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**Investigating Sense-Making and Resilience Perspectives of
Austrian Micro and Small Enterprises Towards Flooding:
A Qualitative Study**

A Graduate Thesis

of

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Supervisor: Professor Antonis Skouloudis

Mytilene, **June, 2025**

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**Erasmus Mundus Masters Course in
Environmental Sciences, Policy and
Management**

MESPOM



This thesis is submitted in fulfilment of the Master of Science degree awarded as a result of successful completion of the Erasmus Mundus Masters course in Environmental Sciences, Policy and Management (MESPOM) jointly operated by the University of the Aegean (Greece), Central European University CEU PU (Austria), Lund University (Sweden) and the University of Manchester (United Kingdom).

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List of Abbreviations

MSE	Micro and Small Enterprises
MSME	Micro, Small and Medium Enterprises
PMT	Protection Motivation Theory
SME	Small and Medium Enterprises

ABSTRACT OF THESIS

In a world increasingly characterized by climate change impacts, the likelihood and intensity of extreme weather events – such as heavy rain and floods – are expected to increase. Micro and small enterprises (MSEs) are particularly vulnerable to such events due to limited resources and low levels of preparedness. This study investigates the attitudes of Austrian MSE owners toward flood risk, their preparedness levels, and the challenges they face when building resilience to floods, after the catastrophic flood event that occurred in September 2024. Based on a literature review, twelve semi-structured interviews were conducted with MSE owners from flood-affected areas. The data was analyzed using the qualitative coding software Atlas.ti in two coding cycles. The initial open coding identified themes and patterns in the participants' narratives. Next, a deductive coding approach was applied using components from the Protection Motivation Theory, including threat appraisal and coping appraisal. The findings indicate resilience barriers MSEs face, reveal different stages of learning and applying past flood experiences to resilience-building, and result in a typology of different flood risk attitudes based on the participants' narratives. In addition, results suggest a focus of MSE owners on physical flood preparation over organizational preparations-interventions. On this basis, it is recommended that local authorities and business associations support MSEs by organizing networking platforms to encourage knowledge exchange between flood experienced and unexperienced owners and offer consultations to identify an effective and business-specific resilience strategy which includes preparedness measures that go beyond physical flood protection.

Keywords: Flooding, Micro- and Small Enterprises, Climate Change Adaptation, Resilience, Qualitative Study, Austria

AUTHOR’S DECLARATION

I, the undersigned, **Tabea Böhler**, candidate for the MA degree in Environmental Sciences, Policy and Management declare herewith that the present thesis titled “Investigating sense-making and resilience perspectives of Austrian micro and small enterprises towards flooding: A qualitative study” is exclusively my own work, based on my research and only such external information as properly credited in notes and bibliography. I declare that no unidentified and illegitimate use was made of the work of others and no part of the thesis infringes on any person’s or institution’s copyright.

I also declare that no part of the thesis has been submitted in this form to any other institution of higher education for an academic degree.

Mytilene, 1st June 2025

Tabea Böhler

1 Introduction

This chapter will start with a brief introduction to the topic, following a detailed description of the scope of the thesis. Then, in section 1.3, the context for the case study of Austria is given. Lastly, I present an overview of the remaining chapters of this thesis.

1.1 Resilience and Adaptation of Businesses to Climate Change Impacts

Extreme weather events are no longer a rarity. They can pose a significant threat to nature, infrastructure and buildings and can impact the life, livelihood and well-being of humans. 2024 was an extraordinary year in terms of extreme weather events and natural disasters (Munich Re, 2025). Besides the deadly Typhoon Yagi in Asia and Hurricane Helen in Central and North America, a series of floods have afflicted several countries in Europe. Out of all geophysical, hydrological, meteorological and climatological events, floods are the most common disasters worldwide - this also includes droughts, earthquakes, extreme temperatures, mass movements, volcanic activity, extreme weather events and wildfires (OurWorldInData, 2025). The Center for Research on the Epidemiology of Disasters classifies floods as weather-related, hydrological disasters, which account for 43% of all disasters (CRED & UNISDR, 2016). But floods, which describe the process where water from stream channels, coasts or lakes overflows onto normally dry areas (OurWorldInData, 2025), are not only extremely common but also extremely costly. They count towards the costliest climate change-related disasters (Sadeghi, 2022), contributing heavily to the overall number of dollars lost to climate change. In 2024, the total losses of all-natural disasters were 320 billion US dollars, which is almost double the annual average of the last 30 years. With that, 2024 was the fifth costliest year in terms of natural disaster claims since 1980 (Liesel, 2025). The European Environment Agency (2024) estimates, that around 12% of Europeans live in a flood-prone area. This is especially problematic considering that flooding can lead to sewer overflow and worsening water quality, leading to pollution risk and an increase in infectious diseases. Since 1980, more than 5000 people in Europe have lost their lives in floods, while many more suffer from mental health consequences after experiencing floods. Without a drastic increase in adaptation actions, the European Environment Agency (2024) expects 340 flood-related deaths in Europe every year.

For businesses, being prepared for natural hazards is crucial to ensure economic longevity. The increased likelihood of extreme weather events creates a new reality for business owners, urging them to act. Any extreme event, such as a severe flood, can mark a turning point in the course of small businesses, causing physical damages, disturbing the operational business and in the worst case, leading to a termination of operation (Skouloudis et al., 2020). Despite the growing number of flood events, there is still relative uncertainty around them. As a result, many small businesses adopt a wait-and-see approach rather than taking adequate adaptation measures (Ingirige & Wedawatta, 2014). A lack of preparedness may result in disastrous consequences for any organization. Due to this lack of action and their limited access to resources, small businesses are

especially vulnerable to extreme weather events, which is why special attention is given to this type of business.

This master's thesis falls within the scientific area of climate change adaptation and resilience as well as business management. At the core of this thesis stands the concept of resilience, and the question of how businesses can prepare for, withstand and recover from extreme weather events. Particular focus is placed on how business owners understand and interpret the risk of flooding. This field is characterized by an interdisciplinary nature and draws from multiple disciplines such as business and management studies, environmental science, and psychology. The thesis takes a problem-oriented approach as it focuses on climate adaptation and sustainability. Additionally, this topic is tailored to a region, namely Austria, in central Europe. The data collection is limited to Austrian businesses and the thesis aims to create recommendations on building flood-resilience that fit the local context. However, the thesis also tries to contribute to a general discussion on climate adaptation for small businesses, applicable in any country. Another characteristic of this research is the stakeholder-centered approach. First-hand empirical data from micro and small business owners are gathered and their perspectives are key to this research.

The underlying problem of this thesis is the increase in the magnitude and frequency of extreme weather events due to climate change. With that, there is a higher likelihood for enterprises to be confronted with business discontinuities. Additionally, scientific findings suggest that small businesses are rather unprepared for environmental impacts. This thesis focuses specifically on heavy rain events and flooding. The levels of small business resilience remain relatively low (compared to larger companies), but scientific explanations lack coherence on the topic of flood resilience. For instance, there are uncertainties around the behaviour and decision-making of small business owners regarding climate resilience, and there is limited understanding of the factors that drive business owners to take action in climate adaptation.

This thesis aims to close the research gap by investigating the resilience level of Austrian micro and small enterprises (MSEs), their perception of flood risk and flood preparedness, and the key challenges they face when building resilience against floods. By doing so, this research project tries to create findings with practical relevance for MSEs in Austria.

1.2 Scope of the Thesis

The following subsections introduce the research problem that this thesis will try to solve. Then, the relevance of this topic is justified. Finally, the research question, the aim and the objectives are presented.

1.2.1 Research Problem

Three factors contribute to the research problem of this thesis: A severe flood event that has happened in Austria, the vulnerability of micro and small enterprises to uncertainties, and the lack of knowledge in this field of study.

In September 2024, Austria was hit by an extreme weather event. September was an extraordinary month in terms of weather as it first started with record high temperatures of up to 35

degrees, which is unusually warm for central European autumns. But then, within a few days, temperatures dropped drastically to 20 degrees, which caused snowfall in the mountainous areas and heavy rain and storms throughout the plains of east Austria. Between the 13th and 17th of September, precipitation levels reached two to five times the monthly average of September, causing severe flooding in several parts of the country. Many rivers and streams overflow and reached the highest water levels measured in the last 30 or even 100 years. The Wien River in Vienna had a 1000-year flood. During these disastrous days, five people have lost their lives, and material damage throughout the country is estimated in the millions (Mattern-Pinter, 2024). This event has highlighted the weaknesses of public infrastructure and the vulnerabilities of households and organizations in numerous places in the country. In the aftermath, politicians, media and the public called for better preparedness for future events and support for fast recovery. While the immediate reactions indicated a wake-up call for Austrians and refocused attention to the severity of natural hazards, it is yet to be seen how much change this event has induced.

While floods can cause disruptions to the whole business sector, this thesis focuses on micro and small enterprises (MSEs). Enterprises are considered “any entity engaged in an economic activity, irrespective of its legal form” (European Commission, 2020, p. 9). To distinguish between micro, small and medium enterprises, the EU created categories based on 1) the number of employees (using the headcount, or annual work units) and 2) the company’s annual turnover (referring to income generated through sales) or the total annual balance sheet (referring to the value of a company’s main assets). By this definition, enterprises are considered “micro” if they have fewer than 10 employees and fewer than 2 million annual turnover or balance sheet. Enterprises are considered “small” if they have fewer than 50 employees and fewer than 10 million in annual turnover or balance sheets (European Commission, 2020). The empirical part of this thesis focuses exclusively only micro and small enterprises, while the literature review covers insights from studies addressing the realities of micro, small and medium-sized enterprises.

MSEs are especially vulnerable to the impacts of extreme events due to various reasons. They are usually less prepared for crises than bigger companies and operate with limited human and financial resources and a lack of knowledge (Ingirige et al., 2008; Ingirige & Russell, 2015; Sadeghi, 2022). They often work with a highly localised supply and demand network and operate from one single location (Harries et al., 2018). They are usually not willing to move their business to a flood-protected area due to their dependency on the local customer base (Skouloudis et al., 2022). MSEs are closely tied to the local community, which implies that the negative effects of MSEs are easily translated to local communities (Ingirige et al., 2008). These effects include a loss of jobs or a reduction of income (Ingirige & Russell, 2015). On the other hand, small businesses have the potential to support the recovery of affected communities due to these links (Sadeghi, 2022). Furthermore, MSEs show unique coping mechanisms in times of crisis. Due to their specific needs, their behaviour and decision-making patterns vary greatly from bigger companies (Ingirige et al., 2008), which is another reason why this group needs special attention within the climate adaptation discourse. Considering the increasing likeliness of extreme weather events due to climate change, enterprises will need to allocate their attention, time and resources to adaptation and resilience to mitigate potentially disastrous consequences. Climate change impacts are exceptionally challenging

events for organisations because their timing, duration and extent can hardly be predicted which leads to uncertainties in business planning (Linnenluecke & Griffiths, 2010).

There is a lack of understanding of how MSEs prepare for and respond to extreme weather events. It is unclear how they build resilience and how different factors enhance or hinder resilience building (Harries, 2021). Despite the growing amount of literature on resilience and adaptation, uncertainties remain around the decision-making process and learning process of flood-experienced MSE owners. For instance, scholars are debating the effect of flood experience on the learning process and willingness to change and build resilience. This discrepancy is further addressed in the literature review.

1.2.2 Significance of this Topic

The significance of this topic results from the above-mentioned research problem and is threefold. First, the magnitude and intensity of extreme weather events, such as heavy precipitation and flooding, are expected to increase, which is likely due to climate change (IPCC, 2023). Organisations are more likely exposed to extreme weather events, which increases their vulnerability and their chance of business disruption.

Second, this topic picks up on a recent debate on climate change resilience and adaptation, initiated by the flooding in east Austria in September 2024. While the risk of being exposed to extreme weather events was the same before and after the event, the public has been reminded of the severity of natural disasters. This flooding disaster serves as a valuable research opportunity to understand if affected MSE owners have changed their views on flood resilience. Such events can be seen as a “window of opportunity”, which can be used to break with path dependencies, accelerate institutional changes and facilitate future preparedness (Kuang et al., 2024).

