Potential case studies were selected based on their identification as a community engaged in purposeful transition towards sustainability; specifically, as a Transition Initiative, as a small place-based community of up to 10,000 inhabitants, and as an initiative of more than five core participants active for longer than two years. The researchers further prioritized Transition Initiatives that were recognized by the Transition Network as positive examples of the Transition in action. The researchers used the directory of Transition Initiatives (<https://transitionnetwork.org/transition-near-me/initiatives/>), as well as the *Stories of Transition* section of the Transition Network website (<https://transitionnetwork.org/stories/>), where stories of communities in Transition are shared to inspire other initiatives, to identify a list of potential case studies.

The geographic scope of possible cases was limited to northern and western Europe to limit travelling distance and expenses from Sweden, where the researchers are based. The researchers further limited the linguistic context to communities where most residents could communicate in either English or French given that all three researchers are fluent in English and that two of the three are fluent in French. Finally, the researchers prioritized Transition Initiatives in countries with less academic attention regarding the Transition Movement.

The researchers short-listed two potential case study sites: Black Isle in Scotland and Ungersheim in France. Both options were identified as positive examples through the Transition Network and met the all criteria defined by Forrest and Wiek (2014). Other initiatives were taken into consideration, however did not meet all the criteria defined above. The researchers were in communication with Transition leaders from both Black Isle and Ungersheim.

The final case study site that was selected for this research is Ungersheim, France. Ungersheim was prioritized by the researchers based on the village’s image as a success story within the Transition Movement as demonstrated by a documentary on Transition Ungersheim titled “*Qu’est-ce-qu’on attends?*” [*What are we waiting for?*], a blog article written by Rob Hopkins in the *Stories of Transition* section of Transition Network website, and by a feature story on the village in the book “*21 Stories of Transition*”, authored by Rob Hopkins and published by the Transition Network as a contribution to COP21. Furthermore, there are no existing academic studies on this specific case and little academic research of Transition Initiatives in France, providing the researchers with an opportunity to contribute an analytical-evaluative case study from an unexplored context.

Table 2.1: General community selection criteria (Forrest and Wiek, 2014, 71)

Criteria	Description
Sustainability transition	The community, or a significant subset of, is engaged in a purposeful transition with sustainability as a primary goal.
Place based	Community members reside within a common area bounded by defined geographical features.
Spatial extent	The community area is small enough that members can routinely interact on a daily basis and be familiar with the whole area.
Total population	Relatively small population between 50 and 10,000 – villages, small towns, neighbourhoods, rural settlements.
Transition participation	The minimum participation needs to be considered on a case by case basis. Anything less than five people active on a weekly basis raises questions of significance and credibility.
Transition duration	Should have been active for at least two years or there will be a lack of substance to study.

2.1.3 Ungersheim, France

Ungersheim is a small village in the Alsace region of eastern France with a population of approximately 2,000 inhabitants. Prior to the Transition, the economy of Ungersheim had long revolved around mining potassium. The last mine closed in 2003. Today, many residents commute outside of the village for employment, while the land surrounding Ungersheim is used primarily for industrial agriculture, specifically a monoculture of corn for exportation. The village also has a number of industrial zones in operation within the municipality territory.

Since 2011 Ungersheim has been a village in Transition, as defined and supported by the Transition Network (Commune d'Ungersheim, 2015). The actions of the Transition were stimulated by the municipality, specifically under the leadership of the long-time mayor of the village. For thirty years, with five mandates, the mayor of Ungersheim has been working on developing social and ecological actions, creating the foundation for the Transition to formally take place. Having worked in the mining sector, specifically within a union for workers rights, social and political justice have long been guiding values for the mayor.

In 2006, the mayor of Ungersheim attended a film screening of *An Inconvenient Truth*, a film about Al Gore's environmental awareness campaign. That film marked the beginning of environmental justice as a guiding vision for the mayor and the municipality. In 2011 the mayor attended a screening of the film *Transition 1.0* about the Transition Movement, which led the mayor to realize that the village was already conducting actions in accordance to the Transition Movement. That same year it was decided to become a Transition Initiative by formalizing the actions of the municipality, developing a list of 21 actions for the 21st century. Those actions of the Transition, organized under three main pillars, are described in Appendix 1.

Today most of the 21 actions have been accomplished, becoming an example of what is possible in a small village. As a leading example, Ungersheim has been granted numerous subsidies by the French government and other European institutions. For example, in 2017 the village received a subsidy by the national program *Territoire à énergie positive pour la croissance verte* [positive energy territory for green growth]. This grant is being used to stimulate the next wave of actions for the Transition in Ungersheim.

2.2 Data Collection

2.2.1 Pre-study: Exploratory research

The pre-study of the research design was an exploration of the Transition Movement through a literature review and interviews with experts in the field. Within the social sciences, exploratory research refers to the discovery of generalizations based on the descriptive understanding of a social phenomenon (Given, 2008). Researchers explore when they have little understanding of an area of social life, yet have reason to believe there are elements worth discovering (Given, 2008). In this study, the researchers explored existing literature focused on the Transition Movement and conducted interviews with experts related to the Transition Movement to discover a general research gap worth studying. The gap that emerged from this first phase and defined the direction of the rest of the research.

2.2.1.1 Targeted Literature Review

Inspired by Saven-Baden and Major (2013), a thorough literature review was conducted as a targeted and iterative research process to: first, develop a comprehensive understanding of the Transition Movement as defined by its founders and practitioners; second, to explore the movement within the context of academic literature; and third, to discover the research gap that informed this study.

Initially, a review of the major literature emerging out of the Transition Movement was necessary to comprehend the subject of study. *The Transition Handbook: From oil dependency to local resilience* (2008), the first book about the Transition Movement authored by Rob Hopkins, founder of the Transition Movement, informed the narrative of how and why the movement emerged. *The Transition Companion: Making your community more resilient in uncertain times* (2011), also authored by Rob Hopkins, complimented the initial handbook with practical tools and techniques to develop a Transition Initiative, along with stories from initiatives worldwide. Finally, *The Essential Guide to Doing Transition: Getting Transition started in your street, community, town or organization* (2016), written and published by the Transition Network, provided the most updated methods, tools, techniques, and narratives of the Transition Movement.

A review of the academic literature highlighted the various discussions related to the Transition Movement. These discussions were categorized into themes by the researchers: the general Transition Movement narrative, Transition and degrowth, Transition and cities, Transition and community, Transition and diversity, Transition and health, Transition and localism, Transition and resilience, Transition and spatial diffusion, Transition and permaculture, Transition and climate change, and Transition and success. What emerged from this initial academic literature review was an overview of the larger transition discourse, as highlighted in the introduction, with the Transition Movement placed within that discourse. From this literature basis, a targeted and critical analysis approach to the academic research helped to uncover a research gap on the topic of study, informing both the research questions and design. What was uncovered was the need for further in-depth research on the sustainability success of grassroots environmental movements such as the Transition Movement, as identified in chapter 1.3.

The academic literature review was conducted by searching the Scopus, Web of Science, and SUMMON databases, initially using simple keywords such as “Transition Network” or

“Transition Movement” or “Transition Towns” to get a broad sense of the literature in the field. As a gap in the literature began to emerge, a research string was used to identify research specifically relating the Transition Movement to sustainability success. “Transition” AND (“town” OR “network” OR “movement” OR “initiative”) AND (“sustainability” OR “sustainable”) AND (“success*” OR “failure”). Finally, snowballing was used to identify other relevant and often cited research related to the research inquiry.

2.2.1.2 Reference Group Interviews

The reference group selected for interviews represented experts in the Transition Movement able to ground the research with a deep understanding of the movement. The researchers conducted three semi-structured interviews with experts from the Transition Network, the organizational body of the Transition Movement, and one semi-structured interview with an academic who had intensively researched the movement. All four interviews were conducted in English via Skype and lasted approximately one hour in duration. Interviews were recorded using Quick Time Player. Reference group interviewees are described in Appendix 2.

Semi-structured interviews were selected as the method for all interviews conducted in this study. Saven-Baden and Major (2013) explain that semi-structured interviews are an appropriate approach when the interviewer has only one opportunity to interview an individual, as was the case with all interviews in the study. In a semi-structured interview, the researcher relies upon an interview protocol, following predetermined questions, with the freedom to stray from the script (Saven-Baden and Major, 2013). The benefit is the flexibility allowed to the researcher to best use the limited time with an interviewee by following relevant ideas and using probes in the discussion (Saven-Baden and Major, 2013). Questions tend to be open ended.

2.2.2 Phase two: Fieldwork

Fieldwork is the research process of collecting raw data from the research site (Savin-Baden and Major, 2013). Researchers spend time in the natural setting of the subjects in study, allowing them a wide array of methods to capture information onsite that can contribute to a rich description of the research context (Savin-Baden and Major, 2013). In this study, two of the three researchers spent five days in Ungersheim conducting semi-structured interviews, having unstructured conversations, and distributing a survey. Of importance in fieldwork is gaining access to the research site and research participants. This can be accomplished through the support of a gatekeeper, a highly regarded individual within the research context who has access to most parts of the environment in study (Savin-Baden and Major, 2013). Such a person was key to gaining access to the Transition in Ungersheim, an employee of over twenty years at the mayor’s office who facilitated access to everyone involved in the Transition Initiative, including the mayor.

2.2.2.1 Conceptual Frameworks

Both the analytical-evaluative framework and the FSSD were embedded in the research design to conduct fieldwork and to structure the findings. Deploying the two frameworks concurrently led the researchers to match the stages and steps of the analytical-evaluative framework to the five levels of the FSSD. Matching frameworks was possible considering Forrest and Wiek (2014) designed the analytical-evaluative framework for flexible use and to allow a variation of methods to be applied to the steps. Simultaneously, the FSSD was designed to also accommodate and structure the use of other methods and tools related to sustainable

development. “*The purpose of the FSSD has never been to replace or exclude other forms of support for sustainable development, but the opposite; to provide a structure that allows for clarification of their respective strengths and that aids a coordinated use of them*” (Broman and Robèrt, 2017, 18). The steps of the analytical-evaluative framework and the levels of the FSSD matched quite organically, as demonstrated in Table 2.3, only requiring minor adjustments to the guiding questions of the analytical-evaluative framework and reordering the five-level framework.

The systems level of the FSSD matched with stage one of the analytical-evaluative framework. The criteria for selecting a case study used to identify Ungersheim, thus becoming the system-in-study. The actions level of the FSSD matched with stage two, step one of the analytical-evaluative framework, in which interventions are identified following the guiding question, *what was done?* The tools level of the FSSD matched with stage two, step three of the analytical-evaluative framework, reconstructing pathways following the guiding question, *how was it done?* Here the analytical-evaluative framework offers analytical depth by reconstructing the pathways from actions to success, including not only tools, but also methods, events, key decisions, and other processes. The success level of the FSSD was split into the social sustainability principles, matched with step three of the analytical-evaluative framework, and the ecological sustainability principles, matched with step four of analytical-evaluative framework. The guiding questions from the analytical-evaluative framework were slightly adjusted to accommodate the use the FSSD definition of success as the sustainability criteria for this research study. Finally, the strategic guidelines level of the FSSD was matched with step five of the analytical-evaluative framework, guided by the question, *what were the critical factors?*

Conducting case study research in Ungersheim focused primarily on what has already been accomplished in the village. Without knowledge of the five levels of the FSSD, Transition practitioners in Ungersheim were not aware of the benefit of applying strategic guidelines in the planning process to move towards success. However, that does not suggest that there were no strategic principles that may have been tacit in the process of selecting and conducting actions. The purpose of reordering the five levels of the FSSD in this research was to discern possible critical factors and strategic guidelines that allowed for success.

By following the guiding questions of the analytical-evaluative framework and placing data in each level of the FSSD leading to the strategic guidelines level, it becomes possible to discover potential strategic guidelines that may have emerged out of the analysis. In other words, the analytical-evaluative framework is designed to uncover critical factors that resulted in success. Using such an approach with the case study evaluation, the researchers strive to discover strategic guidelines that the community may not have been aware of, only uncovering the principles of success by analyzing patterns from the previous levels. Such findings would be of value for future consideration in both Ungersheim and other small-scale community Transition Initiatives.

What is important to note is that the researchers used the two frameworks in tandem. The steps from the analytical-evaluative framework and the levels of the FSSD were taken as complimentary methods. The use of the conceptual frameworks is not an either/or structure. It is a both/and structure.

Table 2.3: The combined use of the Analytical-Evaluative Framework and the FSSD

Analytical-Evaluative Framework	Framework for Strategic Sustainable Development
Stage 1: Case selection and initial data collection	Systems Level: Understanding information relevant to Ungersheim as the system, within and in relation to the socio-ecological system.
Stage 2, step 1: Identify Interventions - <i>What was done?</i>	Actions Level: All concrete actions that help Ungersheim transition towards sustainability.
Stage 2, Step 2: Reconstruct pathways to outputs - <i>How was it done?</i>	Tools Level: Tools that help the Transition Ungersheim to reach its goals, particularly those related to sustainability.
Stage 2, Step 3: Analyze proximal outcome - <i>What was the impact on the community [in terms of social sustainability]?</i>	Success Level: Eliminating Ungersheim's violations to the social sustainability principles.
Stage 2, Step 4: Sustainability appraisal - <i>What was accomplished in terms of [ecological] sustainability?</i>	Success Level: Eliminating Ungersheim's violations to the ecological sustainability principles.
Stage 2, Step 5: Link critical factors to outcomes - <i>What were the critical factors?</i>	Strategic Guidelines Level: Discovering critical factors that could become strategic guidelines for other Transition Initiatives.

2.2.2.2 Interviews

To coordinate interviews the researchers were in contact with the same gatekeeper who provided the researchers with access to the Transition in Ungersheim and who serves as the municipal coordinator for visitors of Ungersheim. The researchers chose to coordinate interviews through the gatekeeper because she had access to and rapport with both leaders and participants of the Transition Initiative. To solicit the interviewees, the gatekeeper either directly phoned or sent an email to eleven candidates on behalf of the researchers. Since the researchers were onsite in Ungersheim and had flexible schedules to conduct fieldwork, the logistical details of where and when an interview would take place were decided directly between the gatekeeper and the interviewees to accommodate the interviewees. The gatekeeper provided potential interviewees with background information regarding the researchers and the research, as had been explained to her by the researchers. This was left as an informal process, trusting the gatekeeper to communicate freely to potential interviewees. Before each interview, a short summary of the research and the researchers was restated by the interviewer to clear any potential misinformation that may have been shared by the gatekeeper. In total the gatekeeper contacted eleven interviewees and only one individual was unavailable for an interview. The gatekeeper participated in an interview as well. Eleven interviewees were thus made available for the research.

Interviewees were selected based on the criteria of being actively involved in the Transition Initiative of Ungersheim. The researchers stressed a preference to have interviewees involved in a variety of different actions within the initiative. However, the coordination of interviews was left to the discretion of the gatekeeper who had access to all potential interviewees. As a result, the criteria to select interviewees was intentionally left unrestrictive. Appendix 3 offers a brief description of the interviewees.

Ten interviews were conducted with eleven interviewees. Two interviewees were interviewed at the same time. Interviews were conducted between Monday, March 26 and Thursday, March 29, 2018. All interviews were conducted in person and in French, with exception of one interview conducted in English and one in which the interviewee switched between English and French. The interview duration ranged between forty-seven minutes and one hundred and ten minutes. One researcher was present at five interviews and two researchers were present for the other five interviews. All interviews were conducted by one researcher. If both researchers were present, the one not interviewing would not have an active role in the process. The interview questions were designed using the FSSD, following the five levels of the framework, with an emphasis on the sustainability success of the actions within the initiative. Questions related to success were designed to address compliances and possible violations of the eight SPs. The interview script can be found in Appendix 4. Interview questions were not tested beforehand, and the script remained the same across all interviews. Changes in delivery and adjustments to questions were made based on the discretion of the interviewer as per the semi-structured method of conducting interviews. Interviews were recorded using Voice Notes by Apple.

2.2.2.3 Survey

A survey was broadcasted to assess how the Transition Initiative in Ungerhseim has been accepted and incorporated within the community. The purpose of the survey was to understand Ungersheim as a system, obtaining opinions from both those participating in the Transition and those outside of the activities of the Transition. The survey was designed to address the systems level and success level of the FSSD. The survey questions followed the format of first inquiring about the respondent's awareness and understanding regarding the actions and intentions of the Transition. The survey then inquired about the level of acceptance of the Transition, if respondents were supportive and proud of what the Transition is accomplishing in the village or not. Third, the survey focused on the level of participation of the respondents within the Transition. Finally, a large portion of the survey was set for questions related to the perceived success of the Transition as defined by the SPs. The survey questions can be found in Appendix 5.

Surveys were distributed in two ways. One of the researchers distributed surveys randomly in the village center while conducting fieldwork in Ungersheim. This was done on two separate days for a total of seven hours. The researcher, unable to communicate in French, had a pre-written request to solicit potential respondents. In total, nine interviews were collected in this way of random selection. The surveys were conducted in paper format. The researcher estimates only 10% of inquiries led to a responded survey. Barriers to having more responses were identified as the lack of time of the residents, as the survey distribution occurred during working hours, and the language barrier between the researcher and residents. To receive more responses, an online version of the survey was sent to the municipality using Google Forms. The municipality then forwarded the survey to a village-wide listserv to an indeterminate number of individuals. Eight surveys were collected online. In total, the researchers received seventeen completed surveys.

2.3 Data Analysis

2.3.1 Transcription

The nine French interviews were split between the two French-speaking researchers for transcribing. The English interview was transcribed by the third interviewer, along with the other interviews from the reference group. Recordings were transcribed verbatim. Prior to manual transcription, raw text was extracted using an online program, *Tunetube*, explained in great detail below. Upon completing the transcriptions, interviews were translated into English, first using *Google Translate* and then reviewed and edited by the researchers to confirm accuracy.

The raw recordings of all interviews were converted from *Voice Notes* by *Apple* or *Quick Time Player* into a digital MP3 format using *iTunes*. Once converted, the recordings were uploaded onto *Youtube* for automatic transcription via the website's online program called *Tunetube*. The website converted the MP3 recording into *Youtube* text format. Neither the recording nor the text was made public, but kept secure within a personal *Youtube* account. The text was exported to *Microsoft Excel* for further formatting to remove unnecessary information such as the time display and spacing. After extracting interview text, each recording was subsequently deleted from *Youtube*. The formatted text was finally transferred to *Microsoft Word* where the researchers listened to the recording and edited the text verbatim.

2.3.2 Coding

Once all interviews were transcribed, data analysis began with coding. The coding process included a combination of *inductive themes*, which emerged directly from the data, and *a priori themes*, based upon prior theory (Savin-Baden and Major, 2013). The prior theory used to organize codes was the FSSD. The researchers created themes, or unifying concepts, based on the five levels described in the conceptual framework chapter. The success level of the FSSD was divided into eight different themes in accordance to the eight SPs. Therefore, there were twelve themes designed *a priori* to organize codes based on the purpose of using the structure and sustainability definition of the FSSD to address the research questions.

Once the themes were established, the researchers divided the transcripts and began to cut the raw data from the transcripts into meaningful segments of key sentences and paragraphs. These meaningful segments were placed into the different themes. With a shared understanding of the FSSD between the researchers, there was mutual trust that the meaningful segments would be categorized appropriately. Any hesitation or confusion was discussed among the researchers.

Quite quickly into the cutting process, the researchers realized that not all meaningful segments fit into the existing themes. As a result, four other overarching themes were induced by the researchers to accommodate the uncategorized meaningful segments; those being, *what is the Transition concept*, *resistance to the Transition concept*, *societal critique*, and *personal motivation*. No other themes emerged.

Upon categorizing the meaningful segments from each transcript into the sixteen themes, each researcher took a few themes to review. This initial thematic review focused on adjusting any unclear or misplaced meaningful segments, identifying and highlighting the key ideas from each segment, and finally attaching a preliminary code to the segment.

Once all sixteen themes were adjusted and coded, the researchers each conducted a second review of different themes than they had reviewed before. This process of peer reviewing the themes was intentionally designed into the coding process to limit individual bias or any misalignments in interpretation. The second thematic review reexamined the placement of the segments and then clarified, adjusted and categorized the codes within the theme. The result was a categorized database with each theme and its associated codes, all organizing the originally cut meaningful segments with the key ideas highlighted.

Finally, all the codes were reviewed together by all three researchers. Any final adjustments of renaming of the codes was conducted, while gleaning initial information for the results, such as the frequency of how often each code was mentioned by the interviewees. In total, there were 110 codes organized into the sixteen *a priori* and *inductive* themes.

2.4 Limitations and Strengths

The village in study, Ungersheim, located in the Alsace region of France offered a limitation to the study. Conducting fieldwork in French was difficult as only two of the three researchers speak French. Furthermore, one of the French speaking researchers was unavailable to travel to Ungersheim for the fieldwork. Hence only one researcher was available onsite to conduct the majority of case study interviews, with the exception of the one conducted in English. The non-French speaking researcher was severely limited in their attempt to conduct surveys in the village without the ability to communicate with potential respondents beyond a pre-written request. What is more, all interviews and documentation from the case study had to be translated, resulting in the risk of potentially skewing the meaning from the original fieldwork data. To limit the risk, the bilingual researchers made their best effort to confirm the accuracy of the translations.

Another limitation to the research was the narrow scope of a single case study approach. The findings are context specific to a snapshot of a particular place at a particular time. In such focused research, unwarranted generalizations in an attempt to demonstrate applicability to other contexts need be avoided (Savin-Baden and Major, 2013). Furthermore, when only a single case study is conducted, research participants may be inclined to protect the image of the site, a sentiment that could potentially lead to partial or dishonest data (Savin-Baden and Major, 2013).

In this study, the issue of potentially dishonest data was limited by using triangulation and comparing data. Triangulation is a research technique that validates data by cross verification from two or more sources, ideally sources that applied different research methods. As much as possible, the researchers cross-verified a claim or opinion from single interviewee to ensure honesty. Furthermore, the findings from the fieldwork are presented as a subjective narrative rather than factual or objective findings.

The final limitation to the research relates to the scope of focusing on the Transition in Ungersheim rather than Ungersheim as a whole. All interviewees are actively involved in the Transition, providing narratives and data related to those interventions conducted through the Transition. Therefore, the research findings do not capture the entire sustainability picture within Ungersheim. The researchers understand that there are violations and structural obstacles to aligning with the definition of sustainability provided by the FSSD that are not identified within this research.

Conducting a single case study also offers a strength to the research. It allows the researchers to reveal a deeper understanding of a specific context, describing detail that may be missed in a comparative study of multiple sites (Savin-Baden and Major, 2013). Such nuance is of value in conducting a deep evaluative study to build an empirical knowledge base of the sustainability success of a Transition Initiative, and to discern critical factors that aid progress toward sustainability.

Another strength of the research design is the combination of theoretical frameworks used to assess the case study. In tandem with the analytical-evaluative framework, the FSSD serves as a comprehensive analytical-evaluative tool to understand sustainability success and derive the pathways of getting there. It is the application of a systems framework to a case study evaluative framework. The result is a replicable case study approach that can be used for longitudinal studies of sustainability success in Transition Initiatives and other community-based environmental movements.

3 Results

The results section is presented from the perspective that sustainability success is but an aspect of a more complex and interactive system. Hence the results follow a structure that presents an overarching narrative of the Transition in Ungersheim based on the stories, experiences and opinions of the interviewees as well as certain survey results. The narrative is told through the thematic structure described in chapter 2.3, using the *inductive* and *a priori* themes defined during data analysis. Again, those themes relate to research participant’s understanding of the Transition concept and the five level model of the FSSD.

The chapter begins by exploring themes related to the Transition concept, as interpreted by practitioners in Ungersheim, presenting results of how Transition is defined and some underlying motivations that might have motivated the incorporation of the concept. Second, the Transition in Ungersheim is explored in-depth as a system. Third, results related to sustainability success are presented based on the eight SPs of the FSSD. Finally, the section closes with findings regarding strategic guidelines that may have led to success. This overall structure is laid out in Figure 3.1 below.

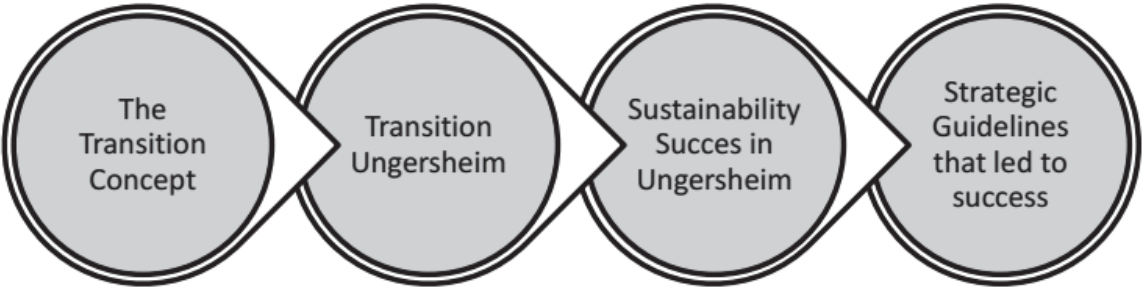


Figure 3.1: The results of this research are presented by theme: first, exploring the Transition as a concept; second, the Transition in Ungersheim; third, sustainability success; and fourth, strategic guidelines that may have allowed for success.

3.1 The Transition Concept

The results begin with exploring findings related to the Transition as a concept, exploring *what is the Transition* and *resistance to the Transition*. Underlying the use, acceptance and resistance to the concept are *societal critiques* that illuminate dissatisfactions with the current unsustainable society and the *personal motivations* that stimulate the desire to get involved to change it.

What is Transition?

All eleven interviewees spoke to the question of defining the Transition for themselves. In total, the subject was discussed a total of forty-five times. From those statements seven codes were identified by the interviewees: *building connections*, *inner change*, *a different way of living*, *systems change*, *transition as slow and ongoing progress*, *autonomy*, and *creating a positive vision of the future*.

Transition as *inner change* was the most cited theme, spoken to twelve times. It reflected the opinion of some interviewees that the Transition is primarily about transforming oneself before transforming society. Interviewee 10 referenced this point with his own experience, *“I think that it starts with a personal or family approach...For us it has been a personal awareness for about ten years, little by little, regarding our sources of food, heating, transportation etcetera”* (Interviewee 10, 2018). The *inner change* also related to personal reflection, opening up one’s mind, questioning, and ultimately, as explained by a prominent leader of the Transition in Ungersheim, freedom in the mind: *“But the principle of the Transition remains the same. It is freedom in the mind. The application, participation, empowerment of citizens. The freedom to leave the consumerist system”* (Interviewee 11, 2018).

The subject of Transition offering *a different way of living* was mentioned eleven times. Similar to *inner change*, what emerged with this theme related to aspects of personal change. The main idea is that living with less, at a slower pace, and more simply, can offer a future preferable to the present. In defining the Transition concept, Interviewee 4 said, *“Transition is to find ways, solutions, ideas with the population so that we can live differently, live better with less”* (Interviewee 4, 2018). Interviewee 6 explained it quite simply, *“Society in general consumes more and more, pollutes more and more, there is more and more individualism. And we do the opposite, we go back”* (Interviewee 6, 2018). During much of the fieldwork, this idea of *living differently* was highlighted as a key component of the Transition in Ungersheim.

The many codes and findings of this theme show that within Ungersheim there is no unified definition of the Transition, even among people involved in the initiative. This mirrors the earlier discussion related to the Transition Movement, that it is a descriptive and flexible concept rather than offering a defined structure with clear parameters from which to determine success or failure. That said, within Ungersheim there some unifying ideas around the Transition requiring inner change alongside outer change.

Resistance to the Transition

Seven interviewees spoke to a resistance to the Transition, either their own or a noticeable resistance in others. Specifically, the interviewees mentioned the codes that *the Transition goes back in time*, the movement lacks *power and finances*, that *people do not change*, that there is

a lack of clarity regarding Transition, and that the Transition is not degrowth. However, a resistance to the Transition was mentioned only twelve times in total.

The most cited of the codes was a *lack of power and finances*, spoken to five times. Common perspectives were that the Transition is too expensive, there is a lack of power to make the necessary change, and that there is difficulty in securing resources. An example of lacking the necessary power, in comparing the communication arsenal of major consumer industries to grassroots movements such as the Transition, Interviewee 1 put it simply, “*the balance of power is not at all the same*” (Interviewee 2, 2018).

Second to the above theme, *a lack of clarity*, was mentioned four times, but only by two interviewees. Here interviewees described the lack of meaning, clear goals and a vision for the Transition, and a lack of a concrete definition of sustainability. Interviewee 6, an overt critique of the movement, claimed that the Transition does not have a clear direction and therefore lacks meaning.

Interviewee 6 further mentioned that *people are generally resistant to change*, with Interviewee 1 confirming this idea by explaining that people first want to see success before joining the change. Interviewee 11 acknowledged that there is resistance to the Transition within the village, however, that the resistance may be a sign of the growing success of the movement.

I often take the example of Schopenhauer, a German philosopher, as an example. He said that all truths go through three stages. The first step is that this truth is ridiculed. The second step is that this truth is confronted with an opposition that becomes stronger and stronger. And the third step is that the same truth that was mocked, people begin to say, ‘you see, I always thought that was what needed to be done’. We are now in the second phase where there is strong opposition, which is also a sign that it succeeds. Indirectly it proves success. (Interviewee 11, 2018)

In the survey, out of sixteen respondents to answer the question, ‘*Do you support the Transition at Ungersheim?*’, twelve responded yes, two no, and two were neutral. These findings along with the interviews show that, while there is resistance to the Transition concept, it is not a dominating factor of the Transition in Ungersheim.

Societal Critique

A subject that emerged frequently during the interviews was a general dissatisfaction and critique on society. Nine of the eleven interviewees in Ungersheim critiqued society in one way or another. Forty-four times a critique was made. They related to the themes of: *societal collapse, individualistic-consumer society, lack of citizen awareness, globalization, wastefulness, genetically modified organism agroindustry, political obstacles, lack of citizen effort, and addiction to fossil fuels*. The three most common codes, *individualistic-consumer society, lack of citizen awareness, and globalization*, were all mentioned eight times.

The theme of the *individualistic-consumer society* identified that interviewees felt society must learn to look beyond profit and growth, consumers must learn to make concessions, and that the planet has limited resources although consumerism is the focal point of society.

And I think we only consume and consume. We don't reduce consumption, and we don't reduce our energy impacts. It always continues to grow. People who say that we have

to stop with growth, we laugh at the people who say this. We have to decrease if we want to find a solution for the planet, for nature, we have to reduce our impact, our consumption. But I think people are not prepared to reduce. ... I'm quite pessimistic. (Interviewee 9, 2018)

A lack of awareness included the opinions that people are ignorant, there is a general lack of understanding of global challenges, people are not aware of the extent of the pollution and damage on the planet, and people are desensitized to the impact of their consumption because of the large distances between where goods are produced and consumed. Interviewee 10 depicted the latter point in saying, *“We do not realize it, it's not palpable, because we have put so much distance between the ecosystems on which we depend and our lives. It is not sensitive and that's why it does not change fast enough. We do not see the impact we have on the world”* (Interviewee 10, 2018).

The *globalization* critique related to global trade. For example, in Ungersheim, a village surrounded by agricultural land, most of the food is imported from elsewhere. Likewise, much of what is grown locally is exported, primarily monoculture corn that will be consumed by faraway livestock. Interviewee 3, a food grower operating completely locally, identified their critique of globalization related to the importation of food and other goods:

I eat tomatoes when there are tomatoes here. I mean, that's it. But today we eat tomatoes all year round in France. You find tomatoes in commerce anytime of the year. And people buy it all year. So, we import all year. Then when there are tomatoes here, well, there are everywhere else also. And so, the people who produce tomatoes here, they do not earn a living because we lower the prices with imports. And therefore, prices of French products go down. And so, what do we do, we try to produce even cheaper by putting even more chemical inputs to produce more, to have more quantity, to produce cheaper. So, we pollute even more. (Interviewee 3, 2018)

What is interesting to note is that none of the interview questions asked interviewees about their critiques on society. The critiques emerged organically from the stories, experiences and opinions of the interviewees. This finding shows that most interviewees, all people involved in the Transition Initiative, are aware of certain elements of the sustainability challenges and acknowledge that change is necessary.

Personal motivation

Interviewees were asked why they participate in the Transition. Ten of the eleven interviewees spoke about their personal motivation for being involved. The subject was touched on a total of twenty-two times. From those interviewees, twelve different motivations emerged: *beginning with oneself, taking a new direction in life, create a more joyful world, offering healthy food, investing in the future, sharing and cooperation, financial incentives, passion, environmentalism, personal awareness, and finding a role in benefitting society*. Of these many and diverse motivations, *investing in the future* was the most popular, mentioned on four different occasions. This code speaks to the need and importance of creating something better for future generations. *“I think we cannot be a complete man or a complete woman if we do not invest a little in something for the future, not only the short term”* (Interviewee 8, 2018).

The other code that was mentioned four times is *sharing and cooperation*, which reflects the idea that humans need each other, cooperation and sharing being the link that binds society together. “*Without cooperation we would not exist*” (Interviewee 11, 2018).

The survey also touched on the theme of personal motivation, asking respondents who participate in the Transition to explain why they do so. One respondent supported the notion of investing in the future, “*Because it is very important for future generations and we are fortunate in Ungersheim to be able to participate*” (survey respondent, 2018). Other respondents related reasons associated to personal conviction, a feeling of responsibility, joining the emerging dynamic of the town, wanting to participate in something, and “*to add a hummingbird’s drop of water to put out the fire*” (survey respondent, 2018).

The diversity of the codes show that personal motivations for getting involved in the Transition are exactly that, personal. The Transition in Ungersheim is not actively campaigning for local support under a specific logic or argument. Participating the Transition is an invitation and participants have or discover their own motivation and logic to join.

3.2 The Transition in Ungersheim

From a system thinking perspective, success is an aspect of a complex system with many interrelated factors and elements. This section presents some of the interrelated factors that comprise the Transition in Ungersheim. The headings follow three of the levels of the FSSD, the *system* level, *actions* level, and *tools* level.