Third, MSEs are closely tied to the local community. Due to this social relevance, MSEs need to be armed to mitigate the negative effects of disruptive events. Small enterprises should, therefore, be strongly supported by emergency response teams to get them back into business after a flood (Ingirige & Wedawatta, 2018). Lastly, smaller businesses form the backbone of most economies. In the EU, 2 out of 3 jobs are generated by the SME sector (European Commission, 2020) and in Austria, 99.8% of all firms are categorized as micro, small or medium enterprises (OECD, 2024).

1.2.3 Research Questions

Two research questions (RQs) guide this thesis.

RQ 1:

How do Austrian micro and small enterprises (MSEs) make sense of flood risk and perceive flood preparedness?

The first RQ explores business owners' attitudes, viewpoints and perceptions regarding flood risk. Addressing this will help to identify the risk perception and decision-making of MSE owners and managers. A special focus is on their sensemaking strategies for flood events. This RQ serves as a

status check on the resilience and adaptation of Austrian MSEs towards floods. Also, the question investigates the effect of previous flood experiences on building resilience to future events.

RQ 2: What are the key challenges in the ability of Austrian MSEs to build resilience against floods?

The second RQ focuses on factors that enable or hinder resilience. It aims to identify challenges that business owners or managers face in building flood resilience. By answering this question, key parameters that affect the resilience capacity towards floods will be identified. This RQ identifies what MSEs need to recover from flood events and how they can build resilience and prepare for future flood events. The goal is to provide practical recommendations that enhance their ability to withstand or recover from extreme weather events.

1.2.4 Research Aim

The thesis aims to shed light on attitudes, perceptions and viewpoints of the owners or managers of Austrian micro and small enterprises on flood risk and business resilience to such weather events.

1.2.5 Research Objectives

Research objectives resulting from the study's aim and respective RQs are outlined as follows:

1. To yield evidence on attitudes, perceptions and viewpoints of MSE owners in Austria regarding flood risk through a qualitative study with semi-structured interviews
2. To offer insights on the level of preparedness of MSEs towards floods
3. To identify challenges that MSEs face in building resilience to flooding

1.3 Location of Research Activity

The empirical part of this thesis project is happening in Austria, which is a small country located in the centre of Europe. Approximately two-thirds of the country is covered with mountains, the eastern Alps. Austria has more than 9 Million inhabitants and an area of around 83.000 km² (Statistic Austria, 2025).

During the last 30 years, there have been many extreme weather events, especially flooding, in Austria. Some of the biggest flood events were in 1991, 1994, 2002 and 2013 (Kurier, 2024). The latest major flood event happened in September 2024. All participants of this qualitative study were directly or indirectly impacted by this event. The province of Lower Austria, located in the northeast of the country, was impacted the most. Due to this extreme weather event, Austria was one of the countries in Europe which experienced the highest financial losses through a natural disaster in this year (Munich Re, 2025).

In addition to the high exposure to riverine floods, the Austrian inhabitants are above average and particularly vulnerable to flooding, as more than 20% of the population is located in flood-prone areas (Figure 1) (European Environment Agency, 2024).

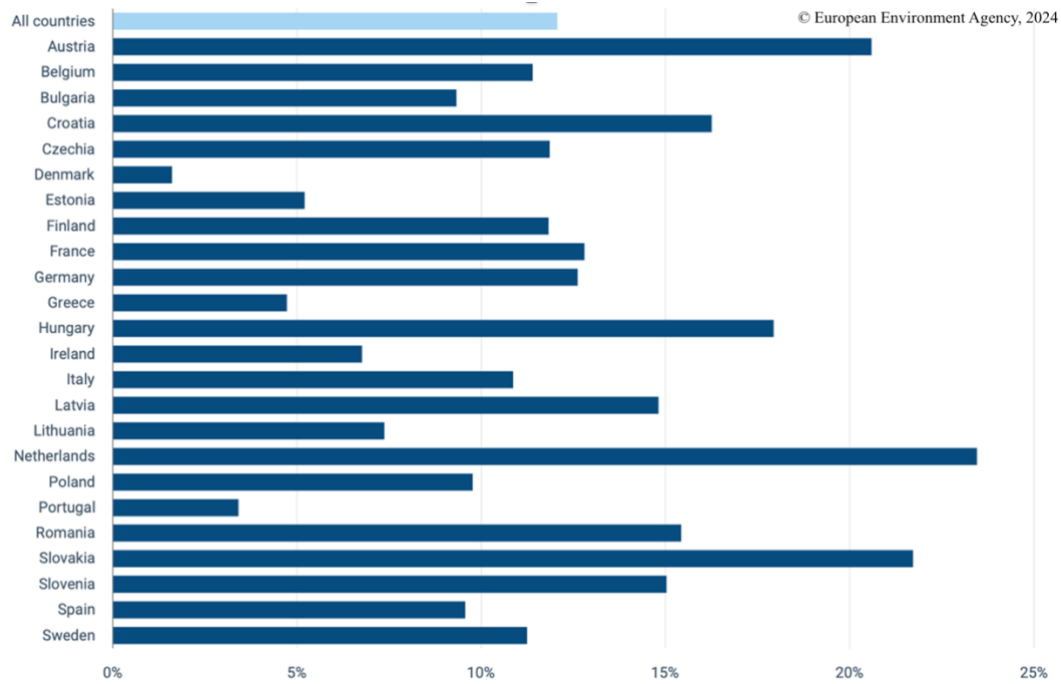


Figure 1. Percentage of Population Living in Potential Flood-prone Areas in European Countries (European Environment Agency, 2024).

1.4 Structure of the Thesis

After having introduced the scope of the thesis, including the research questions, aim and objectives in Chapter 1, the second chapter continues with the literature review. The literature review is structured according to the objectives of the thesis, discussing resilience in management and business, perceptions of flood risk, flood preparedness, and challenges in resilience-building. Additionally, the theoretical framework used in this study is presented and the research gap guiding this thesis is identified. Chapter 3, the methodology, details the data collection and analysis and justifies this study's qualitative approach. In Chapters 4 and 5, the results are presented and discussed. Finally, the conclusion sums up the thesis project.

2 Literature Review

This section provides a comprehensive overview of the topic, delving into resilience in business and management, perceptions of flood risk, flood risk preparation, and challenges of resilience building. Recently published studies are compiled and analyzed, and a brief overview of the theories and frameworks that are used in this thesis project is given. Finally, research gaps are identified and linked to the objectives of this study.

2.1 Resilience in Business and Management

The concept of resilience in business and management has evolved significantly leading to diverse conceptualizations and definitions of resilience. Early publications on resilience in business and management reach back to the 70s. However, it was not until the 2000s that publication drastically increased (Linnenluecke, 2017).

A literature review of influential publications by Linnenluecke (2017) has shown that throughout the decades, scholars have shifted their focus from external to internal resilience and back, leading to multiple different streams of research. The author explains that early researchers such as Staw et al. (1981) and Meyer (1982) introduced resilience within business and management literature. They focused on resilience towards external events and disruptions *outside* of organisations. In the late 80s and 90s, however, the research focus turned inwards, highlighting internal disruptions. This shift was sparked by a series of industrial accidents related to high-risk technologies, such as the nuclear accident in Chernobyl in 1986. Scholars treated resilience as a form of reliability, asking questions such as: How reliable is the organisational process? Can failures of the production process and negative consequences be avoided successfully? In his book “Searching for Safety” Wildavsky defined resilience in 1988 as “the capacity to cope with unanticipated dangers after they have become manifest, learning to bounce back” (Linnenluecke, 2017). After the 9/11 Terror attack in 2001, the focus shifted once more back to external events and early scholars such as Staw et al. (1981) and Meyer (1982) were revisited. Resilience was treated as a response strategy to great environmental uncertainty. In this context, the term “environment” suggests the social or economic environment of a subject, not so much the natural environment. Different streams of research evolved at this point, for instance, a research stream focusing on the adaptability of business models, in which scholars were asking how companies adapt, adjust and reinvent themselves in a constantly changing environment. Innovation was seen as an enabling factor, and issues were solved by using resources efficiently (Linnenluecke, 2017). This non-linear development of the field, as well as the use of ‘resilience’ in many different disciplines, has left a patchwork of different conceptualizations and definitions of resilience. Due to the nature of floods, this thesis stands closer to the research stream which is investigating disruptions outside of an organization.

A simplified view of resilience is that resilience is the opposite of vulnerability – *the more resilient, the less vulnerable*. However, this perspective is short-sighted. Scholars such as Chelleri et al. (2015) discuss resilience in the urban context and distinguish between general and specific resilience. General resilience is the capacity of any system to withstand stress while being able to retain the system's properties. In the context of climate change, this can relate to gradual changes, such as sea level rise or temperature rise (M. Linnenluecke & Griffiths, 2010a). Specific resilience is the capacity to cope with a certain shock (Chelleri et al., 2015), which includes discontinuous events, such as floods. When using the term resilience in any context, it is recommended to explain “resilience of what to what” to avoid impreciseness (Chelleri et al., 2015). In this thesis, at the centre of the discussion is the resilience of MSEs to extreme weather events such as flooding. Additionally, Chelleri et al., (2015) stress that trade-offs are a key feature of resilience and therefore, there are cases where resilience is not a desired feature or state for a system. The reason is that often, resilience at one scale or at one time may be achieved only at the expense of another scale or time. In the context of MSEs, this could mean that short-term business continuity may come at the cost of long-term resilience planning because financial resources are limited. Or, that strengthening resilience at the enterprise level could be a burden to employees' resilience. Therefore, spatial and temporal trade-offs should be considered when pursuing resilience.

Resilience can be discussed from different angles. For instance, there is an engineering and socio-ecological perspective on resilience. The engineering perspective defines resilient systems as systems that bounce back to the equilibrium state (the state before the shock) quickly. Definitions that emphasize the recovery of a system after a shock often relate to the engineering perspective. For instance, Harries et al. (2018, p. 3) describe resilience as robustness and define it as “the ability of a system to retain desired characteristics despite changes to elements of that system”. On the contrary stands the socio-ecological perspective which emphasizes adaptation and transformation as a response to a shock. Studies that utilize the socio-ecological perspective consider the subject as a complex adaptive system that can learn while dealing with unpredictable trajectories (Chelleri et al., 2015). For instance, Kuang & Liao, (2020) use the socio-ecological understanding in their paper and study how learnings from flood experience can enhance flood resilience.

What do enterprises aim to be resilient to? There are differences among publications about the “resilient to what”. Many definitions of business resilience focus mainly on economic disruptions and use the term “environment” in terms of the business environment, such as competition or market conditions. These definitions usually see environmental change as a disruption or alteration in the business environment. Linnenluecke & Griffiths (2010) criticize this perspective as too narrow, as it fails to understand an organization's response to the natural environment. They suggest expanding the theoretical understanding of resilience to also include climate change impacts and propose a resilience framework demonstrated in Figure 2. Their framework is based on the idea of the adaptive cycle, rooted in ecology, which plays a significant role in the resilience-thinking of any discipline. The four phases of the cycle, *growth*, *conservation*, *collapse*, and *recovery and reorganization* are shown on the x-axis in Figure 4. The authors apply the adaptive cycle on an organizational level, demonstrating the performance of a firm before, while and after it experienced a shock, for instance, an extreme weather event. The authors distinguish two dimensions of resilience: 1) Resilience as the capacity to recover from shocks: This dimension

views resilience as the ability to recover from an impact and asks, *how fast* the enterprise can return to the conditions before the disruption. 2) Resilience as the capacity to rebound from adversity: The second dimension is resilience the ability to absorb an impact and ask *how much* disruption the organization can withstand before it loses its structure and function. The dashed threshold in the graph indicates an irreversible state, from which the firm cannot return. In other cases, the extreme weather events have caused such severe disruptions, that recovery is not possible anymore. In this thesis, this framework is used to guide perceptions of flood resilience of MSE owners.

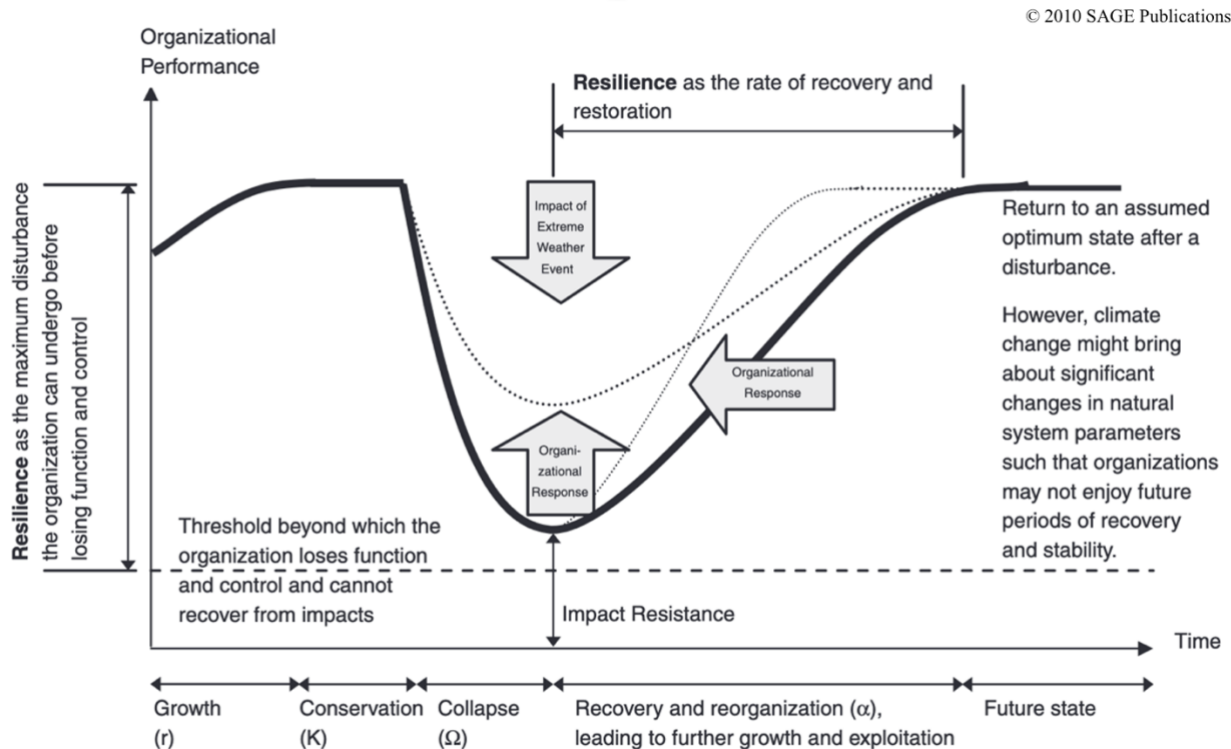


Figure 2. Resilience Framework (Linnenluecke & Griffiths, 2010).

Even if the natural environment is included in resilience thinking, many papers still do not specify the type of natural hazards enterprises to which enterprises are resilient. In her review paper, Sadeghi (2022) finds that more than half of reviewed papers do not specify the risks to which businesses are exposed and use general terms such as natural disasters or climate change. 22% of the reviewed studies focus on flood resilience, 15% on hurricanes and 4% on tsunamis. Scholars who are using a resilience definition for a specific risk are for instance Skouloudis et al., (2022, p. 83) who define organisational flood resilience capacity as “the ability of an enterprise to anticipate a flood event, withstand using preventive actions, quickly recover to a functional state and engage in adaptive measures after a flood disaster”. This definition will be used as the working definition for this thesis.

2.2 Attitudes, Perceptions and Viewpoints of MSE Owners regarding Flood Risk

This section serves as preparation for reaching thesis objective 1 - *to yield evidence on attitudes, perceptions and viewpoints of MSE owners in Austria regarding flood risk.*

Risk perception is considered the perceived likelihood of a future disaster, including its severity and probability (Han & Nigg, 2011). Risk perception is found to be the most consistent factor in triggering decision-making in the pre-event stage of a disaster (Hashim et al., 2021) and flood risk awareness is considered an important capability in resilience building (Adeniyi et al. 2022). Therefore, an essential part of this thesis is to understand how MSE owners perceive flood risk. Factors that influence perceptions of flood risk, such as past experiences, emotions, and community resilience are discussed below.

Flood experiences can shape the viewpoints on flood risk and flood preparation (Hewawasam & Matsui, 2023), however, uncertainties around the effects of experiences on risk perceptions remain. In many cases, business flood victims can turn their flood experience into a window of opportunity to learn and reflect on their beliefs and actions. For instance, participants of a study on households were more likely to say that they expect another flood in the next few years if they have previously been flooded (Harries, 2012). Kuang & Liao (2020) find that business owners who have recently been affected by a flood can turn this experience into a learning opportunity and use the newly gained flood knowledge when preparing for and adapting to floods. Similarly, Kuhlicke et al. (2020) find that flood experiences can shape the perception of business owners and guide future preparedness activities. However, not all flood experiences lead to a successful learning process. Some scholars claim that only a minority of small businesses adapt to floods after experiencing such events and most continue in the same organizational structure as before (Harries 2018). Reasons for an unsuccessful learning process are the two following: First, learning and adapting motivation is highest immediately after the flood (Kuang & Liao 2020). If business owners do not react fast enough, flood risk awareness decreases and learning opportunities vanish. On a similar note, a study found that successful flood adaptation happened in a certain neighbourhood because flood issues were actively kept at the top of the local agenda (Ingirige & Russell, 2015). Second, insufficient engagement with flood effects can pose a burden to learning (Kuang & Liao 2020). This is in line with a conclusion made by Harries et al. (2018) that the impact of smaller floods is not ‘strong enough’ to change the viewpoints of a person. If a business owner was not impacted by a disaster, the willingness to reassess their flood risk might stay low.

Another factor that has the potential to influence the perception of flood risk is emotion. So far, only a few studies have focused on the role of emotions in risk awareness and adaptive behaviour (Harries et al., 2018). Emotional responses may affect whether someone decides to invest in preparedness measures or not (Ching et al., 2023). In his survey of householder responses to flood risk, Harries (2012) found a correlation between protective behaviour and feelings of anxiety and insecurity, indicating that fear and anxiety tend to increase risk awareness more than financial considerations, which was previously believed. Oracion (2016) investigated the relationship between flood risk perception and sense of place and found a conflicting connection between the factors: Even though participants were aware of flood risk, they did not relocate their businesses

due to their strong emotional ties to the place. Similarly, Skouloudis et al. (2022) found that relocating their business is not a preferable option for MSME owners. Fear as an influencing emotion on adaptive behaviour is further discussed in section 2.5.

Furthermore, flood risk perception may be shaped by external inputs. Verrest et al. (2020) found that the information sources affect how business owners understand and react to risks. Governmental incentives and industry associations were found to have a positive impact on the sustainability adoption of small businesses (Asbullah & Tarigan, 2024). External support mechanisms facilitate the adoption of environmental and social practices of small businesses, which in turn also enhances business resilience (Asbullah & Tarigan, 2024). In their case study of the Philippines, Verrest et al. (2020) find that the intensified governmental communication about environmental protection (such as awareness campaigns, sustainability guidelines for flood-proof cities etc.) has gained broad public attention and successfully shaped the public flood risk perception. The authors conclude, however, that effective policy frameworks need to be inclusive and the specific needs of smaller businesses need to be articulated well. Currently, SMEs were found to lack influence on the nature of interventions. The lack of inclusion of small businesses in policies is especially disadvantageous considering that understanding the expectations of small businesses from local policies can foster the development of effective policies (Khalid & Khaver, 2019). In addition to governmental policies, local flood warning systems impact flood risk awareness. Ideally, flood warning systems contribute to flood risk awareness and timely preparation. However, if flood warning systems are inaccurate, e.g. miss major floods or send false alarms, business owners can develop mistrust. In this regard, Sultana et al. (2018) find that the perceived effectiveness of warning systems has an impact on the preparation behaviour of businesses.

In short, flood experience, emotions and external inputs such as governmental initiatives or flood warning systems influence the attitudes, viewpoints and perceptions of business owners on flood risk.

2.3 Level of Preparedness

This section is particularly relevant in reaching objective 2 of this thesis – *offering insights on the current level of preparedness of MSEs towards floods*.

Understanding the level of preparedness of business owners is relevant to identifying challenges and highlighting best practices for resilience. For instance, identifying resources needed by small businesses to prepare for floods can guide policymakers and organisations in providing targeted support to increase preparedness levels (Khalid & Khaver, 2019).

Preparedness levels are measured by assessing a list of activities done by a business to prepare for and mitigate a disaster (Hashim et al., 2021). Scholars who assess preparedness through quantitative studies often distinguish active and passive preparedness activities to which they assign different weights. Some measures are actual steps that were taken (active), while other measures are simply discussed (passive). In their study Hashim et al. (2021) investigate the following preparedness activities, amongst others: “education kits for employees on their role during a disaster”, “sandbags to stop floodwater from entering the premise”, “provide written flood disaster plan”, “made arrangements to move business/inventory to another location”. These factors are part

of the questionnaire that guides the interviews with the study participants. Business owners who are renters are less likely to engage in property-level measures, even though preparing the business property contributes to the long-term resilience of a business (Wedawatta & Ingirige, 2012a). Effective property-level adjustments are highly context-dependent. Common strategies include installing flood barriers on windows and doors, installing backflow valves, using water-resistant materials and investing in a pump or drainage system.

Besides property-level adjustments, long-term planning is a key activity to enhance flood resilience and preparedness (Adeniyi et al., 2022; Skouloudis et al., 2020). A flood preparedness plan, which is updated and revisited regularly, is part of a good flood preparation strategy, which can help to ensure business continuity in the event of a flood (Coates et al., 2013; Josephson et al., 2017). Rattanakanlaya et al. (2022) identify the execution of training and drilling as an effective way to increase the levels of flood readiness in hospitals, while McEwen et al. (2016) propose an e-learning tool to enhance the knowledge of small enterprises on flood preparation and adaptation. It was also pointed out that participation in evacuation drills effectively helps to minimize loss and damage during flood events (Hewawasam & Matsui, 2023). It is especially important to involve employees in such preparedness measures, as their engagement contributes to the overall preparedness and flood response (Coates et al., 2013). Ideally, employers practice transparent and effective crisis communication before and during a flood, including written information on flood preparedness, education kits, and establishing ways of staying in contact during a crisis (Hashim et al., 2021). Furthermore, insurance can be a critical component for businesses to mitigate the risk of flood damage. However, many small businesses stay uninsured (Bhattacharya-Mis & Lamond, 2014) and participants of a study were less likely to believe in the protective function of insurance if they have experienced flooding before (Harries, 2012). Austria has a particularly weak market for private property insurance and flood victims usually compensate their losses with disaster funds (Fekete et al., 2022), indicating the rare use of insurance as a preparation instrument.

Lastly, an interesting aspect of preparedness is the relationship between a small business and the community it is placed in. Wedawatta & Ingirige (2012, p. 7) describe community-level flood protection as “the first line of defence against flooding”, on which businesses rely, in addition to their strategies. Examples include river embankments and channels, storage basins, or floodwalls that aim to protect the whole community from river overflow. Scholars have emphasized that community-level flood risk measures should be co-produced by citizens and public authorities to facilitate resilience building (Mees et al., 2016). Ingirige & Russell (2015) emphasize that business actors should engage with other actors from the community to enhance learning about flood preparedness and resilience. In section 3.4.3. further aspects of the influence of the business context on its preparedness and resilience building are discussed.