System

The system, defined in this research as the interaction of the Transition Initiative within Ungersheim, was the most discussed subject in the research. All eleven interviewees spoke to the system and it was mentioned one hundred and five times. Four interview questions addressed subjects related to the system. The interviewees spoke to fourteen different codes; the *political will to act*, *participatory democracy*, *interactions beyond Ungersheim*, *community involvement*, *challenges to community involvement*, *being an example*, *the role of the mayor*, *overview and narrative*, *skepticism*, *cultural change*, *benefitting business*, *the importance of people’s mentality*, *experimentation*, and *financial leverage*.

The significance of the political structure was mentioned and highlighted more than anything else during the research. The code related to *political will*, referring to the municipality’s political structures which instigated and led the Transition, was mentioned seventeen times. Moreover, the code calling out *the role of the mayor* as integral to the Transition was mentioned another seven times. The Transition in Ungersheim was started by the mayor of the village and has largely revolved around the ability of the municipality to lead and support the implementation of actions. As described by Interviewee 5, “*In Ungersheim, it is the political power is trying to instill momentum*” (Interviewee 5, 2018). Interviewee 2 further described the importance of not just the political will, but also the mayor in particular:

Other Transitional groups, whether they are at the other end of France or even close to here, often they are citizens who have a state of mind, an ideology, and who have not managed to find the financial or political leverage to go further. We were lucky enough to have a politician that had this idea. I think that's what made Ungersheim go so far.

Rob Hopkins, when he came here, he said the advantage we had was that it was local politics that shared the idea of Transition. (Interviewee 2, 2018)

Part of the political structure of the Transition in Ungersheim is also the code of *participatory democracy*, one of the formal structures through which citizens can make decisions and help direct the Transition. *Participatory democracy* was mentioned eleven times, second to *political will*. It is perceived as a strength and a key aspect to the social fiber of Ungersheim: “*I think we have been able to carry out the Transition because we have invested a lot in the cultural and social associations and so we have created a strong foundation and we have gained trust in the population*” (Interviewee 11, 2018). Some interviewees even suggest that it was due to a strong participatory fabric that already existed in the village that the Transition was able to emerge: “*that there was perhaps already an impressive associative fabric in which links existed between the people, allowed the creation of groups to carry out the projects*” (Interviewee 2, 2018). Ironically, the importance of the role of residents through *participatory democracy* was spoken to more by those involved politically in Ungersheim, whereas the importance of *political will* was mentioned more by the active citizens and business leaders who were interviewed. As described by Interviewee 11, “*we are modest*” (Interviewee 11, 2018).

Also mentioned eleven times was the code *interactions beyond Ungersheim*. This code related to Ungersheim being solicited by other municipalities for visits, having interactions with other Transition groups, receiving increased support, having people move to Ungersheim, and becoming known nationally and internationally. As put simply by Interviewee 8, “*people are very interested by what we are doing here*” (Interviewee 8, 2018). The extent of the attention has come as a surprise to many. One person explained that, “*... We are surprised because I think that last year there were 600 requests for visits. It's huge and it's Belgium, Germany, Switzerland. I think we had Englishmen who came too ... and the mayor is doing conferences everywhere*” (Interviewee 7, 2018). Beyond visits, Ungersheim is attracting new residents as, “*... People also settled in Ungersheim because they knew [the Transition] was happening and they were interested by it.*” (Interviewee 7, 2018). Of seventeen survey respondents, four had moved to Ungersheim because of the Transition.

Community involvement and *challenges to community involvement* were also identified as important themes within the Transition in Ungersheim, each code mentioned nine times. In terms of community involvement, a core citizen group of approximately one hundred residents actively participate in different projects of the Transition. While such involvement and participation is integral to the realization of the actions, many hope it is only the beginning: “*people are just starting to understand what the Transition is about, even in the village. We are at the beginning of something. We are at the beginning*” (Interviewee 1, 2018). That said, Interviewee 11 is of the opinion that the *community involvement* is still too low to consider the Transition a success:

In general, I do not consider [the transition] a success. Today I consider that there is an awareness. People know what we are talking about. If we were to do a survey in Ungerhseim, I think that 75% of them have already heard about the Transition. After that there may be a little less than half, about 40% who know what the Transition is. And then there are maybe 10-20% who know how to explain and give examples of the Transition. And finally, a little lower, about 5-10%, who have already engaged in one action or another of the Transition. So, it's not a success. Success is 15-20% involvement. (Interviewee 11, 2018)

Challenges to increasing community involvement in the Transition were identified along the lines of a lack of resident's awareness of what is going, interpersonal challenges of collaboration, challenges related to overcoming individualism, and overcoming fear of change. As explained by Interviewee 2, *"It's hard to get people to come be involved. People stay home, locked up. I do not know, maybe it's more cultural here. I do not know how it's happening in other countries, but it's harder now to get people together"* (Interviewee 2, 2018).

The findings of the system show that municipal leadership, citizen engagement, and interactions with the world beyond Ungersheim are key components to the Transition. However, there are many more elements and components at play that interrelate to define the initiative.

Actions

Ten out of the eleven interviewees spoke to the actions being conducted by the Transition in Ungersheim. The codes related to actions were: *food actions, energy infrastructure development, ways of organizing, infrastructure development, citizen engagement, biodiversity awareness, composting, and stopping the installations of LinkE*. As demonstrated in Appendix 1, Ungersheim has 21 actions that are sorted into three major themes, intellectual autonomy, energy independence and food sovereignty. All 21 actions are in motion or already complete. Having received a large grant from a national program for "positive energy for green growth" in 2017, Ungersheim has added another 17 actions to be completed by 2020.

Actions are core to the Transition as they demonstrate tangible outcomes that support the concept. In discussing the influence of the Transition, one interviewee mentioned that it is surprising for visitors to see so many actions in a little village: *"And that's what is always surprising for people who come to visit and realize that there are twenty-one actions that have been done, that exist, that are here"* (Interviewee 7, 2018).

Actions related to *food production and consumption* were discussed by the interviewees the most, mentioned eighteen times. Specifically, interviewees spoke about the municipal market gardens, the value of community-based organic agriculture, full-cycle animal husbandry, seed saving, preserved food and canning, preparing organic meals for the local school children, and the future projects of developing a local grocery store, a microbrewery and a fruit pressing facility. With food sovereignty as one of the three core pillars of the Transition, actions are in place to instigate a localized food system in Ungersheim. The results of which are confirmed in the survey as all respondents, except of one, responded that they try to purchase local produce. The food actions were often spoke to with a level of pride:

Our own local production of fruits and vegetables are used in the canteen and sold to people in a small market that we do once a week. And people can buy produce baskets, etcetera. All that is in function, it works. Nothing is wasted. All produce that cannot be sold is preserved and canned and then sold. It is a full cycle. I mean it's really directly from the producer to the consumer. (Interviewee 7, 2018)

The code *energy infrastructure development* was mentioned twelve times, second to *food actions*. The popularity of this theme was not to be unexpected as it relates to another one of the three pillars of the Transition, energy independence. Here interviewees spoke to many completed actions related to renewable energy and reducing energy consumption including the wood boiler that heats seven municipality buildings, the installation of a solar cadaster for every house in Ungersheim to measure the potential for household photovoltaic energy, changing

public lighting, solar energy for the sports hall and swimming pool, the local photovoltaic power plant, the thermal renovation of public buildings, and the assessment for the possibility of a methane plant in the future. The transition to renewable energy is depicted well by the creation of the largest photovoltaic power plant in Alsace:

This land was a potassium mine and factory. It shut down 15 years ago and it was degenerated land. The land was sold back to Ungersheim to do the photovoltaic power plant. Ungersheim could have chosen to install anything, a dirty factory or a green factory. They decided to install a green factory, to do a PV installation. So that is the story of this site, going from a very dirty industry and changing to clean the image of Ungersheim. (Interviewee 9, 2018)

The actions related to *ways of organizing* were also mentioned twelve times. These actions relate to organization structures referred to organizing volunteers, creating commissions that meet bi-monthly, appointing wisdom councils, the creation of an Institute for the Transition in Ungersheim, and organizing conferences and trainings. Apart from organizing volunteers, all topics relate to sharing knowledge, learning or decision-making. Fittingly, the third pillar of the 21 actions of Transition Ungersheim is intellectual autonomy.

The findings from this theme show that the three pillars of the Transition, and their subsequent actions, are what is identifiable and most often spoken about by those participating in the Transition. This notion was reinforced in the survey upon asking respondents to mention some actions of the Transition; *renewable energy* and *food autonomy* were the most named actions.

Tools

Eight of the eleven interviewees spoke to tools and methods that led to the actions of the Transition, although the subject was only mentioned twelve times. From those statements, four codes emerged: *communication*, *municipal organizational leadership*, *diagnosis of buildings*, and *collaborative investment*. The first two codes were both mentioned five times and the latter two, once each.

Communication was spoken to as both an internal tool within the Transition, to share the purpose of the actions and to take into consideration a diversity of voices, as well as an external tool to communicate beyond Ungersheim. In Ungersheim, there are two digital information boards that communicate activities and events to the residents, including Transition activities. There is also a local monthly newsletter which is distributed to all residential mailboxes of Ungersheim. Approximately 1,200 copies are printed every month. The newsletter called "*The Clover Leaf*" communicates local news, detailed descriptions of Transition efforts, and decisions made by the municipality, municipal council and associations.

In speaking to how the Transition is accomplished, Interviewee 1 stated, "*With a lot of talk. With a lot of communication. With a lot of effort*" (Interviewee 1, 2018). Externally, the development of an Institute for Transition Ungersheim is designed as, "*a communication tool*" (Interviewee 11, 2018).

Municipality organizational leadership was addressed as an orchestrating tool, actively offering the resources to make things happen. For example, in creating an eco-village within Ungersheim, "*The municipality facilitated the group meetings, proposed the architect and after, we [the residents] took over the project*" (Interviewee 5, 2018).

The limited results from this code was due to the lack of questions in the interview script related directly to tools. The researchers were interested to discover if a clear methodological process would emerge through the interviews with the use of specific tools and guidelines. No clear process emerged.

3.3 Sustainability Success

In this research, criteria to evaluate sustainability success was adopted from the FSSD, defined by the eight sustainability principles presented in chapter 1.4, outlining the boundary conditions of a sustainable society. Success is determined by violations or alignments to these principles. The results are presented per sustainability principle.

Sustainability Principle 1: Substances extracted from the Earth's crust

The first SP relates to society not systematically increasing concentrations of substances extracted from the Earth's crust. For the purpose of this research, that was interpreted as reducing local dependency on any substance extracted from the Earth's crust such as fossil fuels and metals. Seven out of eleven interviewees spoke to this theme. In total it was mentioned on twenty-four occasions. Four codes emerged: *agricultural reductions of fossil fuels* mentioned eight times, *transportation reductions* mentioned eleven times, *mining* mentioned four times, and *industry* mentioned once. Most codes related to reducing the municipality consumption of extracted or mined substances, specifically reducing dependence on fossil fuels.

Transportation reductions was mentioned most often as a means of reducing fossil fuel consumption, but also as a dependency. The positive examples of reductions that were shared by interviewees included the use of a horses drawn carriage to transport school children, the example of some residents commuting by bicycle, and the value of not importing goods that are produced and used locally. That said, it was also shared that many residents of Ungersheim work outside the village and, "most people travel by car. There is not really an efficient public transit system" (Interviewee 6, 2018). Hence, overall, dependency fossil fuel for transportation in the village remains a big hurdle towards alignment with this SP. That said, a new bus service was launch in 2018 transporting residents from Ungersheim to the nearest train station.

The code related to *agricultural reductions of fossil fuels* came up eight times as some food growers involved in the Transition have adopted farming practices that lessen dependency on fossil fuels. For example, using a horse instead of machine when possible, using smaller machines instead of big tractors, not tilling the land, and selling harvests for local consumption. While simple, these actions can go a long way in lowering fossil fuel dependence. The hope is that they will also inspire the conventional farmers surrounding Ungersheim to adopt similar practices. In an example of agriculture reductions of fossil fuels, Interviewee 8 shared that:

In Europe the norm is to till the soil rather deeply, from 25 to 30 centimeters, with a tool which consumes a lot of energy. Although we occasionally do an extremely superficial work of a few centimeters, we try to keep the fields permanently covered. In Alsace, currently the soil is bare, the farmers wait to plant corn in April. Comparably we try to have very short periods when there are no plants on the field. And it's convenient, it allowed us, compared to a normal protocol, not only to multiply by twelve the yield, but to divide by three the consumption of fuel. (Interviewee 8, 2018)

Finally, concern for *mining* metals for solar panels and batteries of electric vehicles was mentioned on four occasions. “*It's all well and good to make solar, but you have to produce these solar panels, you have to get out of the mines tons of lithium and rare metals that can also destroy the planet. So, it's hard to say if the impact is more negative than positive for this PV plant*” (Interviewee 6, 2018). Here it is noted that simply switching energy sources may not be a viable long-term sustainability solution.

The findings from this theme demonstrate that although there are Transition actions and concerted efforts to limit dependency on substances extracted from the Earth’s crust, specifically fossil fuels, much work is left to be done. Many residents of Ungersheim commute to work and the village is surrounded by industrial agriculture; both conventional operating systems of society that depend totally on fossil fuels.

Sustainability Principle 2: Substances produced by society

The second SP relates to society not systematically increasing concentrations of substances produced by society. For the purpose of this research, that was interpreted as reducing substances that pollute ecological systems such as water, air and soil. All eleven interviewees mentioned something in relation to this theme. In total, it was spoken to thirty times. The codes that emerged were: *reductions of agrochemicals* mentioned three times, *dependency of agrochemicals* mentioned four times, *renewable energy* mentioned nine times, *household reductions* mentioned five times, *consuming less energy* mentioned six times, *air quality* mentioned once, *sewage* mentioned once, and *rainwater collection* mentioned once.

Renewable energy was the most popular code as a number of different renewable energy actions were mentioned and described during interviews, offering alternatives to France’s high usage of nuclear energy which produces nuclear waste: “*At the village level... there is this famous photovoltaic power station which lowers consumption of nuclear energy, because France still has a significant share of nuclear energy that certainly does not emit CO2 but generates waste*” (Interviewee 2, 2018).

From switching to renewables, the next most popular code was *consuming less energy*. As put by Interviewee 2, “*the best energy is that which we don’t consume*” (Interviewee 2, 2018). They continued to explain, “*I think we [in Ungersheim] worked a lot on the production [of energy], I think there is much more important work on the part that is to avoid wasting energy.*” This code was linked to generating awareness of one’s own consumption. The survey results suggest that there is already a certain level of awareness related to energy production in Ungersheim, as all seventeen respondents of the survey shared that they knew how the energy they consume is generated. Furthermore, all households in Ungersheim have a solar cadaster installed to give estimates of how much solar energy could be generated on the rooftop furthering resident awareness. Incidentally, *household energy reduction* was the next most popular code.

Agrochemicals, both reductions and dependencies, were also touched upon. On one hand, the municipality does not use herbicides or pesticides on public land (i.e. parks, gardens, etc.) and organic agriculture is increasing within the municipality. As explained by one Transition practitioner active in organic farming, “*the main pollution in France is agricultural pollution...We must start there, and it’s really easy now to work without pesticides*” (Interviewee 1, 2018). However, on the other hand, Ungersheim is surrounded by industrial agriculture primarily growing monoculture corn with high agrochemical inputs. The same

organic farmer explained, “we are just trying to create a small oasis, a small oasis here in the sea of the corn” (Interviewee 1, 2018). Interviewee 10, another organic farmer, explained the industrial agriculture model and its impacts:

Here, we are a large region based on chemical agriculture. In terms of the water, it is very simple. There are fertilizers and pesticides in all the surface waters, and the last reports are alarming, whether in Ungersheim or in any other village in the plain. Local farmers use chemical products, even if they say they use as little as possible. Nitrate pollution from the valleys increases steadily and arrives to the two large rivers that cross the plain. In terms of water pollution, Ungersheim contributes as much as the others, in my opinion. (Interviewee 10, 2018)

However, in terms of spreading the practice of organic agriculture, one prominent figure within the Transition seemed hopeful:

The farmers are very curious, very observant of our model of organic farming. But they are not yet ready to cross the threshold and stop with corn monoculture to go to organic. It's a lifetime of investment, a lifetime of practices, a culture, a method, that has been devoted to this system of monocultures. So it's hard to change overnight. But hey, over the past few years the production is less profitable. So, they think seriously. (Interviewee 11, 2018).

The findings here show that, again, there are advancements through certain actions of the Transition yet hurdles remain. For example, developing renewable energy in Ungersheim has been a massive success, whereas reductions in individual consumption might still be improved. Similarly, the municipality has completely stopped the use of petrochemicals within municipal gardening and food growing efforts, while local farmers are still using chemical fertilizers and pesticides. In both cases generating awareness of what else might be possible through the actions of the Transition supports the wider transition to alternatives.

Sustainability Principle 3: Physical degradation

The third SP relates to society not systematically increasing degradation by physical means. For the purpose of this research, that was interpreted as reducing land degradation. Seven interviewees discussed land and physical degradation, mentioning the codes *soil regeneration* once, *renaturalization* three times, *conservation* four times, and *smart development* once. However, this theme was only spoken to nine times.

Conservation touched on a variety of different actions in Ungersheim. For example, creating an atlas of biodiversity to support conservation awareness of native fauna and flora, conserving over 350 old varieties of wheat, and striving to maintain a healthy balance of using natural resources without degrading ecosystems. Touching on the final point, the forests on municipal land are used for biomass heating, and are monitored and maintained to ensure forest health and longevity.

Renaturalization related primarily to Ungersheim, a former mining village, restoring old mining sites to natural ecosystems. However, it was noted that with corn monoculture still dominating much of the land around the village, less land is available to renaturalization. “Half of the land can be returned to the forest, something like that. But actually, it is not what we are doing because it is only corn. Corn is everywhere” (Interviewee 1, 2018). Furthermore, Interviewee

11 considered the conservation and renaturalization efforts to be a failure due to the lack of interest from the vast majority of residents.

The efforts to increase biodiversity is a failure because people are not interested in the restoration of flora and fauna. People are not interested. They do not know that biodiversity is beneficial ... So it's rather a failure. (Interviewee 11, 2018)

The findings from this theme show that considerable efforts are being made to conserve, restore and manage the native ecosystems surrounding Ungersheim. There is a further effort to increase local interest and educate residents on the value and importance of these efforts. That said, much of the land surrounding Ungersheim is occupied by unsustainable agricultural practices making that land unavailable to conservation or restoration efforts.

Sustainability Principle 4: Health

The fourth SP relates to society not subjecting people to structural obstacles to health. For the purpose of this research, that was interpreted as supporting physical, mental, spiritual and economic health. Nine interviewees spoke to this social sustainability aspect related to health. In total, the theme was mentioned nineteen times. The codes discussed were *economic health*, *mental health*, *organic food*, *physical health* and *safe building materials*.

Economic health, mentioned nine times, suggested that there are individual economic benefits to the Transition that increase physical and mental health. For example, the municipal organic market garden “*Le Trefle Rouge*” employs folks who are otherwise unemployed, and, “*Employing staff that have being unemployed for a long time allows them to feel valued and earn a salary*” (Interviewee 4, 2018). In total, with all the Transition actions, “*About 100 jobs have been created since 2011*” (Interviewee 11, 2018), that allows people who otherwise may be unemployed to reintegrate into the workforce, increasing their self-worth, and have more stability.

Mental health, mentioned seven times, referenced different ways in which the Transition improves mental well-being. Examples that emerged from the interviews included having a feeling of personal satisfaction, feeling a sense of belonging within the community as an effect of working together, living next to people with shared values, doing the things one enjoys, and better physical health that supports personal happiness. Interviewee 10 spoke to some of the ways in which the Transition benefits mental well-being: “*I think all the people who engage in the Transition will feel better, whether it is their physical or mental health. We learn to live with less, to depend less on consumerism, we recreate the links with people*” (Interviewee 10, 2018).

Organic food, mentioned five times, was discussed as a health benefit with locally produced food that is 100% organic offered to school children for lunch, providing an example of healthy eating habits to parents as well. “*Trefle Rouge Garden produces meals for the school children. They are organic meals for public health*” (Interviewee 11, 2018). Furthermore, in the survey, when asked if the Transition helps to improve the health of individuals in Ungersheim, nine respondents strongly agreed, six agreed and only one did not agree.

The findings from this theme suggest that the Transition efforts in Ungersheim are improving the overall health and well-being of those actively involved in the initiative as well as those

receiving output of the Transition actions, such as healthy organic meals. From the interviews there are no mentions of violations or obstacles to health.

Sustainability Principle 5: Influence

The fifth SP relates to society not subjecting people to structural obstacles to influence. For the purpose of this research, that was interpreted as supporting participation and influence within the Transition of Ungersheim. Ten interviewees spoke about this theme, mentioned a total of twenty-nine times. The codes related to influence were *participatory democracy*, *active participation*, *citizen autonomy* and *lack of interest*.

Participatory democracy was the most popular code related to influence, mentioned by interviewees fifteen times. The code communicated that citizens are invited to engage and participate in decisions and dialogue related to the affairs of the Transition through public meetings, councils and associations. As explained by Interviewee 4, “*with participatory democracy, we have a good example. Participatory democracy involves the citizen in decisions*” (Interviewee 4, 2018). For some, the openness and emphasis on *participatory democracy* through the municipality represents a gateway into the Transition, as discussed by Interviewee 2:

I was integrated into a participatory council. What was really the first step that led me to the Transition is the focus on participatory democracy by the municipality. It allowed me to meet people, to discuss what was happening in the village and to find something that interested me. (Interviewee 2, 2018).

The next mentioned theme, spoken to seven times, was *active participation* related to being involved in Transition actions. If *participatory democracy* is work with the head, *active participation* is work with the hands. Volunteerism, collective work and shared work amongst neighbours, these actions serve to involve people and build relationships. For example, “*now at the cannery we are a team of seven to eight volunteers. We meet regularly to help wash and dry the vegetables and fill the jars. We have a good little team, we get on well, we laugh, we are there*” (Interviewee 4, 2018).

Simultaneously, there are perceived barriers to influence. It was mentioned four times that citizens could have greater autonomy of the actions, as the Transition is perceived as overly dependent on the municipality and the mayor. An interviewee living in the eco-village, which now functions autonomously, mentioned that, “*all the other actions, the 21 other actions, the political power is still very involved in these projects. They do not yet live in autonomy just with the citizens*” (Interviewee 5, 2018). There is also potentially a *lack of interest* on the part of residents to have any influence on the Transition, as claimed on three occasions.

The findings from this theme show that residents of Ungersheim are able to influence the Transition. This is further supported by the survey, in which ten of fourteen people said that the Transition does offer enough opportunity for people to get involved. However, there is a sense of some obstacles to influence; specifically, a lack of interest on the part of residents and an overdependence on the leadership of the municipality.

Sustainability Principle 6: Competence

The sixth SP relates to society not subjecting people to structural obstacles to competence. For the purpose of this research, that was interpreted as supporting learning and skill development. Again, ten interviewees spoke to competence. In total, it was spoken to twenty-nine times. Codes within this theme were *learning and then sharing with others, learning by doing, exchanging knowledge, ambition to learn, transparency, learning from old practices, self-realization, learning basics, self-reflection, and the need for more competence.*

The codes *learning and sharing with others* and *learning by doing* were mentioned nine times and eight times respectively. Put straightforwardly Interviewee 2 touched on these codes by explaining, “*That right there is a way of learning, there is someone who shows, we learn by doing*” (Interviewee 2, 2018). Given examples of learning by doing and acquiring practical skills related to organic farming, eco-friendly construction and solar installations. Another example, learning how conserve food, by the volunteers described above, the process was very much learning by doing and wanting to share newly acquired skills with others.

After in the cannery it is the same. Me, I'm a secretary. I had no training in food conservation, but we learned together. We experimented, we learned together. I think it's something very important. We also plan to reach out to the people of Ungersheim. If they have a lot of vegetables they can come to us, they can use the facilities we have and we teach them how to do the conservatives. (Interviewee 4, 2018)

The findings from this theme demonstrate that the Transition in Ungersheim is geared towards increasing competence. Out of fifteen respondents, thirteen of the survey respondents agreed or strongly agreed that the Transition increases the skills and competence of residents in Ungersheim; the other two respondents answered neutral.

Sustainability Principle 7: Impartiality

The seventh SP relates to society not subjecting people to structural obstacles to impartiality. For the purpose of this research, that was interpreted as supporting diverse and inclusive involvement within the Transition. Eight out of the eleven interviewees spoke to impartiality, mentioned a total of twenty-two times. The codes were *limitations to inclusivity, reaching out to the community, open to all, inviting non-locals, youth and children, and diversity of opportunities to get involved.*

Limitations to inclusivity, mentioned six times, highlighted the difficulty associated to involving everyone in the Transition. Specifically, certain age groups such as youth and middle-aged people were identified as difficult to involve in the actions. A barrier that was identified, especially in relation to the latter group, is time limitations.

It is clear that people between 35 and 55 years old, most of the time their daily life is organized around their work, their children and their domestic life. It is difficult to find the free time to get involved in citizen projects, and yet it is them that we need most. We must find a way to attract these people. And young people too, which may be easier. (Interviewee 10, 2018)

Another *limitation to inclusivity* may be the leadership of the Transition Initiative. In Ungersheim the mayor and municipal council are important leaders in the movement. While

this has been identified as a strength within the Transition, it may also carry some aspects of impartiality. This idea came up once with Interviewee 10:

So when we are looking for people to participate in an action for example, we come across people who have already been in touch with the mayor for a long time. But maybe there are people who are not in touch with the mayor but who could also get involved. (Interviewee 10, 2018)

Interviewees nonetheless mentioned that the Transition activities are *open to all*, mentioned five times. Anyone and everyone can join. As described by Interviewee 3, “*It is only a choice. The transition is open to everyone. Everyone in this area*” (Interviewee 3, 2018). This desire to involve residents was reinforced by the code *reaching out to the community*, mentioned five times. Volunteers are sought after in Ungersheim to support the Transition and participate in actions, especially those that require labour and are communal projects. Again, an obstacle that was identified is that it consistently seems to be the same people getting involved; the core group of residents that participate in the Transition. Nevertheless, the municipality and Transition practitioners invite participation.

The commune made a call for all volunteers who wanted to come to work on the site [community farm]. There was no problem everyone could come. There was not a prerequisite, you did not have to be registered, everyone could come to work. (Interviewee 2, 2018)

The findings from this theme show that the Transition in Ungersheim is open to everyone, inviting participation to whoever is interested. However, the limitations to inclusivity show that more could be done to actively remove obstacles that might limit the participation of certain folk.

Sustainability Principle 8: Meaning making

The eighth SP relates to society not subjecting people to structural obstacles to meaning making. For the purpose of this research, that was interpreted as supporting residents of Ungersheim to create and increase collective meaning in the community. Eight interviewees spoke to meaning making, mentioned a total of twenty times. Codes within this theme included *community involvement, feeling of belonging, identity, and quality of life*.

Community involvement was mentioned nine times, describing the pride interviewees feel from taking ownership of projects and actions, the value of working with others in community projects to build relationships, and the gift of meeting people one would otherwise not meet. In speaking about getting volunteers involved in a building project of a community center with natural materials, Interviewee 2 share that, “*For me it's a great memory this work and it has helped to build strong relationships between people*” (Interviewee 2, 2018).

Having a *feeling of belonging* was also mentioned six times. Here what was highlighted is that being involved in the Transition offers people a sense of belonging to a community. Within the survey, seven respondents strongly agreed that the Transition helps to create a sense of belonging within Ungersheim, four agreed, two were neutral, and two disagreed. As described by Interviewee 9, “*For people that live in Ungersheim I think the agricultural actions, the cannery, they have a bigger impact related to social behavior. I think maybe it gives the feeling of belonging to a group*” (Interviewee 9, 2018). This also relates to the code *identity*.

I think the local culture is an engine of the Transition. Like any change or achievement, if you do not have a little pride, pride and identity, you cannot do it. Culture, identity, is an engine. ... At the beginning of the film [What are we waiting for?] there is a little boy who says he is proud to live in Ungersheim. That's very important. (Interviewee 8, 2018)

The findings from this theme show that being actively involved in the Transition increases a sense of belonging and community. However, the results are insubstantial to demonstrate that the Transition in Ungersheim creates collective meaning within the village.

3.4 Strategic Guidelines

Strategic guidelines can be used to select actions as part of a plan to move towards a definition of success within a given system. Depending on the context, these guidelines may vary to allow for and inform stepwise progress to success in the longterm. In this research interviewees were asked, *what were the critical factors that allowed for the actions of the Transition to be realized?* From the critical factors, and other relevant responses, suggested codes related to strategic guidelines were deduced.

The theme of *strategic guidelines* was gleaned from nine of the eleven interviewees. It was mentioned thirty-eight times. Codes included *communication strategies, bottom-up and top-down collaboration, showing by example, motivating others through success, leadership, starting small, finding interested parties, and youth.*

Communication strategies was the primary code shared by the interviewees, mentioned eighteen times. Effective communication was seen to both increase awareness of the sustainability challenges facing humanity and to provide Ungersheim as a positive example of what might be possible.

Communication is essential. If we do not communicate about our actions, the general public will never know. Therefore, communication has an educational role, a role of awareness. It is not communication for the sake of communication, but it is communication to arouse commitment and to provoke understanding of the actions taken. (Interviewee 11, 2018)

Bottom-up and top-down collaboration was the second most mention code, discussed six times. The importance of engaging citizens and having municipal support was emphasized. The engagement of the citizens is critical for active participation, for bringing a diversity of ideas and knowledge, and for grassroots involvement. The will of the municipality wields resources and power to support development as well as knowledge and structure. As put by Interviewee 4, *“politicians and citizens must walk together, otherwise it is not possible”* (Interviewee 4, 2018).

Also mention six times was the code *showing by example*. The only way to show the people is by doing it. It was shared that people first want to witness success and then they will follow. Ungersheim is demonstrating how their actions can bring benefits and a better quality of life, then people follow. According to Interviewee 8, *“The essential thing was to have something beautiful to show”* (Interviewee 8, 2018).

The findings of this theme suggest that there may be strategic guidelines that can be gleaned through the narrative of the Transition in Ungersheim. Those guidelines, based on critical factors that allowed for success, may be of benefit to other communities in a similar context. Critical factors and strategic guidelines are further explored in the following discussion.

4. Discussion

The discussion will follow the structure of the five guiding questions that compose the analytical-evaluative framework. The reason for this is threefold. First, following the guiding questions supports the research inquiry of evaluating sustainability success of the Transition in Ungersheim. Discussing *what the impact was on the community [in terms of social sustainability]* and *what was accomplished in terms of [ecological] sustainability* account for both the social and ecological principles of the FSSD definition of sustainability. Hence the questions provide the guidance while the FSSD provides the criteria to assess sustainability success.

The second reason to follow this structure is because one of the intentions of adopting the analytical-evaluative framework was to make this research available for longitudinal studies. As stated by Forrest and Wiek (2014), generating multiple evaluative studies of small-scale community transition initiatives allow for meta-studies that can identify patterns and generalizations across initiatives, beginning to build theory and evidence-informed guidance for practitioners and policy makers. The goal is to derive practical guidelines, gleaning and synthesizing the findings across many case studies (Forrest and Wiek, 2014). The researchers aim to make the narrative of Ungersheim available in the format of the analytical-evaluative framework for such further longitudinal studies.

Finally, the discussion will suggest strategic guidelines that this research proposes were integral to the Transition efforts in Ungersheim. Offering such strategic guidelines may further support the future selection of actions in Ungersheim and may also support the creation of further longitudinal guidelines across many case studies. Here, understanding *what was done, how it was done* and *what were the critical factors* contextualizes the strategic guidelines.

4.1 What was done?

Unique to the Transition Movement, which emphasizes a bottom-up approach to local development through community-led action (Mehmood, 2016), the Transition in Ungersheim began with the leadership of the mayor. As stated in the *system* section of the results, this top-down approach was viewed as an advantage by Rob Hopkins, who in a pre-study interview shared, *“Ungersheim is really inspiring for me since it was led by the mayor. So the mayor initiated it, which was not the original kind of approach. ... He’s been enabling things to happen”* (Hopkins, 2018). Two factors allowed for this approach to be an advantage. First, the mayor was highlighted as a leader with the aspiration to stimulate grassroots change from the top. As identified by Interviewee 5, *“The political power tries to impulse a dynamic to the citizens so that we can face the things to come in the future”* (Interviewee 5, 2018). Second, given the emphasis of participatory democracy in Ungersheim, the mayor is not disconnected from the citizens and is thus able to be in communication and collaboration with people at the grassroots level.

The emergence of Transition actions suggests there was existing awareness of the sustainability challenge within the community, and that, “[the] problems are in fact symptoms of an inherently unsustainable basic design and mode of operation of society” (Broman and Robèrt, 2017). This claim is further supported by the emergence of the *societal critique* theme in the research results, a topic that was not in the research inquiry yet emerged throughout most interviews. For example, the mayor, a former union activist, was long motivated by social and political justice, and two independent farmers in the village were already shifting towards organic and ecological-friendly practices well before the official Transition began. A further example of such awareness came from Interviewee 11:

With the right values we can build the real transition. The energy transition, food transition, the transformation of society. We consider that society, as it functions today, leads us into the wall and leads us into the wall more and more quickly. We are stuck in the politics of the ostrich, with our heads in the sand and we continue to operate as if nothing was wrong. (Interviewee 11, 2018)

It was not until 2011 that the mayor of Ungersheim learned about the Transition Network and the village joined the movement by creating 21 actions for the 21st century: “It was only then, in 2011. But before there was a whole series of work and awareness and already citizen involvement through a participatory council” (Interviewee 11, 2018). While many of the actions were already underway or some completed before 2011, the Transition Movement added value to Ungersheim in two specific ways: first, as a flexible movement with an open definition that could meet the contextual needs of Ungersheim, and second, as a unifying platform to align the actions and communicate to others what was being done.