To sum up, factors such as emergency plans, property-level adjustments, employee involvement, and the relationship between business and community serve as indicators for the level of preparedness of an enterprise.

2.4 Challenges in Building Resilience to Flooding

This section aims to address the third objective of this study – *identifying challenges that MSEs face in building flood resilience*. The identification of burdens is a crucial step in developing targeted resilience-building strategies and it can help businesses to focus on strengthening their weak areas (Adeniyi et al., 2022; Coates et al., 2020). This section is especially important considering that the MSE sector is extremely heterogeneous and includes many businesses, that respond very differently to weather extremes. In the following sub-sections, descriptive factors, cognitive factors and contextual factors indicating challenges in organizational resilience are discussed.

2.4.1 Descriptive Factors

A variety of studies deal with the effects of descriptive factors such as age, gender and education level of the business owner, business age, or the sector to which the business belongs (Halkos & Skouloudis, 2020; Harries, 2021; Hewawasam & Matsui, 2023).

One of the most dominant descriptive factors influencing adaptation behaviour is business size. The size of firms significantly affects adaptation behaviour and is believed to be a relevant factor in explaining the vulnerability of companies (Skouloudis et al., 2020). The correlation usually is positive – the bigger the company, the higher the level of adaptation measures (Harries, 2021). Generally, disruptive events such as floods and other extreme weather events, are not a top priority for smaller firms resulting in a lack of preparation and resilience (Skouloudis et al., 2023). Despite these findings, there are a few characteristics of smaller firms that facilitate resilience, adaptation and recovery. This includes the speed of decision-making and bureaucratic processes as well as faster internal communication, compared to bigger firms (Sullivan-Taylor & Branicki, 2011). Still, there is a consensus that company size is associated with an increase in adaptation measures.

Financial resources, employees, time and skills facilitate resilience building. The lack of such resources can pose a significant burden to adaptation, as proposed by multiple scholars (Li & Coates, 2016; Sullivan-Taylor & Branicki, 2011)

Harries (2021, p. 10) uses the term capability, or the lack thereof, which is understood as the “psychological and physical capacity to engage in the activity concerned, including possession of the necessary knowledge and skills”. Some scholars even suggest that these resources do not only need to be sufficient, but abundant. The theory of slack resources assumes that organizations with a surplus of financial, physical and human resources are better at reacting to uncertainties and dealing with unexpected events. Mao et al. (2023) suggest that slack resources are a key element in improving organizational resilience. On the contrary, some academics and practitioners neglect the effect of slack resources, arguing that efficiency and leanness are more important characteristics of organizations (Linnenluecke & Griffiths, 2010). However, this argument holds only in stable economic systems. Whenever instability occurs, which is the case during flood events, slack resources are necessary for businesses to successfully respond to disruptions, according to Linnenluecke & Griffiths (2010). In this regard, Allenby & Fink (2005) underline that decentralization - which defines the physical dispersion of goods and resources - makes firms more resilient and less vulnerable to point disturbances. MSEs are usually centred to one place, and not willing to move, which is challenging the decentralization of their physical resources.

Lastly, there is a difference between business owners who rent their business location to those who own the building and property. Findings from studies with MSME owners demonstrate that business owners, who own the business property, are more likely to use insurance to protect their business, while tenants perceive property insurance as unnecessary expenses (Skouloudis et al., 2023). This difference is also reflected in the aftermath of a flood event. Tenants have more issues with coordinating their personal insurance with the insurance of the building, while managers who also own the building are concerned about the future of the building, in addition to financial concerns. Participants of a study claim that the flood-damaged building was supposed to be their retirement plan (Ingirige & Russell, 2015). Some studies report extreme cases of communities in Sri Lanka where 91% of SMEs did not have an insurance plan (Hewawasam & Matsui, 2023), which affected their recovery options after the flood event.

2.4.2 Cognitive Factors

Self-efficacy, threat appraisal, existing beliefs, learning from experience and knowledge translation are some of the cognitive processes that can lead to or prevent adaptation and resilience building. Some of these are directly reflected as factors of the protection motivation framework, which will be introduced in section 2.5.

In his review, Harries (2021) summarises the current knowledge on the adaptation behaviour of business owners to natural hazards and discusses two prominent factors. Self-efficacy, which indicates if someone believes they have control over the result of their action or not, is a well-studied factor (Bandura, 2012) and a lack of self-efficacy can challenge adaptation behaviour. The second factor is threat appraisal. Currently, there are not enough studies analysing the effect of threat appraisal, which is why the perception of business owners regarding flood risk is a central part of the questionnaire of this thesis.

In an earlier study, Harries et al. (2018) explain why some business owners adapt their business after a flood through the lens of business identities and cognitive interpretation frameworks. They found that business owners use rhetorical tactics, including attention deployment, denial and externalization of responsibility, to defend identities and existing structures of sensemaking. The theory of sensemaking in organizations (Weick, 1995), assumes that humans practice selective attention, which tries to confirm our beliefs and prefers communication channels that support their sensemaking structures. The commitment to existing beliefs can be a burden to flood resilience and adaptation. For example, it can hinder them in taking resilience measures to secure their property. The authors conclude that business owners are only willing to transform their business identity and sensemaking structures if the flood is ontologically significant. In other words, the flood was a threat to the existence of the business. Experiencing multiple smaller floods, as proposed earlier by Burgoyne & Hodgson (1983) and Levitt & March (1988), is not enough to challenge sensemaking structures, as the emotions related to flood experience do not ‘accumulate’. The effects of flood experience on risk perception and resilience have been discussed earlier in 2.2. It should be noted, however, that, even if a business owner gained valuable knowledge through a flood experience, there might be knowledge translation issues which can prevent them from putting the learnings into practice. These issues include restrictive policies and a lack of social capital (Ingirige & Wedawatta, 2011; Kuang & Liao, 2020). Also, knowledge might not be put into action,

if the subject is surrounded by flood control infrastructure. In this regard, Bradford et al. (2012) conclude that public flood protection can create a wrong sense of security for the public. In the case of MSEs, business owners might trust in public flood control infrastructure, leading to lower motivation to develop their own flood-protection adjustments.

2.4.3 Contextual Factors

As MSEs are embedded in a sociopolitical context, external factors affecting the resilience building of small enterprises need to be considered.

Skouloudis et al. (2022) find that conceptual factors, such as institutional support and relational resources, do not contribute as much to resilience capacity as compared to cognitive and managerial factors, indicating that SME owners might struggle with external support systems. Different studies have found that information campaigns about flood-resilience of local authorities, and governmental bodies are not successful if SME perceive them as information coming from an out-group (Harries et al., 2018; Ingirige & Wedawatta, 2011). Ingirige & Wedawatta (2014) stress successful communication of flood risk measures is achieved if policymakers create a sense of collaboration around the SMEs and bridge the divide between science, policy and politics ('honest broker approach'). Instead of one stakeholder dictating what others must do, SMEs and policymakers need to engage with each other to create strategies and action plans that are accepted by all parties. This collaborative stakeholder engagement process is necessary to accelerate the uptake of flood adaptation measures for SMEs (Ingirige & Wedawatta, 2014). Bott & Braun (2019) call for a bottom-up approach to strengthen the role of small enterprises in flood risk management. A study from Sri Lanka finds that community-level awareness building is often more important in mitigating a disaster than administrative plans (Hewawasam & Matsui, 2023). Therefore contextual factors, such as restrictive policies and bureaucratic burdens, which are slowing down adaptation processes (Kuang et al., 2024), need to be minimized.

In addition to political actors, there can also be barriers within the community, hindering successful adaptation. In a UK-based survey study, flood-experienced business owners claimed that some physical resilience strategies such as floodgates, only work if neighbouring properties also have floodgates (Ingirige & Russell, 2015). The authors conclude that some adaptation measures only work if supported by the community and that a lack of collective responsibility can reduce the effect of certain adaptation measures.

To repeat, there are descriptive, cognitive and contextual factors creating challenges for small businesses in resilience building. Common factors that hold back successful resilience building are the lack of resources and capacity, adherence to existing sensemaking structures, and insufficient collective responsibility and community resilience.

2.5 Theoretical Framework

This thesis project uses the protection motivation theory (PMT) by Rogers (1983) as a theoretical framework. This theory guides the analysis of the collected data and serves as an important tool in advancing the knowledge of organizational flood resilience. In the following, the theory is introduced and its limitations are discussed.

2.5.1 Protection Motivation Theory (PMT)

PMT aims to understand how individuals prepare for certain threats (Marikyan & Papagiannidis, 2023). PMT was created by Rogers (1975) and later revised (Rogers, 1983) and was one of the first theories used to analyse the psychological conditions that lead people to protect themselves. Originally, the theory was used within a health context, for instance, to understand health-protective behaviours and examine the effectiveness of persuasive communication. PMT is a tool to explain why someone decided to follow or ignore a certain recommendation. For example, health researchers assess if someone follows the recommendation “wear a helmet when cycling to prevent injuries”. In this thesis, however, no persuasive communication is assessed, meaning that no one told the participants what to do and how to react during a flood. Instead, MSE owners identified relevant adaptive and protective actions themselves. This holds as a minor limitation when applying PMT in this thesis, as I only assess whether participants decide to protect themselves and adapt to climate threats *at all*, without focusing on specific communicative inputs. This weakness is neglected, because the theory has proven to hold even if the *persuasive recommendation* component is missing. Additionally, numerous other scholars have applied PMT in a broad variety of disciplines, including climate change adaptation behaviour, specifically flood protection (Bagagnan et al., 2019; Fox-Rogers et al., 2016; Fu et al., 2025).

PMT adopts the Expectancy-Value paradigm, which is used to explain attitudinal structures: Two factors, *expectancy* and *value*, determine whether someone engages in a certain behaviour or not (Marikyan & Papagiannidis, 2023, p. 3): “Expectancy concerns the probability that behaviour will result in the desired outcome, while value refers to the utility that an individual assigns to that outcome.” Strong motivation to protect themselves results if people score high on both factors.

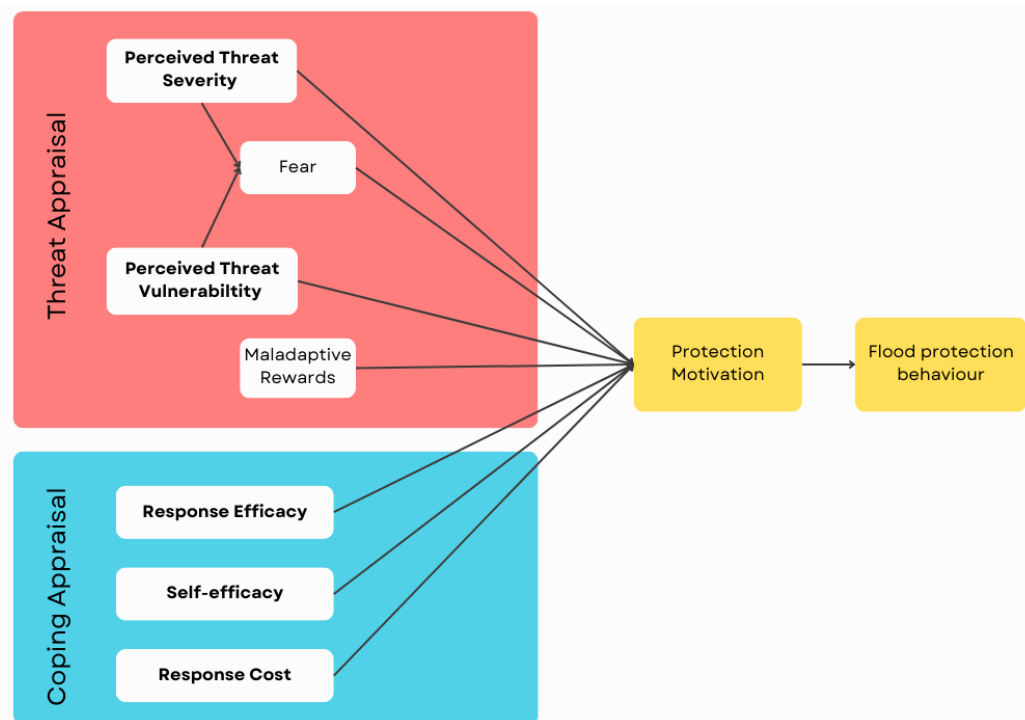


Figure 3. Protection Motivation Theory (Author's own figure based on data from Marikyan and Papagiannidis, 2023).