The lack of a closed definition of the Transition Movement served to support the incorporation of the movement within Ungersheim because the village already had actions in place that were not directly based on the Transition concept. Nonetheless the actions fit the vision of the Transition Movement. The open definition and criteria is quite intentional within the movement to allow for contextual and locally-defined actions and experiments. In a pre-study interview with Feola, an academic researcher on the Transition Movement, it was identified that, “you can adapt to your own situation and pick and choose essentially what you've got the capacity to implement or the interest to implement. There's flexibility in that model” (Feola, 2018). In Ungersheim that meant that the Transition became a unifying platform to align actions into a single plan. With a plan representing a vision and a name representing an international movement, it became much easier to communicate what was happening in Ungersheim.

4.2 How was it done?

As described in the introduction, the notion of community is at the heart of the Transition Movement. An engaged local community is said to be both a prerequisite and a determinant to create a resilient locality (Aiken, 2017). In Ungersheim, the importance of community to the Transition held true. In terms of being a prerequisite, as stated in the *system* section of the results, having a strong social fabric through existing associations was described as a key aspect of Ungersheim that allowed for the Transition to emerge and grow. The strong social fabric also became a determinant of the Transition as *participatory democracy* and *community involvement* were two of the most identified codes within the *system* as key elements of the Transition. That said, community is a broad concept that can hold a variety of different meanings. Going deeper,

the aspect of community that seemed to most support how the Transition was done is collaboration. Within the Transition Movement, collective action is assumed to exist within initiatives as the community is the key agent of change (Hopkins, 2008). That said, collaboration is a characteristic of community engagement that exists at the local level and at other scales. In Ungersheim, collaboration operated both internally and externally.

Internal collaboration took different forms. One collaborative method that was often mentioned throughout the research is participatory democracy, allowing for top-down and bottom-up interaction, planning and decision-making for the Transition. Within this form of engagement were municipal councils, associations and town hall meetings. Another manifestation of internal collaboration was the active participation of volunteers and employees who work in the municipal market gardens, the cannery, or any of the other hands-on actions. Collaboration is also an ethos behind the eco-village prototype in Ungersheim, and the photovoltaic power plant was completed through collaborative financing. Hence it is clear that internal collaboration has been a key component to how many of the actions of the Transition manifested.

External collaboration also played a role supporting the Transition in Ungersheim, especially relating to knowledge exchange, publicity, and resource allocation. It was primarily the municipality that was identified as engaging with outside parties. In terms of resources, higher level government bodies in France have supported Ungersheim with grants to fund or subsidize actions. Connections with other municipalities, other Transition Initiatives, and interested parties have led to knowledge exchange. Another important external collaboration was the creation of the film *Qu'est-ce qu'on Attend*, which brought a lot of attention to Ungersheim and had a direct correlation to the expansion of seventeen more actions. Understanding the value of external collaboration, the municipality is developing an institute to more effectively communicate the Transition to outside parties.

4.3 What was the impact on the community [in terms of social sustainability]?

The research demonstrated that the Transition in Ungersheim has taken steps in supporting the overall progress towards social sustainability within the village. However, the benefits are primarily for those who participate in the Transition actions. What stood out in particular were alignments with the sustainability principles of health and competence within the community. The sustainability principles of influence and impartiality had benefits as well as obstacles. The results were insubstantial to address the impact of the Transition on meaning making.

A spectrum of health-related codes emerged from the interviews such as *economic health*, *mental health* and *physical health*. For example, the Transition in Ungersheim creates employment opportunities that benefit self-worth and increase emotional stability, volunteer opportunities that increase physical activity, and organic food that provides healthy meals to all the schoolchildren of the village. One interviewee went so far as to call the Transition a public health approach (Interviewee 10, 2018). This idea of the Transition as a community health benefit is supported by the literature on the Transition Movement which claims that a post-fossil fuel future can be more healthy, enjoyable and fulfilling than the present (North, 2010).

Moreover, with opportunities for participating in actions and initiatives, the research results show that the Transition in Ungersheim increases the competence of those who get involved. With codes such as *learning and sharing with others*, *learning by doing*, *exchanging knowledge*,

ambition to learn, learning basics, and learning from old practices, it was demonstrated that residents participating in the Transition both want to learn and want to offer learning to others. That said, it is interesting to note that building competence is not the primary focus of most Transition actions, but is rather the result of participating in the actions with others. Many interviewees voiced a deep appreciation to live in a village where there are opportunities to experiment, learn and share. In Ungersheim, a secretary can learn and teach others food preservation, a mayor can become a photovoltaic expert, a retired person can learn natural building techniques, and any citizen can learn to plant, grow and harvest organic vegetables. However, increasing competence is directly correlated to participating within the Transition actions and, as will be discussed in greater detail, participation is limited in the village.

The Transition in Ungersheim has increased the amount of influence residents can have in their village. As previously mentioned, a lot of effort goes into participatory democracy to include a diversity of voices into the decisions of the Transition. For example, there is a wisdom council in Ungersheim that is composed only of elders in the community, as well as a youth council that is composed only of schoolchildren. Both councils are consulted on certain actions and decisions of the Transition to offer their input. Other councils, associations and townhall meetings also create spaces for influence. However, a big limitation to influence the Transition in Ungersheim that was identified is a lack of interest on the part of most residents. As stated in the *system* section of the results, Interviewee 11 estimated that only approximately ten percent of residents are engaged in the Transition actions. That represents a core group of approximately 100 citizens. Only ten to twenty percent of residents are said to be able to explain what the Transition is and to give examples. Yet up to seventy-five percent or more know the Transition exists and do not engage to learn more.

In terms of impartiality, the interviewees shared that everyone is invited to participate in the Transition efforts of Ungersheim. Moreover, there are a variety of actions and volunteer opportunities to accommodate different needs and preferences. For example:

In the actions there is a little bit for everyone. There are those who like to participate with their hands, they come to plant trees or to build. Those who prefer the intellectual side participate in the commissions and councils. Then there are the parents and their children who are involved in the school. (Interviewee 4, 2018)

Nonetheless, *limits to inclusivity* was the most mentioned code within the theme. Specifically, there are age groups that are not active in the Transition. In the *impartiality* section of the results, it was identified that people aged 35-55 do not participate, with the exception of some parents, nor do youth above schoolchildren ages. Furthermore, the prominent role of the mayor and the municipality was suggested to impede some residents from joining. It can be deduced that the Transition can still overcome some subtle obstacles that may limit impartiality.

The research findings were not substantial enough to demonstrate if the Transition has brought common meaning to Ungersheim. That said, aspects of the Transition like community involvement and having a sense of belonging serve to cultivate an identity within the village. Through the increased interaction, collaboration and exchange between residents, the Transition is woven into the culture and identity of Ungersheim. As stated in the results, *“culture and identity is an engine”* (Interviewee 8, 2018). Hence, the Transition is serving the residents of Ungersheim to discover a common identity:

So people have their garden and then they remember their grandmother who use to make conservatives. So there are inevitably things that recover the culture, that make you think back. Otherwise it would be lost, we will not think about it anymore. The garden is a good example too, because if the grandparents or the parents do not transmit their knowledge in the garden to their children, it will be lost. So the fact that the municipality has agricultural land which allows people come to work the land, this is also part of the local culture that otherwise would be lost. We would not cultivate the garden anymore. (Interviewee 4, 2018)

This sense of identity that is created within the village is an intangible aspect of the Transition efforts. In a pre-study interview, when discussing what success in a Transition Initiative looks like, Rob Hopkins shared, “*You know it when you see it, when you feel it, and when you taste it. You can see it moving, there's a particular sort of imaginative energy to it*” (Hopkins, 2018). Further research would be required to gain a deeper understanding into if and how such cultural and identity development influences common meaning within Ungersheim. Furthermore, the code *participatory democracy* within the system and influence themes could also be considered a means to build common, collective meaning making and address potential structural obstacles. Again, further research would be required to understand how participatory democracy could influence common meaning.

Overall, the research suggests that the Transition in Ungersheim is helping to transform the village into a more socially sustainable community as the actions of the Transition progress the community towards aligning to the social sustainability principles. The exception is meaning making as this research is insubstantial to demonstrate alignment. The research of Missimer et al. (2017) on social sustainability suggests that diversity, learning, self-organization, trust, and common meaning are the essential aspects that compose adaptive capacity, allowing social systems to be sustainable over a long period of time. While the Transition is progressing to cultivate such characteristics, it is limited by the lack of participation of residents. This critical limitation is discussed in further detail below.

4.4 What was accomplished in terms of [ecological] sustainability?

The results of the ecological sustainability principles demonstrate that actions taken as part of the Transition in Ungersheim are helping the village to diminish their ecological sustainability violations. The two main sources of ecological violation reductions relate to actions in the fields of agriculture and energy production. Agricultural actions reduce the use of fossil fuels and agrochemicals while energy production reduces dependency on nuclear energy.

One of the three pillars of the Transition action plan is food sovereignty. The intention of this pillar is to stimulate a local food economy in which locally produced organic agriculture is the primary means of nourishing the village. As part of the transition towards food sovereignty, the Transition has supported a number of organic agriculture initiatives. One such initiative is the “*Trefle Rouge*” market garden in which the land is provided by the municipality and the farm operated by an association. Located in the village, “*Trefle Rouge*” distributes a wide variety of fruits and vegetables locally. This short circuit economy reduces residents’ dependence on imported produce and thus fossil fuels from transportation.

The municipality also developed their own community market garden through the Department of Agriculture, one of four municipalities in France with such a department. The garden operates with minimal fossil fuel inputs, for example, by using a horse instead of machine or using smaller hand-held machines instead of big tractors. Furthermore, all organic agriculture activities operate without the use of agrochemicals such as pesticides and fertilizers that are produced with high energy inputs and that pollute the soil and groundwater.

The Transition is also supporting two private farmers that operate independently using ecologically sound agricultural practices. One such farmer grows a diversity of ancient wheat varieties to produce bread locally. This farmer practices no-till and zero input agriculture. As described by Interviewee 8 in the *sustainability principle 1* section of the results, this agricultural practice increases yields by twelve compared to conventional farming and decreases fossil fuel consumption by three. The farmer is thus able to operate with less land while still being profitable, which is typically not possible for conventional farms. Nevertheless, intensive industrial agriculture is a major violator of the ecological sustainability principles in Ungersheim. As stated by Interviewee 1, the organic market gardens are, “*a small oasis in the sea of corn*” (Interviewee 1, 2018).

The second main reduction of ecological violations relate to the production of renewable energy. Again, another pillar of the Transition action plan is energy independence. Ungersheim developed the largest photovoltaic power plant the region of Alsace on the land of a closed potassium mine. Beyond producing energy for approximately 10,000 residents, the power plant serves as a metaphor for the transition: transitioning from a mining village to one producing renewable energy for a sustainable future. The municipality also installed onsite solar panels on four municipal buildings and a wood boiler that heats seven municipal buildings. A sustainability limitation of using solar energy is the lithium and other precious metals that are required to construct the panels.

While the Transition in Ungersheim is making progress in terms of substituting non-renewable energy for renewable energy, there are still advancements to be made in reducing energy consumption. As stated by Interviewee 2, “*the best energy is that which we don’t consume*” (Interviewee 2, 2018). The municipality is striving to reduce energy consumption where it can; for example, increasing the efficiency of the public lighting system and retrofitting municipal buildings. For private households, there is an association within the Transition that focuses on raising awareness within the village of how and why to consume less energy, as well as how and why to produce solar energy.

Conservation and ecological restoration are also important actions that progress Ungersheim toward alignment with the ecological SPs. The Transition in Ungersheim created an atlas of biodiversity to educate and increase awareness of native fauna and flora in the bioregion. They restored ten hectares of extractive industrial wasteland from potassium mining to natural forest biome, as well as created an awareness trail through the site. The biomass heater uses wood from the municipal forests, which are managed and maintained for longevity. Finally, as a new action, the Transition is working on a park in the village center with the aim of having more nature and space for biodiversity. Still, with all the efforts around conservation and raising awareness, as stated by Interviewee 11 in *sustainability principle 3* results, there are difficulties to interest people on the restoration and protection of native fauna and flora.

While progress is being made with the above Transition actions, Ungersheim nonetheless remains a village that operates within the structures of an unsustainability society and thus

violates the ecological SPs through everyday actions. For example, most residents in Ungersheim commute to work outside of the village. Only a few opt to commute by bicycle and train. Moreover, the agricultural practices surrounding Ungersheim contribute to groundwater pollution, loss of biodiversity, and fossil fuel dependency through the industrial production of monoculture corn. Clearly improvements are being made towards ecological sustainability within Ungersheim, and more work is left to be done.

4.5 What were the critical factors?

In one of the few academic research studies examining success within the Transition Movement, Feola and Nunes (2014) uncovered that the most common self-defined determinant of success across many Transition Initiatives is community engagement. Interviewee 11 echoes a similar perspective when stating that there is not enough participation within the Transition in Ungersheim to be considered a success: *“In general, I do not consider [the Transition] a success. Only 5% to 10% have already engaged in one action or another of the transition. So it's not a success. Success is 15% to 20% of residents involved in the Transition”* (Interviewee 11, 2018). Therefore, it is accepted that participation is an overarching critical factor that determines success in both Ungersheim and Transition Initiatives in general. For example, the results demonstrate that participation in the Transition advanced social sustainability by increasing benefits to health, influence, competence, impartiality and meaning making. Moreover, many of the ecological sustainability violations relate to individual behaviour choices. Participating in the Transition can increase personal awareness and influence more sustainable choices. What is important then is to ensure that obstacles to participation within the Transition activities are limited.

Nevertheless, the results suggest that there are identifiable challenges to increasing participation in the Transition. The code *challenges to increase community involvement* within the *system* section of the results highlighted three major challenges to participation: a lack of awareness regarding the sustainability challenges facing humanity and the attempted solutions of the Transition efforts, the interpersonal challenges of collaboration and overcoming individualism, and overcoming a fear of change. Interestingly, lack of awareness and individualism were also highlighted in the *societal critique* section of the results, and a fear of change was discussed within the *resistance to Transition* section. Therefore, this research considers those three challenges as the identified obstacles to increase participation and progress sustainability further in Ungersheim. The following critical factors help to address these challenges and promote the sustainability efforts of the Transition.

The Transition concept was a critical factor to the narrative of Ungersheim because it provided the story of an international movement with a positive vision of the future that the village could adopt to create its own story of Transition. The *21 actions for the 21st Century* all fall under the umbrella of the Transition concept. As explained by Interviewee 4, *“I think it [the Transition] gave us quite another vision of the future that is much more reassuring, and therefore it makes you want to get involved and engage”* (Interviewee 4, 2018). At a time when the future pathway toward a sustainable society is so uncertain, the Transition concept can serve as a lighthouse in the fog; it is a positive story in a world that lacks stories and inspiration. In sharing his ideal for the Transition, Rob Hopkins stated, *“The ideal of what Transition becomes is that it becomes like the new story of a place. It becomes the story that the place tells about itself”* (Hopkins, 2018). In Ungersheim the Transition story is being created and used to increase awareness and

citizen engagement. Therefore, the Transition concept serves an inspirational tool to create a narrative for transformation.

While this narrative has increased internal awareness, publicity has been a critical factor for Ungersheim to increase the external awareness of the Transition. Here being a part of the Transition Movement is favourable as Ungersheim was featured in the *Stories of Transition* section of the Transition Network website and in the book “*21 Stories of Transition*”, authored by Rob Hopkins and published by the Transition Network as a contribution to COP21. Furthermore, a documentary on Transition Ungersheim was created titled “*Qu’est-ce-qu’on attend?*” [What are we waiting for?]. The popularity of the documentary has led to increased exposure and collaboration with external organizations and institutions. Having a story helped to stimulate publicity and publicity has then helped to further the story of the Transition.

Participatory democracy is a critical factor to overcome individualism, stimulate collaboration, and potentially help to build common meaning. Mentioned through the research, participatory democracy is a guiding method within the Transition to tap into a diversity of voices to make the wisest decisions for the village. As described by Interviewee 11, “*The transition takes into account the human side, the collective side, the side of the collective power. The whole aspect of the individual genius, it must be transformed into collective genius*” (Interviewee 11, 2018). Diversity is a key aspect of creating a resilient community and, “*The Transition process offers a solutions-focused approach by working together to tap into the collective genius of a community*” (Hopkins, 2008, 134). Within Ungersheim participatory democracy taps into collective genius effectively by stimulating top-down and bottom-up collaboration, another critical factor of the Transition.

As described earlier in the discussion, the value of the top-down approach in Ungersheim was that the mayor is passionate to stimulate grassroots action while having the power and political will to allocate resources towards Transition actions. In the results, the *political will* of the municipality was the most spoken element of the *system*. Simply put, and as many of the interviewees suggested, the Transition in Ungersheim would not exist without the drive and initiative of the mayor:

I think we were fortunate to have the mayor who has such a drive. The image he gives is that of a steamroller. He always has ideas and he will go to the end, he will do everything that it takes to get there. There are not a lot of leaders like that, even in France. I think that's what made the difference in the beginning. (Interviewee 2, 2018)

Yet, without the support and participation of residents, most actions of the Transition could not be realized. Also stated in the beginning of this section, bottom-up participation is crucial to success. A small-scale community transition is difficult without the community. Therefore, the top-down and bottom-up collaboration of the municipality and residents of Ungersheim allows for collaboration and collective genius to harness the full capacity of the village.

To increase the bottom-up participation, the Transition must also be able to overcome the resistance to change that was identified in the research. To overcome resistance, the Transition in Ungersheim strives to demonstrate positive and visible outcomes from their actions. The examples serve to influence participation and further action. For example, as stated in the *sustainability principle 2* section of the results, Interviewee 11 claims that the conventional farmers in Ungersheim are becoming increasingly curious about the viability of alternative farming practices as a result of observing the organic farming actions within the Transition. To

be able to keep people motivated, to gain more support, and to be able to receive investments, there is a need to demonstrate success, either small or big.

In the *resistance to Transition* section of the results, the most mentioned resistance related to the perceived lack of power and finances of grassroots movements. Gaining access to resources and demonstrating the financial viability of the actions is thus crucial to overcome resistance. In Ungersheim, demonstrating success has directly led to greater access to capital. Interviewee 11 explains how the Transition is increasing capital for the municipality:

It happens that there is a [funding] program of the state, the Territories Positive Energy, and that at some point the film [Qu'est qu'on attend?] came out. The ministry took notice. ... so they solicited us very quickly to set up a subsidy program. Because we were already virtuous, because we already had exemplary actions, we were retained. Voila, we were asked. (Interviewee 11, 2018)

Therefore, having access to resources is a critical factor that helps to demonstrate the Transition is not only possible, it can be done.

With participation identified as a crucial determinant to success, there are three challenges that emerged in the research which hinder participation: a lack of resident awareness, individualism, and a resistance to change. The critical factors described above are identified as what has worked in the favour of the Transition in Ungersheim thus far. From these critical factors, the research suggests possible strategic guidelines that might support the continued growth and prominence of the Transition efforts for Ungersheim and possibly other communities.

4.6 Strategic Guidelines

The strategic guidelines suggested by the research emerged from the results and findings; specifically, the challenges and critical factors identified in the research, as demonstrated in *Table 4.1*. It is important to note that the narrative of Ungersheim is a context specific and descriptive account of only one small-scale community transition. The strategic guidelines apply to Ungersheim. It is thus recommended that the strategic guidelines below are used for longitudinal research across community-based transition case studies rather than taken as generalized guidelines that apply to all contexts.

The first suggested strategic guideline is to ensure the actions of the Transition tell a story that inspires others. There is a proverb: *If you say an opinion, it creates a wall. If you tell a story, it creates a bridge*. Here the guideline relates to focusing on the possibilities of what could be achieved through community-led action by promoting a positive, solutions-focused vision of a sustainable future. In Ungersheim, *“the Transition is now part of the Ungersheim story”* (Interviewee 8, 2018). In a pre-study interview, Tom Hemfrey of the Transition Research Network noted that people are looking for positive solutions to the sustainability challenges that empower them to take meaningful action. *“This is the fertile soil in which Transition landed”* (Hemfrey, 2018). Offering such a story empowers not only residents in the community to act, but society in general. The Transition becomes an example of hope, inspiration, and success.

The second suggested strategic guideline is collaboration. There is a proverb that says: *one can travel faster alone and further together*. Collaboration was noted as the means through which the Transition in Ungersheim manifested. Of interest in the context of Ungersheim is that the collaboration was multi-scalar, functioning both horizontally and vertically, as well as

internally and externally. What is of importance to Ungersheim was bottom-up and top-down collaboration. Ensuring such collaboration is suggested to strengthen the possibility of success.

The third suggested strategic guideline is to be the example. The mayor of Ungersheim is inspired by the Albert Einstein quote, “*Setting an example is not the main means of influencing others, it is the only means*”. By demonstrating many examples of success, the small village of Ungersheim, population 2,000, is now solicited by municipalities nationally and internationally to learn from their efforts. Such exposure increases external support and access to resources. Being the example also increases internal support and participation.

These three strategic guidelines can serve to plan for further action in Ungersheim. The research suggests that by ensuring actions aligned to the story of the Transition in Ungersheim, involved collaboration, and demonstrated an example of the Transition, they helped to encourage success and increase support for the movement. It is recommended that the strategic guidelines are adopted for longitudinal research to test their validity across many case studies to further identify patterns and generalizations across transition initiatives. Such research will help to build theory and evidence-informed guidance for community transition practitioners and policy makers.

Table 4.1: Challenges, Critical factors and Strategic Guidelines of the Transition in Ungersheim

Challenge	Critical Factors	Strategic Guidelines
Lack of awareness	Transition Concept as a vision	Telling a story: <i>If you say an opinion, it creates a wall. If you tell a story, it creates a bridge.</i>
	21 actions for the 21 st Century as a story	
	Publicity as a communication tool	
Individualism	Participatory democracy	Collaboration: <i>Faster alone, further together.</i>
	Top-down and bottom-up collaboration	
Resistance to change	Demonstrating successful actions	Be the example: <i>Setting an example is not the main means of influencing others, it is the only means.</i>
	Access of resources for actions	

5 Conclusion

This thesis began with an introduction to the sustainability challenge, a global complex challenge that is defined by the erratic and turbulent interaction between human society and the biosphere. Due to flaws in the basic design and mode of operation of society, the biosphere is being systematically degraded which is constraining people’s ability to lead prosperous lives and making human society more vulnerable to unforeseen shocks. Before unsustainable practices lead to catastrophe, humanity at large must learn to fundamentally alter its relationship to the planet we all inhabit. Nothing short of unprecedented change is urgently required. That said, given the sustainability challenge is complex in nature, the solutions are unclear, uncertainty is high, and there is no obvious path forward. It is crucial then to discover and assess the potential of sustainable modes of operation for human society.

One such mode comes from the Transition Movement. Inspired by two elements of the sustainability challenge, climate change and peak oil, the Transition Movement emerged as a grassroots environmental and social movement focused on a positive, solutions-focused vision of a post-fossil fuel world. Since the first Transition Initiative in 2006, the movement has spread around the world and gained attention within academic spheres as a potential community-level solution to the sustainability challenge. As suggested by Escobar (2016), the Transition Movement is one of the most concrete proposals for a transition to a sustainable society that truly embodies a radical transformation. However, little evaluative work has actually been conducted to assess Transition Initiatives regarding the effectiveness of their impacts in transitioning towards sustainability.

This study identified the research gap that further evaluative research is required to measure and assess the sustainability impacts of Transition Initiatives. Forrest and Wiek (2014) ask the simple question regarding community Transition Initiatives, “Are they actually increasing the sustainability of the community, and if so, to what is change attributable?” (Forrest and Wiek, 2014, 69). This question offers the starting point of this research. Hence, the purpose of this paper was to conduct an analytical-evaluative case study of a single Transition Initiative to measure and evaluate success. The case study that was selected is Ungersheim, a village in the Alsace region of France.

The research demonstrated that the Transition in Ungersheim is supporting progress towards sustainability, as defined by the FSSD. By conducting actions and activities that are focused on participation and collaboration, most of the social sustainability principles are improved within Ungersheim. In other words, the community increases health, influence, competence, and impartiality for those residents involved in the Transition. The findings of the study are insubstantial to assess alignments to the social sustainability principle of meaning making. Ecological sustainability is also improved through concrete Transition actions, primarily focused on agriculture, energy production, and ecosystem restoration and conservation. It must also be noted that there are limitations to sustainability in Ungersheim, however those limitations are not directly attributed to the Transition. This research does not capture the entire sustainability picture within the village of Ungersheim. As mentioned within the Research Methods chapter, the researchers understand that there are violations and structural obstacles to aligning with the definition of sustainability provided by the FSSD that are not within the scope of this research which focused on the Transition in Ungersheim.

Within the Transition Movement, including the efforts in Ungersheim, community participation has been identified as an overarching determinant to success. Within the Transition in Ungersheim, there are critical factors that have improved participation, increased awareness, and led to greater exposure outside of the village. Those critical factors are: using the Transition concept as a vision, creating a story of the 21 actions for the 21st century, using publicity as a communication tool, participatory democracy as a decision-making tool, top-down and bottom-up collaboration, demonstrating successful actions, and gaining access to resources for actions.

From these critical factors, three suggested strategic guidelines emerged: telling a story through the Transition, multi-scalar collaboration, and being the example. It is recommended that the strategic guidelines are used for longitudinal research across case studies rather than taken as generalized guidelines that apply to all contexts. Knowledge synthesis from many evaluative case studies may allow for meta-studies which can identify patterns and generalizations across transition initiatives, beginning to build theory and evidence-informed guidance for community transition practitioners and policy makers.

Overall, the Transition in Ungersheim is a dynamic effort between the municipality and a core group of citizens. While participation remains a limiting factor within the village, there are nonetheless plenty of visible and concrete actions that bring sustainability improvements. Therefore, Ungersheim is a case study of a Transition Initiative that is taking steps towards sustainability as defined by the FSSD.

References

- Aiken, Gerald. "Community Transitions to Low Carbon Futures in the Transition Towns Network (TTN)." *Geography Compass* 6, no. 2 (February 1, 2012): 89–99. <https://doi.org/10.1111/j.1749-8198.2011.00475.x>.
- . "(Local-) Community for Global Challenges: Carbon Conversations, Transition Towns and Governmental Elisions." *Local Environment* 20, no. 7 (July 3, 2015): 764–81. <https://doi.org/10.1080/13549839.2013.870142>.
- Aiken, Gerald Taylor. "Permaculture and the Social Design of Nature." *Geografiska Annaler: Series B, Human Geography* 99, no. 2 (April 3, 2017): 172–91. <https://doi.org/10.1080/04353684.2017.1315906>.
- . "The Politics of Community: Togetherness, Transition and Post-Politics." *Environment and Planning A: Economy and Space* 49, no. 10 (October 1, 2017): 2383–2401. <https://doi.org/10.1177/0308518X17724443>.
- Audet, René. "Transition as Discourse." *International Journal of Sustainable Development* 19, no. 4 (January 1, 2016): 365–82. <https://doi.org/10.1504/IJSD.2016.080512>.
- Barr, Stewart, and Justin Pollard. "Geographies of Transition: Narrating Environmental Activism in an Age of Climate Change and 'Peak Oil.'" *Environment and Planning A: Economy and Space* 49, no. 1 (January 1, 2017): 47–64. <https://doi.org/10.1177/0308518X16663205>.
- Bay, Uschi. "Transition Town Initiatives Promoting Transformational Community Change In Tackling Peak Oil And Climate Change Challenges." *Australian Social Work* 66, no. 2 (June 2013): 171–86. <https://doi.org/10.1080/0312407X.2013.781201>.
- Boudinot, F. Garrett, and Todd LeVasseur. "'Grow the Scorched Ground Green': Values and Ethics in the Transition Movement." *Journal for the Study of Religion, Nature & Culture* 10, no. 3 (2016): 379–404.
- Broman, Göran Ingvär, and Karl-Henrik Robèrt. "A Framework for Strategic Sustainable Development." *Journal of Cleaner Production, Systemic Leadership towards Sustainability*, 140 (January 1, 2017): 17–31. <https://doi.org/10.1016/j.jclepro.2015.10.121>.
- Brown, Gavin, Peter Kraftl, Jenny Pickerill, and Caroline Upton. "Holding the Future Together: Towards a Theorisation of the Spaces and Times of Transition." *Environment and Planning A: Economy and Space* 44, no. 7 (July 1, 2012): 1607–23. <https://doi.org/10.1068/a44608>.
- Caniglia, Guido, Niko Schöpke, Daniel J. Lang, David J. Abson, Christopher Luederitz, Arnim Wiek, Manfred D. Laubichler, Fabienne Gralla, and Henrik von Wehrden. "Experiments and Evidence in Sustainability Science: A Typology." *Journal of Cleaner Production* 169 (December 2017): 39–47. <https://doi.org/10.1016/j.jclepro.2017.05.164>.

- Chen, Huey T. “Interfacing Theories of Program with Theories of Evaluation for Advancing Evaluation Practice: Reductionism, Systems Thinking, and Pragmatic Synthesis.” *Evaluation and Program Planning* 59 (December 2016): 109–18. <https://doi.org/10.1016/j.evalprogplan.2016.05.012>.
- Commune d’Ungersheim. “Ungersheim Village En Transition: Initiatives Pour Le Développement d’une Économie Locale et Fraternelle.” mairie-ungersheim.fr, 2015.
- Cook Jhon, Consensus on consensus: a synthesis of consensus estimates on human-caused global warming, *Environmental Research Letters*, 2016
- D. Kiron. “Sustainability Nears a Tipping Point.” *Strategic Direction* 28, no. 7 (May 18, 2012). <https://doi.org/10.1108/sd.2012.05628gaa.012>.
- Escobar, Arturo. “Degrowth, Postdevelopment, and Transitions: A Preliminary Conversation.” *Sustainability Science* 10, no. 3 (July 1, 2015): 451–62. <https://doi.org/10.1007/s11625-015-0297-5>.
- Exploratory Research*. 2455 Teller Road, Thousand Oaks California 91320 United States: SAGE Publications, Inc., 2008. <https://doi.org/10.4135/9781412963909.n166>.
- Feola, Giuseppe, and Mina Rose Him. “The Diffusion of the Transition Network in Four European Countries.” *Environment and Planning A: Economy and Space* 48, no. 11 (November 1, 2016): 2112–15. <https://doi.org/10.1177/0308518X16630989>.
- Feola, Giuseppe, and Richard Nunes. “Success and Failure of Grassroots Innovations for Addressing Climate Change: The Case of the Transition Movement.” *Global Environmental Change* 24 (January 2014): 232–50. <https://doi.org/10.1016/j.gloenvcha.2013.11.011>.
- Fernandes-Jesus, Maria, Anabela Carvalho, Lúcia Fernandes, and Sofia Bento. “Community Engagement in the Transition Movement: Views and Practices in Portuguese Initiatives.” *Local Environment* 22, no. 12 (December 2, 2017): 1546–62. <https://doi.org/10.1080/13549839.2017.1379477>.
- Forrest, Nigel, and Arnim Wiek. “Learning from Success—Toward Evidence-Informed Sustainability Transitions in Communities.” *Environmental Innovation and Societal Transitions* 12 (September 2014): 66–88. <https://doi.org/10.1016/j.eist.2014.01.003>.
- . “Success Factors and Strategies for Sustainability Transitions of Small-Scale Communities – Evidence from a Cross-Case Analysis.” *Environmental Innovation and Societal Transitions* 17 (December 2015): 22–40. <https://doi.org/10.1016/j.eist.2015.05.005>.
- Funtowicz, S. O., and J. R. Ravetz. “Science for the Post-Normal Age.” *Futures* 25, no. 7 (1993): 739–55.
- Göpel, Maja. “Shedding Some Light on the Invisible: The Transformative Power of Paradigm Shifts.” In *Resilience, Community Action and Societal Transformation: People, Place, Practice, Power, Politics and Possibility in Transition*, 113–40. East Meon, United Kingdom: Permanent Publications, 2017.

- Grossmann, Mena, and Emily Creamer. "Assessing Diversity and Inclusivity within the Transition Movement: An Urban Case Study." *Environmental Politics* 26, no. 1 (January 2, 2017): 161–82. <https://doi.org/10.1080/09644016.2016.1232522>.
- Hajer, Maarten, and Wytske Versteeg. "A Decade of Discourse Analysis of Environmental Politics: Achievements, Challenges, Perspectives." *Journal of Environmental Policy & Planning* 7, no. 3 (September 1, 2005): 175–84. <https://doi.org/10.1080/15239080500339646>.
- Hardy, R. Dean, and Bryan L. Nuse. "Global Sea-Level Rise: Weighing Country Responsibility and Risk." *Climatic Change* 137, no. 3–4 (August 1, 2016): 333–45. <https://doi.org/10.1007/s10584-016-1703-4>.
- Hartman, Cathy L., Peter S. Hofman, and Edwin R. Stafford. "Partnerships: A Path to Sustainability." *Business Strategy and the Environment* 8, no. 5 (September 1999): 255–66. [https://doi.org/10.1002/\(SICI\)1099-0836\(199909/10\)8:5<255::AID-BSE214>3.0.CO;2-O](https://doi.org/10.1002/(SICI)1099-0836(199909/10)8:5<255::AID-BSE214>3.0.CO;2-O).
- Hjerpe, Mattias, Erik Glaas, and Paul Fenton. "The Role of Knowledge in Climate Transition and Transformation Literatures." *Current Opinion in Environmental Sustainability*, Part A: Environmental change issues • Part B: Open Issue, Part III, 29 (December 1, 2017): 26–31. <https://doi.org/10.1016/j.cosust.2017.10.002>.
- Hjorth, Peder, and Ali Bagheri. "Navigating towards Sustainable Development: A System Dynamics Approach." *Futures* 38, no. 1 (February 1, 2006): 74–92. <https://doi.org/10.1016/j.futures.2005.04.005>.
- Hopkins, Rob. *The Transition Companion: Making Your Community More Resilient in Uncertain Times*. White River Junction, Vermont: Chelsea Green Publishing, 2011.
- . *The Transition Handbook: From Oil Dependency to Local Resilience*. Totnes, UK: Green, 2008.
- Horst W. J. Rittel, and Melvin M. Webber. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4, no. 2 (June 1973): 155–69.
- International Energy Agency, CO2 emissions from fuel combustion: Overview, 2017, <https://www.iea.org/publications/freepublications/publication/CO2EmissionsfromFuelCombustionHighlights2017.pdf>
- IPCC, Climate Change 2014, Synthesis Report, Summary for Policy Makers. http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf
- IPCC, 2014: Victor D. G., D. Zhou, E. H. M. Ahmed, P. K. Dadhich, J. G. J. Olivier, H-H. Rogner, K. Sheikho, and M. Yamaguchi, 2014: Introductory Chapter. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S.

Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter01_FINAL.pdf

- Kahane, Adam. *Power and Love: A Theory and Practice of Social Change*. San Francisco, CA: Berrett-Koehler Publishers, 2010.
- Lang, Daniel J., Arnim Wiek, Matthias Bergmann, Michael Stauffacher, Pim Martens, Peter Moll, Mark Swilling, and Christopher J. Thomas. “Transdisciplinary Research in Sustainability Science: Practice, Principles, and Challenges.” *Sustainability Science* 7, no. 1 (February 1, 2012): 25–43. <https://doi.org/10.1007/s11625-011-0149-x>.
- Luederitz, Christopher, David J. Abson, René Audet, and Daniel J. Lang. “Many Pathways toward Sustainability: Not Conflict but Co-Learning between Transition Narratives.” *Sustainability Science* 12, no. 3 (May 1, 2017): 393–407. <https://doi.org/10.1007/s11625-016-0414-0>.
- Luederitz, Christopher, Niko Schöpke, Arnim Wiek, Daniel J. Lang, Matthias Bergmann, Joannette J. Bos, Sarah Burch, et al. “Learning through Evaluation – A Tentative Evaluative Scheme for Sustainability Transition Experiments.” *Journal of Cleaner Production* 169 (December 2017): 61–76. <https://doi.org/10.1016/j.jclepro.2016.09.005>.
- Mälgård, Miina, Nikolai Bay-Mortensen, Beata Bedkowska, Frederik N. Hansen, Marco Schow, Amalie A. Thomsen, and Agnieszka D. Hunka. “Environmental Awareness, the Transition Movement, and Place: Den Selvforsynende Landsby, a Danish Transition Initiative.” *Geoforum* 57 (November 2014): 40–47. <https://doi.org/10.1016/j.geoforum.2014.08.009>.
- Mehlman Marilyn, Mc Laren Nadia and Pometun Olena, “Learning to Live Sustainably”, Global Environmental Research, 2010.
- Mehmood, Abid. “Of Resilient Places: Planning for Urban Resilience.” *European Planning Studies* 24, no. 2 (February 2016): 407–19. <https://doi.org/10.1080/09654313.2015.1082980>.
- Missimer, Merlina, Karl-Henrik Robèrt, and Göran Broman. “A Strategic Approach to Social Sustainability – Part 1: Exploring the Social System.” *Journal of Cleaner Production, Systematic Leadership towards Sustainability*, 140 (January 1, 2017): 32–41. <https://doi.org/10.1016/j.jclepro.2016.03.170>.
- Nicolosi, Emily, and Giuseppe Feola. “Transition in Place: Dynamics, Possibilities, and Constraints.” *Geoforum* 76 (November 2016): 153–63. <https://doi.org/10.1016/j.geoforum.2016.09.017>.
- North, Peter. “Eco-Localisation as a Progressive Response to Peak Oil and Climate Change – A Sympathetic Critique.” *Geoforum, Themed Issue: Geographies of Peak Oil*, 41, no. 4 (July 1, 2010): 585–94. <https://doi.org/10.1016/j.geoforum.2009.04.013>.
- Power, Clare. “The Integrity of Process: Is Inner Transition Sufficient?” *Journal of Social and*

- Political Psychology* 4, no. 1 (May 1, 2016): 347–63.
- Reeves, Andrew, Mark Lemon, and Diana Cook. “Jump-Starting Transition? Catalysing Grassroots Action on Climate Change.” *Energy Efficiency* 7, no. 1 (February 1, 2014): 115–32. <https://doi.org/10.1007/s12053-013-9212-z>.
- Rittel Horst and Webber Melvin, “Dilemmas in a General Theory of Planning”, *Policy Sciences* 4, (1973): 155-169.
- Rockström, Johan. “A Safe Operating Space for Humanity.” *Nature* 461, no. 7263 (September 24, 2009): 472–75. <https://doi.org/10.1038/461472a>.
- Root, Terry L., Jeff T. Price, Kimberly R. Hall, Stephen H. Schneider, Cynthia Rosenzweig, and J. Alan Pounds. “Fingerprints of Global Warming on Wild Animals and Plants.” *Nature* 421, no. 6918 (January 2003): 57–60. <https://doi.org/10.1038/nature01333>.
- Savin-Baden, Maggi, and Claire Howell Major. *Qualitative Research: The Essential Guide to Theory and Practice*. New York, NY: Routledge, 2013.
- Steffen, Will, Åsa Persson, Lisa Deutsch, Jan Zalasiewicz, Mark Williams, Katherine Richardson, Carole Crumley, et al. “The Anthropocene: From Global Change to Planetary Stewardship.” *AMBIO* 40, no. 7 (November 1, 2011): 739. <https://doi.org/10.1007/s13280-011-0185-x>.
- Transition Network. “The Essential Guide to Doing Transition: Getting Transition Started in Your Street, Community, Town or Organisation.” Transition Network, 2016.
- . “Transition Network | Transition Towns | The Circular Economy.” Transition Network. Accessed March 11, 2018. <https://transitionnetwork.org/>.
- United Nations Report, World Economic and Social Survey 2013, Department of Economic and Social Affairs, United Nations Publication.
- <https://sustainabledevelopment.un.org/content/documents/2843WESS2013.pdf>
- Ward, Fiona. “Totnes & District Local Economic Blueprint.” Reconomy.Org, 2013.
- Worldwatch Institute. *State of the World 2013: Is Sustainability Still Possible?* Washington, D.C.: Island Press, 2013. <http://www.worldwatch.org/bookstore/publication/state-world-2013-sustainability-still-possible>.

Appendix 1: Transition Ungersheim's 21 actions for the 21st Century

INTELLECTUAL AUTONOMY

- 1) Citizen engagement (beginning February 2009): the cornerstone of the municipal politics that gives meaning to the actions and builds the social fabric of the village.
- 2) Promoting fair business: actions include renewing the national title of "Territoire de commerce équitable" [Territory of fair business/trade] and the annual organic-fair trade festival titled "Organic Ungersheim".
- 3) Fight world hunger and promote peace in the world by joining an international network of municipalities and citizens of the world.
- 4) Organizing a citizen forum and municipal council for the closure of Fessenheim (a nuclear power plant 20km from Ungersheim): "Building a renewable future to get out of nuclear power"
- 5) Creation of a local currency: "Le Radis" [The Radish]
- 6) Creation of a *Communal Atlas of Biodiversity* listing all species of fauna and flora within the region of the municipality.
- 7) Ecosystem restoration: Restoring 10 hectares of extractive industrial wasteland from potash mining to natural forest biome, as well as the creation of an awareness trail through the site regarding the Transition in Ungersheim.

ENERGY INDEPENDENCE

- 8) Installation of solar thermal system (120 m² solar panel) on the roof of the swimming pool (1999).
- 9) Construction of a 540kw wood boiler, supplying heat to seven municipality buildings including the swimming pool.
- 10) Implementation of the largest solar power station in Alsace, Helio Parc 68, initiated by the municipality of Ungersheim on an industrial wasteland from potash mining.
- 11) Public lighting: 40% energy reduction by dimmers and LED lighting.
- 12) Energy savings: conducting an energy diagnostic campaign for public buildings and implementing energy saving recommendations; launching an energy saving challenge for the local schools and associations; and setting up a public-private photovoltaic development incentive campaign.
- 13) Construction of passive houses within the development of an eco-village, Le Champré, in the municipality.
- 14) Total removal of chemical pesticides and fertilizers for municipal gardens, green spaces and sports fields (since 2006). Ungersheim has received a distinction by the Department of Water as a "Nature Municipality" for its zero-pesticide and fertilizer policy.
- 15) The replacement of cleaning products that incorporate petrochemicals with a certified range of ecological and organic cleaning products (since 2008).
- 16) Purchase of a roadster horse named *Richaleau* (in 2008) for transporting children to and from school and to work in the municipal vegetable gardens, as well as the acquisition of an electric utility vehicle.

FOOD SOVERIEGNTY

17) The local elementary school receives catering of 100% organic lunches and snacks for every student, every day of the week, great tasting meals guaranteed (since April 2009). The vegetables are primarily grown within the municipality market gardens.

18) The creation of an organic market garden on 8 hectares of municipal land which produce 64 varieties of vegetables, providing 250 produce boxes for local families each week, and which runs stalls at five different markets weekly.

19) Development of a cannery in the municipal sports hall (operational since June 2015).

20) Construction of an industrial collective kitchen using organic products and food only, organic-certified at Level 3, for school meals (operational since September 2014).

21) The construction of a municipal farm building and a community centre for nature and culture (construction beginning May 2015).

(Commune d'Ungersheim, 2015)

Appendix 2: Description of Interviewees, reference group.

Interviewee Rob Hopkins	Rob Hopkins is the founder of the Transition Movement. He is an active writer and an activist on environmental issues.
Interviewee Tom Henfrey	Tom Henfrey is a senior researcher at the Schumacher Institute for Sustainable Systems in Bristol. He is part of the Transition Research Network and is an elected council member of Ecolise.
Interviewee Ben Brangwyn	Ben Brangwyn is one of the co-founders of the Transition Network and the international development coordinator in the same organization.
Interviewee Giuseppe Feola	Giuseppe Feola is an assistant Professor of Social Change for Sustainability in the Copernicus Institute of sustainable Development at Utrecht University. As a researcher in social-ecological processes and grassroots movements, Feola has written several papers on the topic.

Appendix 3: A description of each interview participant's role in the Transition Ungersheim

Interview participant code name	Description of role in Transition Ungersheim
Interviewee 1	Working with municipal agricultural to provide organic vegetables for the citizens of Ungersheim. New to Ungersheim, having recently moved for the position.
Interviewee 2	An active citizen of Ungersheim, engage in a number of Transition associations, commissions and works as an active volunteer in a number of projects.
Interviewee 3	A farmer who uses a closed-loop system of animal husbandry, growing the animal feed, raising the animals, slaughtering them and selling the meat locally. The methods align to the values of the Transition Movement.
Interviewee 4	A long-time employee of the municipality, actively engaged in the Transition Movement since the beginning.
Interviewee 5	A resident of an eco-housing project in Ungersheim developed as part of the Transition. (*interviewee 5 and 6 were interviewed together)
Interviewee 6	A resident of an eco-housing project in Ungersheim developed as part of the Transition. (*interviewee 5 and 6 were interviewed together)
Interviewee 7	An active citizen of Ungersheim, engage in a number of Transition associations, commissions and works as an active volunteer in a number of projects.
Interviewee 8	A farmer cultivating pre-industrial varieties of wheat, using organic and no-till farmer techniques.
Interviewee 9	A resident of a neighbouring town, nonetheless actively engaged in the Transition in a leadership role with the photovoltaic power station.
Interviewee 10	An former employee of municipal agricultural, now using municipal land for an independent permaculture project to cultivate organic food with zero use of fossil fuels.
Interviewee 11	The founder and active leader of the Transition and long-time mayor of Ungersheim.

Appendix 4: Question of interviews in Ungersheim

Guidelines for opening the interviews:

- Appreciation for sharing their time with us.
- Compliment the community and share our inspiration.
- Give a little background of the project.
- Reminder about the recording and transcriptions.

SYSTEM

What is your involvement with the Transition? Why did you get involved?

How do you define the Transition within Ungersheim?

What does this pillar mean for you?

Who is involved in the pillar?

Being involved in the Transition has increased your awareness of social and ecological issues that society is facing? How?

SUCCESS

**3 pillars: Food sovereignty, Energy Independence, Intellectual Autonomy
Community**

SP1

How is your pillar dependent on fossil fuels and/or mined minerals?

How do the actions of your pillar reduce this dependency?

SP2

How does your pillar contribute to air, water and soil pollution and waste?

How do the actions of your pillar reduce these pollutions?

SP3

How does your pillar depend on the exploitation of natural resources?

Est ce que la communauté est dépendante de l'exploitation de ressources naturelles par exemple (la forêt, la rivière, etc)

How do the actions reduce the exploitation?

SP4 (Health)

Before the Transition, were there barriers to citizens and groups having healthy lives (mentally, emotionally, physically)?

Were there situations or activities in the community that affected people physically, emotionally and/or mentally?

Has this changed since the Transition began? If so, how?

How have the actions of your pillar contributed to better health for individuals and groups in the community?

SP5 (Influence)

Before the Transition, did citizens face any barriers to influence decisions made in the community?

How has that changed since the Transition?

How has your pillar contributed to an increase of citizen influence and participation?
How do you make decisions within project?
How do citizens within the community have influence on the project?

SP6 (Competence)

Before the Transition, were there barriers for citizens or groups of people to get new knowledge, learn new skills, and acquire new abilities?
How has that changed since the Transition?
How has your pillar contributed to an increase of citizen competence and learning?
How does the project educate the community?

SP7 (Impartiality)

Before the Transition, were there barriers for people from different backgrounds (ethnicity, age, sex, disability) to be involved in the community?
How has that changed since the Transition?
How has your pillar contributed to an increase in diversity of citizen engagement?
Does this project have regulations/conditions to participate?
Does this project include participants of different backgrounds (ethnicity, age, sex, disability)?
Does this project promote equality and integration of different people from the community?

SP8 (Meaning-making)

How has the local culture changed over time?
How has Transition played a role in that?
How does this pillar promote a sense of purpose for people in the community?
What does this project mean for the community?

ACTIONS

Can you give us an example of the project flow of one action?
Do you have any future action or plans for this pillar?
On a personal level do you think your awareness of the system and lifestyle has changed since your involvement in the Transition?

STRATEGIC GUIDELINES

Are you happy/satisfied to be involved in this project? If so, why?
What were the critical factors that helped the realization of the project?

Is there anything else that you would like to add?

Appendix 5: Survey Question

Hello,

We are sending this survey from Sweden to conduct research for our Master's thesis in Sustainable Development. We are Keigo Arai from Japan, Fernanda Pia from Costa Rica and Cisco Armstrong from Canada. Our research focuses on Ungersheim's transition to a sustainable and resilient future. We are very interested in your community and would be very grateful if you would agree to take 10 minutes to complete the survey below.

Thank you very much.

Keigo, Fernanda, Cisco

Questions

General information

Male/Female

Age range

Occupation

Awareness of the Transition in Ungersheim

Are you originally from Ungersheim?

YES /NO

If you move to Ungersheim why and when did you move here?

Do you know about the Transition Movement in Ungersheim?

YES/ NO

Have you heard of the 21 actions of this Transition?

YES /NO

If yes, can you describe/mention a few of the activities of the Transition?

Acceptance of the Transition in Ungersheim

Do you know what the Transition groups want to achieve?

YES/ NO

If yes, can you briefly explain what you think it wants to achieve.

Do you support the Ungersheim Transition?

YES/ NO /NEUTRAL

Are you proud of Ungersheim Transition?

YES/ NO /NEUTRAL

Have you been implicated in the creation of the actions of the Transition?
YES /NO

Success of the Transition

Do you think that the Transition offers enough opportunities for people to get involved?
YES /NO/ NOT SURE

Are you today implicated in any of the actions of the Transition?
VERY/ A LITTLE / NO

If yes, explain briefly how.

Why did you decide to get involved in the Transition at Ungersheim?

Have you participated in one of the citizens forum of the Transition?
YES/NO

Have you heard about the local currency called “Le Radis”?
YES/NO

Do you try to buy local fruit and vegetables?
YES/NO

Do you try to buy other products locally?
YES/NO

Do you know how the electricity that you use in your home is produced?
YES/NO

Are you aware on how your household might contribute to water, air and soil pollution?
YES/NO

Do you think the Transition actions improves the individuals abilities, skills or knowledge?
Very strongly agree Agree Neutral Disagree Very strongly
disagree

Do you think the Transition actions improves the community sense of belonging?
Very strongly agree Agree Neutral Disagree Very strongly
disagree

Do you think the Transition actions improves the acceptance of diversity in the community?
Very strongly agree Agree Neutral Disagree Very strongly
disagree

Do you think the Transition actions has helped to improved the individuals health?
Very strongly agree Agree Neutral Disagree Very strongly
disagree

How will you describe Ungersheim contribution to a society more respectful of the natural resources and the human wellbeing since the start of the Transition?

Increase a lot Increase Did not change Decrease Decrease a lot

How will you describe your own contribution to a society more respectful of the natural resources and the human wellbeing since the start of the Transition?

Increase a lot Increase Did not change Decrease Decrease a lot

Closing questions: awareness of sustainability

Has the Transition increase your overall awareness of sustainability?

YES/NO

Has the Transition actions made you more aware of social and ecological issues that society is facing?

YES/NO

Please select one of the below that describes best your knowledge of sustainability.