The full nomology of the revised version of PMT (Rogers, 1983) is shown in Figure 3 and includes two cognitive mediating processes (red; *threat appraisal* and blue; *coping appraisal*) and a total of 5 core variables (in bold; *perceived threat severity*, *perceived threat vulnerability*, *response efficacy*, *self-efficacy*, and *response cost*) plus two extra variables (*fear* and *maladaptive rewards*), which are influencing the protection motivation of an individual, and with that the adoption of security-related behaviour.

In this thesis, all of these components are independent variables which affect the dependent variable *protection motivation* and *adaptive behaviour*. Table 1 shows the definition of each component and its effect on the variable *protection motivation* (Marikyan & Papagiannidis, 2023).

Table 1. Definitions and Effects of PMT Components on Protection Motivation and Adaptive Behaviour.

Code Category	Explantation (from Marikyan & Papagiannidis, 2023)	Relationships and effect on protection motivation
Perceived threat severity (PTS)	How serious the individual believes that the threat would be to him- or herself (Milne et al., 2000).	High PTS increases the motivation to adopt protective behaviours
		Low PTS decreases the motivation to adopt protective behaviours
Perceived threat vulnerability (PTV)	How personally susceptible an individual feels to the communicated threat (Milne et al., 2000).	High PTV increases the motivation to adopt protective behaviours
		Low PTV decreases the motivation to adopt protective behaviours
Fear	A negatively valenced emotion represents a response that arises from recognizing danger. This response may include any combination of apprehension, fright, arousal, concern, worry, discomfort, or a general negative mood, and it manifests itself emotionally, cognitively, and physically (Boss et al., 2015).	Mediating factors that can push individuals to protect themselves. High PTS and high PTV lead to fear.
Maladaptive rewards	The general rewards (intrinsic and extrinsic) of not protecting oneself, contrary to the fear appeal. (Boss et al., 2015). Perceived benefits of not taking adaptation measures e.g. convenience or cost savings.	If strong maladaptive rewards are recognized by an individual, he or she is more likely to decide against protection measures.
Response Efficacy (RE)	The belief that the adaptive response will work, and that taking the protective action will be effective in protecting the self or others (Floyd et al., 2000).	High RE increases the motivation to act, because of the individual's confidence that protective actions are effective.
		Low RE decreases the motivation to act.
Self-efficacy (SE)	The perceived ability of the person to carry out the adaptive response (Floyd et al., 2000).	High SE increases the motivation to protect oneself as the individual believes they are capable of executing the action.
		Low SE decreases the motivation to adopt protective measures.
Response Cost (RC)	The costs (e.g. monetary, personal, time, effort) associated with taking the adaptive coping response (Floyd et al., 2000).	If RC are high, the individual is less motivated to engage in protection measures
		Low RC can increase the motivation to engage in a certain measure.

2.5.2 Assumptions and Limitations of PMT

One of the biggest limitations of PMT is its strong focus on the individual. It assumes that internal cognitive processes (threat appraisal and coping appraisal) matter most when addressing questions of protection motivation. This excludes external factors that could influence adaptive behaviour, such as networks and communities, dynamics inside the organization, or political influences. Rogers acknowledged this limitation and tried to broaden the scope by adding the components of *self-efficacy* and *response cost* to the original version of PMT (Marikyan & Papagiannidis, 2023). Still, PMT relies heavily on the perception of the individual. As a result, using PMT to answer questions on flood risk is shaped strongly by the participating business owners. To mitigate this flaw, the interview guide also asks questions about the community in which the MSE is embedded, political initiatives that could have influenced adaption behaviour and the flood management practices of local authorities. Furthermore, open coding was used in addition to deductive codes driven from PMT to capture quotes outside the scope of PMT.

Critiques have also mentioned that the theory assumes that people make decisions rationally (Marikyan & Papagiannidis, 2023). Decision-making is not always shaped by rational behaviour and individuals might ignore recommendations about protective behaviour for reasons that cannot be explained by threat and coping appraisals (Floyd et al., 2000). Additionally, PMT does not distinguish between people. It largely ignores personal traits and the moderating role of socio-demographic characteristics, gender and age (Marikyan & Papagiannidis, 2023).

Lastly, a minor limitation appears when applying PMT to this topic. In this thesis, I only assess whether participants decide to protect themselves and adapt to climate threats *at all*, without focusing on specific communicative inputs. Originally, Rogers used PMT to test if a certain communicative input was ignored or followed by participants (Marikyan & Papagiannidis, 2023), which is not the case here. This small alternation of application however is neglected, because the theory has proven to hold even if the *persuasive recommendation* component is missing. Additionally, numerous other scholars have applied PMT in a broad variety of conditions to understand general protective behaviour, without focusing on one protection recommendation (Bagagnan et al., 2019; Kothe et al., 2019; Nabara et al., 2021).

2.6 Research Gap and Conclusion

Despite the increasing frequency and intensity of extreme weather events, uncertainties remain on how micro and small enterprises prepare, respond, and adapt to flood events. The literature currently cannot explain how exactly flood resilience of MSE is built and how business continuity in times of extreme weather events can be ensured. Also, there is no common understanding of the circumstances in which different organizational challenges occur and how they can be overcome. Particularly in developing countries studies on business resilience remain scarce (Sadeghi, 2022). Previous research typically only investigates resilience in retrospect - after an event has happened. A lack of research remains on the predictive factors that promote organizational resilience to future conditions (Linnenluecke, 2017).

The first objective of this thesis project is to provide a clear understanding of how firms perceive flood risk and how that translates to adaptation strategies. Viewpoints and attitudes on

flood risk which determine resilience strategies have not been sufficiently addressed so far (Neise & Revilla Diez, 2019). The focus of this thesis on the individual viewpoints of MSE owners is justified and recommended by other scholars. For instance, Skouloudis et al. (2022) call for micro-level mapping of SME owner's decision-making and strategic thinking to better understand resilience capacity-building in the context of extreme weather events.

The second research objective offers insights into the level of preparedness of MSE towards floods. The level of preparedness of Austrian MSE before the flooding in September 2024 is rarely reported and a more concise understanding of the activities that successfully helped owners to mitigate the impacts of the flood is required to best prepare for future floods. It is still under debate how previous flood experiences shape preparedness. While research in that field advances, some details remain unclear, for instance, how learnings and knowledge are best translated into adaptation action (Halkos & Skouloudis, 2020; Kuang & Liao, 2020). Additionally, controversies exist on the role of gender in flood preparation. While Hashim et al. (2021) found that males were significantly more engaged in disaster preparedness activities, Josephson et al. (2017) assigned higher disaster preparedness to female ownership.

Research objective three aims to identify the challenges that MSE owners face when building flood resilience. The flood of September 2024 and the high number of losses and damages indicate that many small businesses found it challenging to mitigate and cope with the impacts of the extreme weather event. Therefore, there is a need to identify barriers to resilience building and promote tailored solutions for the needs of MSEs (Skouloudis et al., 2020). A lack of knowledge currently also exists on the survival of small businesses during climate change and their role in community resilience (Sadeghi, 2022).

The last objective sets forth recommendations on how MSEs' flood resilience can be increased. After reviewing multiple empirical studies on the responses of small businesses to floods, Skouloudis et al. (2020) conclude that there is currently no management approach for addressing flash flood events that are widely applicable. Similarly, Wedawatta & Ingirige (2012b) call for more empirical research to identify actions and measures that help small businesses to address short and long-term flood impacts. Therefore, this thesis aims to provide recommendations on how organizational resilience can be enhanced.

In conclusion, this literature review provided important insights into the topic of organizational flood resilience. Risk perception and flood experience are important factors in pre-disaster decision-making and preparedness, although some inconsistencies occur on how flood experience best translates into action. Emotion, sense of place and external inputs such as policies or flood warning systems, can further impact attitudes and viewpoints on flood risk. The level of preparedness is usually assessed by looking at preparation activities such as property-level adaptations, training, emergency plans, insurance and collaboration on the community level. Challenging factors in resilience building resilience can be distinguished between descriptive, cognitive and contextual factors and include resource limitations, size of business, self-efficacy and threat appraisal, amongst others. This thesis project uses the protection motivation theory and a corresponding framework for the analysis of the data.

3 Methodology

This chapter provides details on the methodology that was used to achieve the aim and objectives of this thesis. Each step of data collection and analysis is explained, and the choice of method is justified. Before that, the research paradigm, the role of the researcher and ethical considerations are discussed.

3.1 Research Paradigm

This research adopts a constructivist paradigm to address the research questions and objectives. Constructivism is a philosophical worldview, which is commonly applied in qualitative studies and promotes general and open-ended questioning to give space to a complexity of views (Creswell & Creswell, 2018). Constructivists assume that humans construct meaning based on their historical and social perspectives and interpret the world based on their experiences and background (Crotty, 1998). This research paradigm gives space to specific historical and cultural contexts of people, and the reality in which they live and work (Creswell & Creswell, 2018). This thesis conducts qualitative interviews with broad and open-ended questions aiming to provide insights into how participants make sense of and interpret the meanings they have about the world. For instance, a central element of the interview guide is how MSE owners perceive and make sense of flood risk and how they view flood resilience.

3.2 Researcher's Role

Researchers are not separated from their research. Their ontological assumptions, beliefs and values may influence their academic work. To keep researcher bias at a minimum, this section provides a discussion on the positionality and reflexivity of this thesis.

Positionality describes the position with which the researcher is approaching a research study (Holmes, 2020). This position is shaped by the researcher's reality and experiences. This position influences the whole research process, for instance how the researcher interprets qualitative data. It is acknowledged that positionality is context-dependent, and dynamic and may change during the research process. To identify and express my positionality, I, as a researcher, need to practice self-reflection and apply a reflective research approach (Holmes, 2020).

The initial positionality, with which I have approached this thesis project before interacting with any participants, is best identified by reflecting on my relationships with the research subject, the participants of the study and the general research context and progress (Holmes, 2020). Firstly, my relationship to the broader topic of climate resilience and adaptation dates back a few years and is extensive. As an environmental student, I am well informed about the impacts of climate change on extreme weather events, their increased likeliness, and their deadly and costly consequences. I believe that flood-risk awareness, flood preparation and flood resilience are ideals that should be pursued by any small business. Once this normative view was located and acknowledged, I actively

tried to keep it away from the interview, to minimize the influence of my personal opinion on the interviewee's answers. If participants would answer with what they think I want to hear, the data quality worsens.

Secondly, my relationship with the participants is distant, but still an insider relationship. I am distant as I do not know any of the participants personally - except one business owner who I interviewed during the pre-study. Still, I am an insider of their culture and a member of their group, as I speak the same language (German) and share the same nationality (Austrian). While this makes it easier to access the target group, build trust, and ask meaningful questions, being an insider also has disadvantages: Insider researchers may be biased toward their own culture, and participants might not articulate 'obvious' information (Holmes, 2020). To mitigate the effect of the latter disadvantage, I tried to rephrase the participant's answer to check if I understood correctly and asked similar questions again to gain any information that the participant initially assumed as being 'obvious'.

Lastly, it is important to locate my influence on the research context and process. My choice of method, the interactions with participants as well as the setting and timing, all influence the process. For instance, participants might perceive me as coming from academia and assume that I am distant from real-world problems, which could influence their behaviour. To mitigate this, I tried to create a comfortable atmosphere during the interview and express myself in a non-academic way. The timing also influences the answers of the participants. The flooding, which impacted these businesses, happened months ago and emotions and opinions change with time. I tried to address this during the interview by identifying if the opinion they expressed resulted from the time before or after the flood event. In addition to the self-reflection of my positionality, the research journal was used to document any changes and relevant thoughts on my role as a researcher in this study.

To summarize, while all research will be influenced by the researcher and complete neutrality cannot be obtained, a reflexive approach tries to keep data quality as high as possible. As Holmes (2020, p. 3) phrases it: "Rather than trying to eliminate their effect, researchers should acknowledge and disclose their selves in their work, aiming to understand their influence on and in the research process".

3.3 Ethical Considerations

Before conducting this research, the research proposal will be submitted to the ethics committee of the University of the Aegean for approval. Once the project was approved, several measures were taken to ensure that no ethical issues would arise during and after this thesis.

All participants agree to take part voluntarily in this study. I ensure their approval by using a written consent form which they need to sign in advance. This consent form explains the purpose of this study, their right to withdraw at any time, and that the interview will be recorded.

Data is handled responsibly in this research project. All identities will remain anonymous unless the participants explicitly want their name or other confidential data (such as their company name) mentioned in the study. Pseudonyms or codes are used instead of the participant's names and companies. Some sensitive information, such as the approximate location of the enterprise (e.g.

close to river X, or in town X) is used in the study whenever it is relevant to the research. Participants will be informed about this.

Research bias will be avoided by avoiding leading questions, approaching each participant in the same neutral manner and letting participants express their views freely.

All data, such as the participant's contact details, audio files and interview transcripts, will be collected in a private setting and will not be shared with anyone outside the research project. The data will be stored responsibly on my personal computer which is protected with a password. Guidance from the supervisor will be sought to keep the highest ethical standard possible.

Lastly, this thesis project is funded financially by the University of the Aegean. The funds aim to support the researcher in her work and are of no influence on the choice of topic, selection of participants, presentation of results, or other aspects of the study.

3.4 Research Design and Methodological Approach

This thesis uses a qualitative and explorative research design. The approach is inductive due to the underexplored nature of the research subject – organizational flood-resilience. This research design aims to give meaning to the complexity of a real-world problem: The increasing likelihood of floods combined with the common under-preparedness and low resilience of MSE owners. The methodological approach contains three main stages: literature review, data collection and data analysis.

3.4.1 Literature Review Approach

The literature review for this survey was done through a structured and iterative process, to ensure a solid theoretical base and the understanding of all key concepts of this study. Key topics discussed in the literature review included flood risk perception, preparedness, resilience building (including both challenges and enablers), and theoretical frameworks.

The starting point of the literature review was supported by a list of relevant academic publications provided by the thesis supervisor. These 19 papers were skimmed and provided a base to understand key concepts, theories and approaches in that field. To expand the literature base, relevant search terms and synonyms were identified and used in different search engines, including Google Scholar (scholar.google.com), Central European University Library (library.ceu.edu), ScienceDirect (sciencedirect.com), and Lund University Library (lub.lu.se). Boolean operators (such as AND, OR) were used to achieve precise search results. Depending on the combination of search prompts used, the number of results generated ranged from a few dozen to several hundred. The results were evaluated and selected according to these steps: Initially, titles were screened for relevance to the topic. Then, abstracts of relevant papers were read to determine whether the study was relevant or not. In the next step, the introduction and conclusion were skimmed. Highly relevant papers were read fully. In addition to academic publications, grey literature and media platforms were used as sources, especially about extreme weather events and background information on Austria.

A synthesis matrix was created to organize key arguments of relevant papers. The synthesis matrix was centered around the following themes: general information about the paper,

conceptualization/definitions of resilience, vulnerabilities of MSE to extreme weather events and natural hazards, drivers and barriers to resilience, level of preparedness, risk perception, disaster experience and willingness to adapt, theories and approaches (protection motivation theory, organisational resilience theory, etc.). The matrix helped to identify themes, debates, contradictions, influential studies and gaps. The literature review was organized and written in a thematic structure. Table 2 provides an overview of selected papers used in the literature review.

Table 2. Selected Papers guiding the Literature Review.

Year	Author	Journal	Country	Method
2010	Linnenluecke and Griffiths	Business & Society	Australia	(proposing new framework)
2012	Wedawatta & Ingirge	The Routledge Companion to Risk, Crisis and Security in Business Routledge	United Kingdom	SME case studies
2015	Ingirge & Russel	University of Salford Manchester	United Kingdom	Qualitative interviews
2017	Linnenluecke	International Journal of Management Reviews	United Kingdom (published); Author in Australia	Review
2018	Harries	International Small Business Journal: Researching Entrepreneurship	United Kingdom	Qualitative, Narrative interviewing
2020	Kuang & Liao	Journal of Environmental Management	-	Review study
2021	Hashim et al.	International Journal of Disaster Risk Reduction	Thailand	Questionnaire, focus groups
2022	Skouloudis et al.	Journal of Flood Risk Management	Greece	Quantitative questionnaire
2023	Hewawasam & Matsui	Climate	Sri Lanka	Quantitative questionnaire

3.4.2 Data Collection

The data collection method consists of semi-structured interviews. This data collection method serves as an enabler to capture local perspectives of real-world problems and gain insights into the viewpoints of individuals who are directly dealing with organizational flood resilience. This method is attitudinal as it explores what someone *says* – in contrast to behavioural studies where researchers explore what someone *does*. The tools and materials that were necessary for this step are the following: A recording device, a laptop or phone to call/videocall with the participants who were not met in person, and paper and pen to take notes.

3.4.2.1 Participant Criteria and Sampling

This study is a multiple-informant study. In total, I have reached out to 35 potential MSE owners or managers via telephone call to request their participation. 14 agreed to participate in the study. There was only one informant per enterprise, and I conducted only one interview with each informant,

resulting in 14 interviews. Two of those were within the pretesting phase, further explained in section 3.4.2.3.

The sampling technique that I used to identify potential MSEs during the reach-out phase was as follows. First, I identified villages heavily impacted areas and located villages in those areas with the strongest flood damage, using media coverage and information provided by the government and different municipalities. This resulted in a list of seven locations (excluding the location of the pilot study). Some villages had detailed descriptions on their municipality website, making it possible to locate the exact flooded areas within a town. Then, I used Google Maps to identify enterprises within these locations. Before reaching out, I read through their website to ensure that the enterprise fulfils the research criteria:

- Location: Lower Austria or Vienna, which are the provinces where the flooding in September 2024 mostly happened.
- Company size: The participant had to be the owner or manager of a micro or small company, with less than 50 employees.
- Profit-oriented: The organizations need to be profit-oriented enterprises. NGOs and associations were excluded.

During my initial calls with MSE representatives, I asked about their level of flood damage to ensure that the final list of participants covers both, businesses with and without flood damage. In addition to the initial sampling technique, I used the snowball technique to identify other potential MSE owners. Around a fourth of the participants were identified through recommendations of other participants. Additionally, I used information from the chamber of commerce and media articles that presented the voices of flooded business owners, to identify additional enterprises. With this approach, I ensured that the final list of participants was high in diversity, in terms of location, flood experience and business type and size. The final distribution of participating MSEs is presented in Figure 4.



Figure 4. Distribution of Participating MSEs in the Provinces Lower Austria and Vienna. The Markers indicate the Location of Selected Towns and the Number of Interviews conducted in each Town (adapted from Robot (2009), modified by the author).

3.4.2.2 Interview Guide

The interview guide consists of an introduction section, three main topics and a close-up and is attached in Annex I.

In the beginning, I tried to create a comfortable setting by introducing myself, briefly explaining the aim of the study and providing some context of flooding and heavy rain events. I asked each participant some warm-up questions about themselves, their business and their experience with the September 2024 flood. The three topics correspond to the three objectives of the thesis: (1) attitudes, perceptions and viewpoints of the participants on flood risk, 2) level of preparedness, and 3) challenges in resilience building. Several questions and sub-questions were asked to meet each of these objectives. At the end of the interview, I left some time for the participants to address any other related topic.

The interview guide was designed in a way that all participants could contribute to all research objectives, regardless of whether they had flood experience or how much they were affected by the flood. This approach aims to gain equal value from each correspondent, while still acknowledging that some interviews contribute more than others. The prepared questions and sub-questions are literature-based. Multiple references are used to justify the choice of each question. These references can be found in the questionnaire table in Annex I. Some principles were followed to create a comprehensive interview guide: Questions were asked from general to specific. Questions were formulated in a way to help the participants remember past experiences. Sometimes I asked similar questions about the same topic but from a slightly different angle to get a comprehensive answer. For some cases, I provided hypothetical questions to help participants express their opinions.

3.4.2.3 Pretesting

Pretesting is recommended to improve the validity of qualitative data collection instruments, as it helps to correct any imbalances between research design and implementation and ensures that the study is reliable and has rigour (Hurst et al., 2015). A pre-study aims to mimic the formal data collection process on a smaller scale to identify problems related to the semi-structured questionnaire. Typically, pretesting involves “administering the interview to a group of individuals that have similar characteristics to the target study population, and in a manner that replicates how the data collection session will be introduced” (Hurst et al., 2015, p. 4).

In the week before the formal data collection process started, a pretesting phase was conducted (March 5 – March 6, 2025). Two pilot interviews were conducted with two different business owners. They share similar characteristics with the target study population: They are micro or small businesses based in Austria. The only difference is that they are located outside of the region that was flooded in September 2024. Neither of them had any direct or indirect impacts from that extreme weather event (Their location is indicated in Map XY).

After the prestudy, the interview questionnaire was revised, because some questions were not immediately clear to the participants. Also, I decided to provide a short explanation of my understanding of resilience as it seemed that participants were not fully aware of the meaning of the word. To avoid giving different explanations to different participants, I decided to prepare a standard

definition that I could provide at the beginning of the interview. Also, the prestudy showed that the initial interview guide was too short. Therefore additional questions and subquestions were introduced to induce a deeper conversation.

3.4.2.4 Interview Journaling

As recommended by Taylor et al. (2016), the empirical part of this study is accompanied by an interview journal. Already when I was reaching out to the participants, I took notes about their willingness to participate. For instance, I have noted the following after calling an MSE owner for the first time to ask if he is interested in participating in this study:

“First, he seemed skeptical and asked me if I was studying at a university of economics. When I told him that I am an environmental student, he loosened up and proudly shared that his daughter is studying a similar field. At the end of the call, his willingness to participate and his interest in the topic seemed high.” (Interview Journal of Participant 3)

Notes like these help me to get a more comprehensive picture of the participants and interpret data at a later stage. For each participant, I reminded myself to take notes before, during, and after the interview. Before the interview, I went through the notes I took so far. Additionally, I collected some basic information on the enterprise, the place where the enterprise is located, and (if available) information on the severity of past floodings in that area. During the interview, I took notes of any remarkable non-verbal communication, such as hesitations, deep-drawn sighs, gestures, and facial expressions. Also, I briefly noted thoughts I had during the interviews, such as “The participant seems to search for something to say and does not seem to have a strong opinion on topic X”. After the interview, I noted anything notable that happened during the interview, important take-aways and learnings, as well as organizational information such as “she will send the signed consent form later today via email”. During the data collection and data analysis process, these journal entries were frequently revisited to get a sense of what has happened so far, what I have learned and what needs improvement.

3.4.2.5 Conduction of Interviews

Qualitative data was actively collected between March 7th and March 25th, 2025. The interviews took between 45 and 65 minutes, which was mostly depending on the willingness of the participant to talk about a topic in depth. I have used the same interview guide in all interviews. The interviews were conducted in person, via Microsoft Teams Videocall or phone call. Only one person was reached through a phone call, who could otherwise not be reached in time. The preferred option was always to see the person, not only hear them. All interviews were recorded and notes were taken.