Expert Knowledgeable Somewhat knowledgeable Not knowledgeable

How important is sustainability for your personal life?

Very important Important Unimportant Very unimportant

Appendix 6: Table of Results

What is the Transition ?		
Code	Frequency in interviews	Summary
<i>Inner change</i>	Mentioned twelve times	The Transition starts individually at the personal level.
<i>A different way of living</i>	Mentioned eleven times	The offering of a new way of living that might be simpler and slower at the same time it will be more enjoyable than today's way of living.
<i>Systems change</i>	Mentioned eight times	The idea that today's structures need to change and that the policies need to incentivize the change.
<i>Building connections</i>	Mentioned seven times	The importance of the link between people and the feeling of connection and learning from each other that makes the change possible.
<i>Autonomy</i>	Mentioned four times	There is an autonomy on what the people or the territory do, but it is not a complete closure, it is just contributing in a more meaningful way to the whole system.
<i>Transition is a slow and ongoing process</i>	Mentioned two times	It is a process that is in constant nourishment and is an everyday walk.
<i>Creating a positive vision of the future</i>	Mentioned one time	It gives possibilities and helps to create the future that we want.

Resistance to the Transition		
Code	Frequency in interviews	Summary
<i>Lack of power and finances</i>	Mentioned five times	Transition is expensive. The balance of power is not stable.
<i>Lack of clarity</i>	Mentioned four times	There is no right definition of Transition.

<i>Transition is going back in time</i>	Mentioned times	two	Some people feel Transition is just stepping back to an old century.
<i>It takes a new generation to change</i>	Mentioned times	one	It really takes time to see the change.
<i>Transition is not degrowth</i>	Mentioned time	one	We must produce less and consume less; idea of perpetual growth.

Societal Critique			
Code	Frequency interviews	in	Summary
<i>Individualistic-consumer society</i>	Mentioned times	eight	In the name of consumption, we keep buying things until individually filled with things. And consuming seems to accelerate the individualistic
<i>Lack of awareness</i>	Mentioned times	eight	People are unconsciously involved in the wrong behavior. One of the reason is distance between people's sense and opportunities to sense it. For example, the distance of power plant would affect on their sense of how they consume. If the distance is very far, people tend to ignore how it is produce.
<i>Globalization</i>	Mentioned times	eight	We can not ignore relationship among Global level. Everything is linked. For example, we can see tomate, which is imported from several countries. In addition, it is cheap. It could influence on people's behavior.
<i>Societal collapse</i>	Mentioned times	five	The society is going to collapse if it keeps going on the same track. Preparation or pulling back is needed to meet harmonious relationship with nature
<i>Political obstacles</i>	Mentioned times	four	Political world is obstacles. Because it is close to the classical economy and classical agriculture.
<i>Waste</i>	Mentioned times	two	Waste is the cost. And waste could turn to be a resource.

<i>GMO Industry</i>	Mentioned times	two	GMO industry threat to farmers, and they tend to abandon their traditional culture.
<i>Addiction to fossil fuels</i>	Mentioned times	two	We are living in highly dependent fossil fuel.
<i>No citizen effort</i>	Mentioned time	one	People rely on the municipality leading.

Personal motivation			
Code	Frequency in interviews	in	Summary
<i>Invest in the future</i>	Mentioned times	four	The need and importance of creating something better for future generations.
<i>Sharing and cooperation</i>	Mentioned times	four	The importance of cooperation and sharing for society's survival.
<i>Passion and personal awareness</i>	Mentioned times	three	Doing something that has personal value and knowing that is the right thing to do.
<i>Environmentalism</i>	Mentioned times	two	The will to protect the environment.
<i>Taking a new direction in life</i>	Mentioned times	two	Transition came with the personal decision to change the course of its personal life.
<i>Begin with yourself</i>	Mentioned times	two	To be able to give the example.
<i>Healthy food</i>	Mentioned times	two	Personal interest to anything related to food and food consumption.
<i>Create a more joyful world</i>	Mentioned time	one	The idea that a slower paced life can be more joyful.
<i>Financial savings</i>	Mentioned time	one	The energy actions can have great financial savings.
<i>Finding a role</i>	Mentioned time	one	Doing its own little piece of action and hoping everyone will find its own role to play.

System		
Code	Frequency in Interviews	Summary
<i>Political will</i>	Mentioned seventeen times	The municipal political structure of Ungersheim is leading the way in the Transition
<i>Participatory democracy</i>	Mentioned eleven times	The local commissions, councils, and associations; the structures of citizen engagement to offer proposals and make decisions in collaboration with the municipality
<i>Interactions beyond Ungersheim</i>	Mentioned eleven times	Being solicited from other municipalities for visits, many requests, exchanges, increased support, people moving to Ungersheim, and becoming know known nationally and internationally with the impact of the film; yet the immediately surrounding region may have more resistance to interacting with Ungersheim.
<i>Community involvement</i>	Mentioned nine times	A core citizen group is involved, people who participate in different projects; volunteerism is important, yet only about 10% of the population are really active.
<i>Challenges to community involved</i>	Mentioned nine times	A lack of awareness of what is going, challenges of interrelations and overcoming individualism, and overcoming fear of change.
<i>Being an example</i>	Mentioned eight times	A strong purpose of the Transition is to lead by example by having so many actions in one small place, demonstrating what is possible.
<i>The role of the mayor</i>	Mentioned seven times	The mayor was the catalyst and is the leader of the Transition; he has vision, charisma, desire, fortitude, conviction, and determination.
<i>Overview and narrative</i>	Mentioned six times	The description of the past, present and future of the Transition as described by a leader in the movement.
<i>Skepticism</i>	Mentioned five times	Citizens tend to be skeptical at the beginning of the actions and wait to see that something works, thinking that the actions will fail or are small and not worth all the attention,
<i>Cultural change</i>	Mentioned four times	Subtle change has happened in Ungersheim and the actions of the Transition are complimenting and encouraging more actions.
<i>Benefiting business</i>	Mentioned four times	Businesses involved in the Transition are receiving increased exposure and increased credibility.

<i>Importance of the mentality</i>	Mentioned three times	Awareness can lead to a change in conscience, without conscience there is no action.
<i>Experimentation</i>	Mentioned three times	The village is like a laboratory, open to try new things and experiment.
<i>Financial leverage</i>	Mentioned one time	The village has or accesses the necessary financial capital to support the Transition.

Actions		
Code	Frequency in interviews	Summary
<i>Food action</i>	Mentioned eighteen times	There are many actions that take place under this category. From having a agriculture land farmed by the municipality, the municipality lending land for others to produce organic vegetables, the canning of vegetables, a school canteen that serves organic food. Also vegetarian classes to promote the reduction of meat consumption and the promotion of short circuit food consumption.
<i>Energy infrastructure</i>	Mentioned twelve times	The boiler room for heating municipal buildings, the solar panels for autoconsumption of municipal buildings, the solar panel plant (Helio Parc 68), the creation of the association AMEVU, solar cadastre for all the houses in town and the plan to do a methanisation plant.
<i>Ways of organizing</i>	Mentioned twelve times	Doing list of participants, commissions, councils of wise man and children, creation of the Institute of Transition, organization of conferences and trainings.
<i>Infrastructure development</i>	Mentioned six times	Construction of a new supermarket, power plant, new park in village center.
<i>Citizens: personal action and ways of organizing</i>	Mentioned three times	Citizens participation in program of houses positive energy and citizen participation in the city council and the jury of citizens.
<i>Biodiversity awareness</i>	Mentioned two times	Creation of the Atlas of biodiversity of the territory and the construction of the educational trail of biodiversity.
<i>Waste management</i>	Mentioned one time	Project to collect green waste from the garden of the citizens with the horse.
<i>Stop installation of LinkE</i>	Mentioned one time	Stop the installation of LinkE in the town.

Tools		
Code	Frequency in interviews	Summary
<i>Communication</i>	Mentioned five times	Communication to a lot of people. And listening to a voice of diversity.
<i>Municipal Leadership</i>	Mentioned five times	Political will uses its structure and leverage to lead the transition.
<i>Diagnosis</i>	Mentioned one time	Census, diagnosis help people moving towards good direction of activity.
<i>Collaborative investment</i>	Mentioned one time	A system to get together easily: easy step to start a project.

SP1		
Theme	Frequency in interviews	Summary
<i>Transportation</i>	Mentioned eleven times	Transportation is highly dependent on fossil fuel (Ungersheim has no public transportation). In this situation, they are thinking the alternative for the use of car, and the system change (ex: no need to commute by car if telecommunication is used).
<i>Agricultural Reductions of fossil fuels</i>	Mentioned eight times	Irrigation and the manufacture of nitrogen fertilizers are the biggest consumption in the area of agriculture. In Ungersheim, they produce food on the spot and consume there. They have tried to consume less fossil fuel.
<i>Mining</i>	Mentioned four times	If Ungersheim stick to use only electric car, seemingly, it is promising but some of the material come from outside of Ungersheim. This structure is not only problem of Ungersheim but also the world.
<i>Industry</i>	Mentioned one time	In terms of tax that would be distributed as a tax or subsidy, one of the great contribution is imposed on

		large industry, which is highly dependent with fossil fuel.
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SP2		
Code	Frequency in interviews	Summary
<i>Renewable energy</i>	Mentioned eleven times	Different actions taken to produce renewable energy, such as the solar panel plant, solar panels for autoconsumption, solar panels for pumping water in municipality farm, the biomass boiler for heating.
<i>Dependency on agrochemicals</i>	Mentioned seven times	The abusive use of agrochemicals in the corn production, land own privately and surrounding Ungersheim.
<i>Reduction of agrochemicals</i>	Mentioned six times	The example given by the municipality of not using pesticides and chemical fertilizers in the public spaces and in the farming.
<i>Consuming less energy</i>	Mentioned six times	The idea that best action is to avoid wasting energy and try to reduce consumption of energy.
<i>Household reductions</i>	Mentioned five times	The importance of good isolation in order to avoid the use of heating.
<i>Air quality</i>	Mentioned one time	Air quality would improve in the village if there was less transportation.
<i>Sewage</i>	Mentioned one time	Dry toilets for composting and grey water pond treatment system in the Eco-hamlet.
<i>Rainwater collection</i>	Mentioned one time	Most households in the village are assumed to collect rainwater.

SP3

Code	Frequency in interviews	Summary
<i>Conservation</i>	Mentioned five times	There are different actions mentioned that help to conserve the biodiversity, some of them are: the creation of an atlas of the flora and fauna of the territory, the use of old wheat seeds, the use of the Ungersheim forest for wood. The idea behind it being that by using the resources close to the community the community can become aware if it deteriorates and if so they can change the practices so that they become sustainable.
<i>Renaturalization</i>	Mentioned three times	Ungersheim was a mining village - those mining sites have been restored to natural ecosystems. But corn monoculture still dominates much of the land around the village and food exports reduce the land that could be restore.
<i>Construction development</i>	Mentioned one time	The Eco-hamlet is occupying less land (sharing communal space), on the other hand other developments are still occupying great amounts of land and spreading.
<i>Soil regeneration</i>	Mentioned one time	The importance to take care of the land, as we take care of our bodies.

SP4		
Code	Frequency in interviews	Summary
<i>Economic help</i>	Mentioned nine times	Municipal farming offering employment opportunities to those who otherwise do not have work, organic farming is more productive on smaller land than conventional farming, Taxes have no increased in the village since 2005
<i>Mental health</i>	Mentioned seven times	Personal satisfaction, feeling a part of a community as effect of working together, living next to people they have shared values with in eco-hamlet, doing things one enjoys, increased physical health supports happiness

<i>Organic food</i>	Mentioned five times	Municipality produces food that is 100% organic and given to the children for lunch at local school - this also sets an example for the parents
<i>Physical health</i>	Mentioned twice	Old varieties of wheat are more healthy for those with celiac disease
<i>Construction materials</i>	Mentioned one time	Eco-hamlet builds with non-toxic natural construction materials

SP5		
Code	Frequency in interviews	Summary
<i>Participatory democracy</i>	Mentioned fifteen times	Citizens are invited to engage and participate in decisions and dialogue, councils, associations; people make concessions to agree with what the majority want.
<i>Active participation</i>	Mentioned seven times	Collective work its organize in many different ways: farming, construction, planting trees, canning association, etc. People share their knowledge and skills and learn from each together.
<i>Citizen autonomy</i>	Mentioned four times	Citizens should have more autonomy and independence from the municipality, the movement seems overly dependent on the municipality and mayor.
<i>Lack of interest</i>	Mentioned three times	Citizens do not engage with the place where they live, they do not get involved in the decisions or actions.

SP6		
Code	Frequency in interviews	Summary
<i>Learn and advice others</i>	Mentioned nine times	Learn new things and then show the way to others, allows the exchange of skills.

<i>Learn by doing</i>	Mentioned eight times	Learning through the hands, acquiring practical and hands-on skills, a lot to do with growing food and a little bit with eco-friendly construction. It is nicer to learn from people while doing. Also there was a learning by doing with the installation of the PV station.
<i>Exchange of knowledge</i>	Mentioned three times	Exchanging knowledge, that is how people learn from each other.
<i>Ambition to learn</i>	Mentioned two times	The will to learn new skills and knowledge (i.e. seed saving).
<i>Transparency with clients in how things are done</i>	Mentioned two times	The clients are interested in learning things related to production, there is direct contact with the clients and the information is given transparently.
<i>Learn from old practices</i>	Mentioned one time	The need to learn how to use the old materials that are more sustainable.
<i>Self-realization</i>	Mentioned one time	As a person the freedom and possibility to develop all that he knows, all his capacities.
<i>Learn the basics</i>	Mentioned one time	Young people need to learn the basics before learning more complicated things. Basics are basic.
<i>Awareness of Transition starts a self reflection</i>	Mentioned one time	By learning from the Transition actions people start reflecting and questioning.
<i>Need of more competence</i>	Mentioned one time	There are still difficulties because there is always the need for more competence.

SP7		
Code	Frequency in interviews	Summary
<i>Limitations to inclusivity</i>	Mentioned six times	There is a difficulty to reach certain ages, especially the young between 14 to 20 years old. It seems that people do not have time to get involved.

<i>Open to all</i>	Mentioned five times	Transition is open to all, everyone can join and everyone is concerned. There is need for people to join, there is always something to be done.
<i>Reaching out to the community</i>	Mentioned five times	The municipality tries to call the citizens to get involved and for people to volunteer in community tasks. But people seem to not have time and most times is the same people that get involved.
<i>Inviting non-locals</i>	Mentioned three times	At the beginning the municipality was working only with people from the community but it is now open for the non-locals, also because there is a need for new competence. It takes time for a small village to open for non-locals.
<i>Youth and children</i>	Mentioned two times	The children of Ungersheim got involved because the school is keen on the activity. The consciousness of next generation will be good.
<i>Diversity of opportunities to get involved</i>	Mentioned one time	There are a lot of chances to do something for any preference, wide variety of opportunities (work with mind or hands). Activities are varied.

SP8		
Code	Frequency in interviews	Summary
<i>Community involvement</i>	Mentioned nine times	Taking ownership of the projects and actions because they participate in the planning and construction of them. Working with other people from the community it builds relations and recreate the link between people, meet people that otherwise will have not met. Bring together associations of many kinds.
<i>Feeling of belonging</i>	Mentioned six times	To find people that share the same meaning, feeling of belonging to a group, giving meaning to our lifestyles.
<i>Identity</i>	Mentioned three times	To recover what the ancestors did, their knowledge and traditions. The things we do are part of who we are. Being proud of what we do. Being proud of where we are from.

<i>Quality of life</i>	Mentioned two times	The village has many things going on and you can be part of them, can actively participate in many things. And also there are many services offered like sports and culture. Improvement of the living conditions of the village.
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Strategic Guideline		
Code	Frequency in interviews	Summary
<i>Communication strategies</i>	Mentioned fourteen times	The ability to talk in an appealing way is highlighted, to know and understand the people who you are talking to and really addressing the message accordingly. The importance of communicating what has been done and the diffusion of the positive impacts that the actions have. Finally it is mention the importance of communicating to create awareness.
<i>Bottom up and top down</i>	Mentioned six times	The importance of the engagement of both citizens and politicians. There need of the will of citizens to participate and the will of politicians to support the infrastructure's needed.
<i>Show by example</i>	Mentioned six times	The only way to show the people is by first doing it, people want to first see the success and then they will follow. Ungersheim is showing how their actions can bring benefits (also economically speaking) and a better quality of life, then people will follow.
<i>Looking at successful results motivates people to act</i>	Mentioned four times	The goals have being achieved and are now concrete actions, people see things moving forward and it motivates them.
<i>Leadership</i>	Mentioned four times	The ability to find the right people, people that want to walk the same path. Also allowing people to participate, to create links between each other and to have a good time together. And being able to plant seeds on other people.

<i>Easier to work with smaller scale</i>	Mentioned two times	two	It is easier to work in a smaller scale, there is more proximity and there is more responsiveness.
<i>Find people that are already interested</i>	Mentioned time	one	It is easy to work with people that are already interested in the topic, that they are willing to participate and take action.
<i>Youth</i>	Mentioned time	one	Children absorb the knowledge more easily, the new ways of doing. So it is easier to work with them and introduce new ideas to them. Furthermore the children are the future.



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