3.4.3 Data Analysis

The data analysis is a thematic analysis, using the computer-aided qualitative data analysis software Atlas.ti to identify reoccurring themes and patterns in the participant's responses. The process is an iterative and reflexive process, that visits and revisits the data multiple times to categorize and interpret the perceptions and views of the participants. During the data analysis, I alternate between

an emic perspective (an inside view of how the participants view something) and an epic perspective (an outsider view, based on PMT), which is recommended by Tracy (2013). The coding approach is mixed and includes both, inductive coding in the primary cycle and deductive coding in the secondary cycle. During the whole data evaluation process, analytical memos were kept at the side to keep track of any thoughts on emerging themes and patterns. The data analysis process is demonstrated in Figure 5.

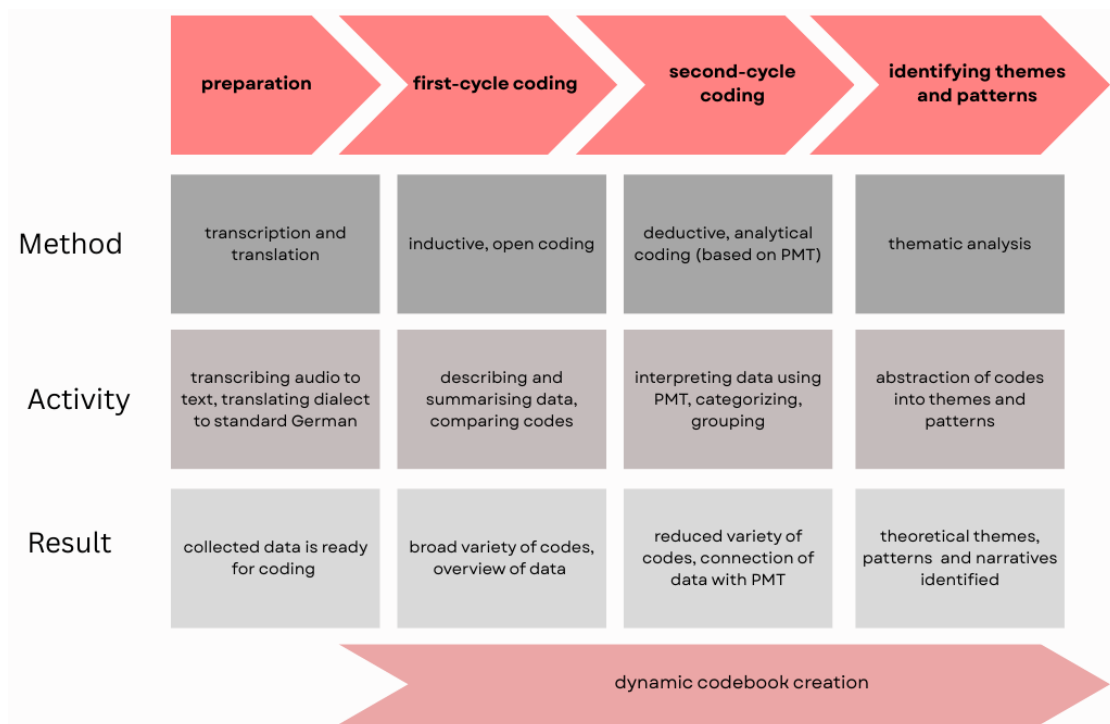


Figure 5. Data Analysis Process (own figure).

Preparation

After conducting the interviews, the audio recordings were transcribed using the automated transcription software “Transcriptor”. Phrases of Austrian dialect were translated into standard German, except if the phrasing in dialect was relevant to the meaning of the responses. Then, the transcripts were uploaded to the coding software Atlas.ti. One of the interview transcripts is attached in Annex III as an example.

Primary-cycle Coding

In the initial coding phase, an inductive coding approach (open coding) aims to assign simple codes to capture the essence of the data. These codes are mostly descriptive and capture the topic of the response. Examples of primary codes are insurance, early warning systems, criticism of authorities, lack of information, etc. These codes were created while going through the data. I constantly compared the emerging codes with others and cycled back to the beginning whenever new codes emerged. With time, codes were changed, re-named, grouped or separated. This iterative and reflexive process supports a comprehensive codebook.

Codebook

While initially coding the data in the first cycle, the codes were recorded in a codebook. Additionally, a brief definition and representative example of each code is provided. In total, 50 open codes were created. Before starting the second coding cycle, codes from the Protection Motivation Theory were created, defined, and recorded in the codebook.

Secondary-cycle Coding

The secondary-cycle coding is a deductive coding process where I developed seven codes using the PMT framework. This step is more analytical and less descriptive than the first step. It aims to synthesise the data and align it with aspects from PMT. This process is not just descriptive, but interpretive as it tries to make sense of the participants' statements in the context of flood adaptation behaviour. The coding method used here is value-based as the codes relate to the participants' worldviews and perceptions and reflect their experiences. Examples of secondary-cycle codes are high self-efficacy, low self-efficacy, high perceived flood vulnerability, low perceived flood vulnerability, etc. Also, I bundled and grouped similar codes and updated the codebook accordingly.

Identify Themes and Patterns

After several rounds of secondary coding, the last step was a thematic analysis in which I abstracted the codes into meanings to identify themes and patterns within the participants' responses. By drawing meaning from these themes, I was able to create a narrative essential to answer the research questions. The results are presented and discussed in chapters 4 and 5 of this thesis.

3.5 Justification of Methodological Choice

Qualitative studies are used to identify and work with the meaning that a person attaches to something (Taylor et al., 2016), which is the case in this thesis project. A quantitative method could not provide the same depth and holistic approach to the understanding of people's sensemaking of flood risk and their viewpoints on resilience building. The flexible and inductive research design allows me to work without many assumptions and gives space to new social meanings. At the same time, I acknowledge that pure induction - a study completely free of assumption - is not possible (Taylor et al., 2016), which is why the protection motivation framework is used in addition to the open approach.

The qualitative interview is an appropriate choice of method for this thesis, because perceptions, viewpoints and attitudes are easily collected through verbal accounts (Taylor et al., 2016). Open-ended questioning provides a chance for the participant to express their opinion freely. The flexible and dynamic interview style provides options to delve into new topics depending on the dynamics of the conversation. In this study, I aim to understand the lived experience of people in a particular situation. This expectation can be best met through in-depth interviews. Semi-structured qualitative interviews are used in various other studies with similar aims, for instance in Takacs et al. (2022) to identify perceptions and viewpoints of small business owners on circular

economy, or in Bustillos Ardaya et al. (2017) to address disaster risk perception of a population living in flood risk areas.

3.6 Limitations of Methodological Choice

As is the case with any methodology, there are limitations to this approach. First, there are issues with the generalizability of the results. Qualitative studies are often highly context-dependent. Some aspects of the interviews might be specific on a country-, regional- or municipality-level, such as insurance conditions, early warning systems or support from local authorities. Results related to these aspects might not easily be translated into other contexts, which reduces the strength of the results. Also, there could be challenges when translating interview content from German to English (Hurst et al., 2015). In the worst case, valuable meanings of expressions get lost in translation.

Secondly, using interviews as a method creates a dependency on the participant's ability and willingness to articulate perceptions, experiences and feelings. With that, I do not have control over the information that the participants actively exclude or forget to mention. The latter one a particular problem in this study as the event discussed happened approximately seven months before the interview and some memories and impressions might have faded. This has been described as a common limitation for these cases (Harries et al., 2018).

A third limitation is the exclusive focus on micro and small businesses that have experienced the flood. The absence of bigger firms could result in resilience-building recommendations which only work for smaller enterprises and are of no use to bigger ones (Harries et al., 2018). In addition to that, the selection of interview partners is influencing the study. MSE owners who have a conflicted relationship with the topic might not agree to participate in the study resulting in a list of MSE owners who are willing to re-experience the disaster through in the conversation. Also, enterprises that lost their existence after the flooding are difficult to identify and were not specifically searched for.

Lastly, researcher bias and subjectivity cannot fully be avoided in any study. Even if taking measures to prevent researcher bias, there is never a 100% neutrality of the researcher. The interpretation of interviews and codes is shaped by the researcher and data is interpreted subjectively or through a specific lens. To best mitigate researcher bias, multiple measures were taken: A reflective approach was chosen, including detailed note-taking, which is outlined in section 3.2. Researcher's Role. Transparency was assured by outlining the collection and analysis of data in detail and providing material such as the code book in the Annex II. To reduce the dependency on the researcher's interpretation of the interviews, direct quotations are used in the results section. This helps to overcome researcher bias by directly letting the participants speak.

4 Results

This section summarises the main results of this thesis. A short overview is given, before the findings of the open coding and the findings related to the PMT are presented.

4.1 Overview

12 interviews have been evaluated, using a total of 57 codes, of which seven were taken from PMT (deductive), and the rest were created in an open coding process (inductive). I have used an approximate number of 40-50 codes per interview, capturing a spectrum of 40 to 80 quotes each. The codes that were used most often are “preparation measures on property level”, “risk awareness/perception” and “learning through experience”. The codebook is attached in Annex II.

All participants own and manage their enterprise. Ten enterprises are family businesses. Four participants are female and eight are male. Most of them are in their 30s or 40s, only a few are above 50 years old, and one is younger than 30 years old. All participants claimed to own the building or property of their enterprise. None of them is renting their business location. Table 3 provides an overview of the enterprises participating in the study.

Table 3. Summary of Main Descriptive Factors of the Interview Participants.

Nr.	Sector	Number of Employees	Business size	Flood experience in Sep 2024	Recovery time
1	Gastronomy	8-10	Micro	Heavily flooded	2-3 months
2	Retail Trade	1	Micro	Heavily flooded	Store re-opened after 1 months; still some construction work at time of interview
3	Woodworking/ Manufacturing	4	Micro	Heavily affected (but damage was mitigated)	2 days
4	Waste Management	14-15	Small	Slightly affected	1 day due to closed road
5	Agriculture	5-7	Micro	Not affected	-
6	Service/Retail	1	Micro	Indirectly affected	Had to postpone a workshop
7	Woodworking/ Manufacturing	3	Micro	Indirectly affected	(Profited from flood event through increased contracts)
8	Food Industry	20	Small	Heavily flooded	2 months
9	Agriculture/Retail	8	Micro	Heavily flooded	1-2 months
10	Retail Trade	11	Small	Heavily flooded	Closed for 2 weeks, still fixing things today
11	Gastronomy	35	Small	Slightly affected	5 days
12	Tourism	27	Small	Heavily flooded	2 weeks

Most participants have been directly or indirectly affected by the flooding in September 2024. *Heavily flooded* enterprises experienced water inside their stores, reported damaged vehicles, machines and equipment, had damaged or broken products and stock, and had to shut down their business for multiple days. *Slightly affected* enterprises had minor damages that could easily be fixed, such as broken doors or a bit of water in one of their rooms. *Indirectly affected* enterprises did not have any flood damage but were affected through the state of emergency of their municipalities. For example, closed roads hindered the transportation of employees and goods. One of these enterprises, a wood carpenter, claimed that the flood was a benefit for his business due to increased workload after the disaster. Lastly, there was one enterprise that was *not affected*. This enterprise did not experience any flood damage and was not affected by the emergency status even though it is in the flooded province.

Throughout the interviews different moments in time around the flooding in September 2024 were discussed. Figure 6 shows a time bar of different phases, and their corresponding activities related to flood resilience.



Figure 6. A Timeline of Disaster Risk Management as referenced during the Interviews and their Corresponding Activities (Author's own figure based on data from Kunreuther & Useem (2011)).

4.2 Results from the Open Coding

The results emerging from the open coding (first-cycle coding) are organised around key themes, which reflect the three objectives of this thesis: Flood risk perception, flood preparation and resilience building.

4.2.1 Flood Risk Perception

The interviewed MSE owners either had an emotional or a practical association with flood risk. Some participants responded by sharing emotion-driven memories of the disaster in September 2024, while others associated the term with natural hazard risk maps (referred to as “red zones”) or certain building standards which were demanded by local authorities.

Four participants claimed to have changed their views on flood risk. Three of them were heavily impacted by the flood in September 2024. Before the flood, they did not know or believe that they were in an area with high flood risk. A few other participants have changed their perceptions on flood risk slightly, for example, Participant 9, who experienced many smaller floods before but was surprised by the magnitude of the past flood.

“I did not expect that. I had expected that we would have 1 meter of water (inside the store), but not a 300-year flood. What has happened, I did not expect” (Participant 9, *heavily flooded*).

“The idea that – given the river’s distance from us – we’d be at risk of flooding, so severe that people would be standing in the water up to their waists (...) was unimaginable, quite honestly. And hardly anyone in the town could have imagined that this place would one day be flooded like that” (Participant 12, *heavily flooded*).

Mostly negative emotions and feelings were associated with flood risk by the participants, including fear, sorrow, respect/reverence, uncertainty, nervousness, and psychological stress. Only one participant showed an optimistic attitude and argued that after destruction, good things can come:

“Try to make the best out of the situation. Everything bad has something good in it. In our case, we reconstructed (the building) and it turned out nicer than before. And we had a chance to do all the things (constructions/improvements in the store) that we never had time to. So, everything has good and bad sides” (Participant 9, *heavily flooded*).

All participants, except one, explicitly said that a flood with a similar magnitude could happen again anytime. Some of the participants mentioned climate change as the reason for increased extreme weather events, even though the interviewer had not directly brought up “climate change”.

Mixed responses were gathered when asking the participants if there is a connection between the flood resilience of their enterprise and the overall resilience of their community. Three participants mention that there is no connection and claim that the community does not benefit from their resilience or is not concerned about the resilience of their business. Interestingly, one micro business owner immediately distinguished between smaller and bigger companies and underlined the importance of bigger enterprises for society, ignoring the relevance of smaller ones. The other participants address multiple benefits of MSE flood-resilience for the community, including job security, more public resources (e.g. fire brigade, pumps) for other flood-damaged houses, or the capacity of the company to assist in the cleanup in the recovery phase.

“It’s part of the industry we are working in – the waste sector. We were able to get back into action relatively quickly. We then provided a lot of containers and so on for the clean-up. It was helpful for the people to have a company that could assist with the waste that had been created by the flooding, already the day after” (Participant 4, *slightly affected*).

“Yes (there is a benefit for others if my company is resilient). They have more time for private households. If we talk about the fire department, for example, then my neighbour benefits from the fact that the fire department didn’t have to come to my house because I had my own pumps and drained the water by myself” (Participant 3, *heavily flooded*).

4.2.2 Preparation

There is a clear focus of the participants on property-level preparations as the main type of preparation activity. Most participants emphasised from an early point during the interview that they have had certain preparations in place when the flood arrived, such as tailored timber blockings for windows and doors or cement walls between business property and the river. When hearing the first early warnings, some business owners took additional measures to prevent flood damage, such as placing sandbags in front of entrances or sealing toilets and the inflow of the sewer tunnel to prevent flowback. The most common measure during this phase was to move products, stock, furniture, machines and equipment to flood-safe places. This preparation measure was not always successful. Some owners were fighting against time and did not manage to save most of the stock before the water entered their building. Participant 2 did manage to move her products to a higher level in time (approximately 1 meter above ground). However, the severity of the flood was underestimated, and the water level inside the store reached 2 meter, destroying all the products. The case of Participant 2 demonstrates how a business owner would have been well prepared for a smaller flood, but once the flood reached this magnitude, the preparations became ineffective.

The majority of participating MSE owners have not involved employees in flood preparedness planning. Only three participants claimed to have dedicated time to instruct employees on what to do in case of a flood emergency. Participant 10 emphasised multiple times that it is more important to educate employees to act correctly in stressful situations than to spend a lot of money on expensive flood protection.

“One of the most important things is for everyone to stick together in case something happens. That means that friends, relatives, and especially employees are trained so that they know what they have to do. And that doesn’t cost any money, it just costs time. (...) It is just a few hours where you sit down and talk calmly. (...) Then, the person knows exactly what to do. It (the flood event) is a stressful situation because it all happens so quickly, and then you don’t have time to say, “Can you please do this and that?” (Participant 10, *heavily flooded*).

None of the participants have ever participated in any workshop or seminar related to flood protection or resilience. Only Participant 5 claimed to have attended education events which aimed to increase the general resilience of her agricultural business, without specifying on floods.

Nine of the participants did not have any written flood preparedness plan for their enterprise. One of them claimed to have a plan, but it is only verbal because all communication goes through him anyway. Only three participants have written plans on what to do in case of a flooding. Two of them, Participants 9 and 10, have created this plan after the flood in 2024. The other one, Participant 3, has created this plan after experiencing a flood in 2002 and has made certain investments (e.g. pumps, raising some equipment, etc.). During the flood in 2024, he successfully implemented most steps of his plan and used the prepared equipment to mitigate flood damage. Participant 3 also showed the highest level of preparation out of all interviewees. This finding reinforces the idea that resilience can be built through experience and that investments into resilience pay off.

“Back then, we had built this facility accordingly, and at the time, it led to enormous investment costs. But as you can see, it paid off” (Participant 4, *heavily flooded*).

When it comes to insurance, only two participants think that having flood insurance is an effective preparation measure. Most participants either have a strong opinion against the effectiveness of flood insurance, expressed mixed opinions or showed a skeptical attitude.

“I wouldn’t say (that insurance is effective), because I think they always find some loophole and drop out or pay less. So, it doesn’t pay off” (Participant 2, *heavily flooded*).

When confronting the participants with the theory of slack resources, the majority strongly disagreed with the theory, claiming that excess resources are not helpful during a flood. The most common argument was that more stock means more potential damage and more work prior to the flood, for instance when moving the stock to a flood-safe place shortly before the water enters. Participant 8 has decided to reduce the stock of products in his warehouse due to high losses of products during the flood. Only two participants distinguished between the types of slack resources within their answer.

“It depends, if I have more stock then the flood destroys it, that is not good. But if I have a cash buffer, for example, then it is definitely of use to me because that can be helpful when I can’t produce” (Participant 7, *indirectly affected*).

“More money is certain – the more the better. More employees – I would say that is difficult for me (...) because if I permanently have more employees than I need, I’ll pay more” (Participant 9, *heavily flooded*).

The overall level of preparedness among the participants is mixed. The results reflect the assumption that flood-experienced business owners had more preparation measures in place than those who have never been flooded or who assumed to live in a flood-safe zone. But even flood-experienced business owners who had prepared measures in place were flooded heavily due to the intensity of the flood in September 2024. Some participants claimed that it is generally not possible to be prepared for a flood of this extent.

“This is the fourth flood I have experienced, and we have implemented a lot (of flood-protection measures) so far. But at this point, we can’t prepare anything more” (Participant 8, *heavily flooded*).

4.2.3 Resilience Building

All participants perceive resilience as a positive trait which is useful for any enterprise. Some went further and emphasised that resilience is a useful characteristic for any person. Most participants agreed that a resilient business has a competitive advantage towards a comparable less-resilient business.

“Yes, this is an advantage over competitors. If we (...) reopen the restaurant three days (after the flood) and restaurant X over there (*points to neighboring business*) takes three weeks, where do you think the customers will go?” (Participant 11, *slightly affected*).

When asked if they would rather describe themselves as managers who prepare for any case or managers who follow a wait-and-see approach, the majority assigned themselves to the first type.

Only two participants chose to “wait-and-see” when it comes to flood protection. They argue that there is no need for further adaptive measures due to the location of their business and the way their building is constructed.

“Based on our site and the flood event, I’d rather put myself in the group that’s waiting, that’s seeing what happens next. I feel quite well protected and very resilient against flooding at the moment” (Participant 4, *slightly affected*).

In every interview, the participants expressed key learnings and takeaways from their flood experience. Several business owners expressed deep gratitude and admiration for the strong sense of community. Especially in the days after the flood, willingness to help others was seemingly high. Other learnings centered on whether the implemented flood-protection was effective or not. In cases where flood protection failed, participants reflected on how to enhance their preparedness and resilience for future events. These results underline the effect of experience in resilience building. Some business owners could identify vulnerabilities of their businesses, e.g. Participant 11 pledged to improve the flow of information and observation to be positioned better during the next crisis.

When discussing challenges in resilience building, the participants mentioned a variety of resources which helped to enhance organisational flood resilience. The two most mentioned resources are financial resources and knowledge/know-how. For many business owners, building resilience means investing in physical flood-protection, such as water barriers, walls, flood gates, etc., which all comes at a cost. Flood-damaged enterprise owners also claimed that they are currently in need of both, financial means to build resilience towards future floods and financial means to repair and recover from the damages of the past flood.

More often than expected, participants emphasised that know-how and knowledge are needed to identify vulnerabilities of the enterprise and invest in the most effective protective measures. This indicates uncertainty and lack of knowledge of business owners about effective flood protection and resilience building.

“I think know-how would be important. I am currently trying to implement embankments within our agricultural fields (to increase resilience) (...). I need the right know-how, but that is currently being created, and unfortunately, no one has proper experiences yet” (Participant 5, *not affected*).

Other challenges include regulations and long bureaucratic processes (e.g. when constructing a wall), and the fact that small business managers have multiple roles and responsibilities and cannot keep flood-resilience as a top priority. This is also connected to a concern expressed by Participant 10, indicating that protection motivation decreases with time.

“There is a danger now that it (the flood experience) will be quickly forgotten, and after the flood, you think, ‘I have to do all this for the next time’. But then winter came along, and now many people have forgotten about it, and they are not concerned about placing panels (...), and having waterproof windows. And then they forget to do it” (Participant 10, *heavily flooded*).

“As a company owner, I have other problems. I need to ensure that we can deliver to our customers, that we receive enough money, that I can pay my employees, that I can pay my taxes, and so on. I have so many things to do that I forget about things like flood protection” (Participant 8, *slightly flooded*).

4.2.4 Summary of Open Coding Results

In summary, the open coding could provide valuable insights into the participants' flood risk perception, level of preparedness and resilience building. Their vulnerabilities and challenges, including financial constraints, lack of knowledge or binding regulations were highlighted. Overall, their challenges in flood preparation and resilience building are extremely diverse and strongly depend on the individual needs of each business as well as on the specifics of each location. Furthermore, the results of the open coding have provided insights into the perceived relationship of the MSE owners and their community, identifying multiple intersections of organisational resilience and community resilience. Most interestingly, different stages of learning were observed, stretching from participants who have never experienced a flood before, to participants who could successfully mitigate flood damage by using learnings and experiences of previous flood events. In section 5, these results are discussed further with regard to the existing literature.

4.3 Results using the Protection Motivation Theory

The application of the Protection Motivation Theory to this data offered valuable insights. All five core variables of the framework were well reflected throughout the interview transcripts.

4.3.1 Perceived Threat Severity (PTS)

Generally, the participants *perceived threat severity* was quite high. Most of them connected climate change to an increase in extreme-weather events and expected more frequent and intense flood events in the future. Some participants answered quite specifically, e.g. expecting one severe flood every ten years. Often, this perception was shaped by personal experiences or experiences of family members who were previously running the business. Many of the business owners experienced multiple floods in the past and used those events as reference points to assess the threat severity at their location.

In this study, *perceived threat severity* was not found to be a strong predictor of flood protection behaviour. This conclusion is drawn because all participants claimed that PTS is generally high, but showed quite different flood protection behaviour.

4.3.2 Perceived Threat Vulnerability (PTV)

While the general *perceived threat severity* seemed high, there were notable differences between the *perceived threat vulnerability* of the participants. Answers varied according to how serious the participants perceived the flood risk for their business location. A few participants were confident that the location itself protects them from flood damage, such as Participants 5, 6 and 7, who did not experience any water damage because they were located on a hill. Similarly, the physical setup of enterprises 4 and 11 was protecting them from flood damage, which resulted in a low *perceived*

threat vulnerability of the business owners, while simultaneously acknowledging the increase in flood severity for the rest of their municipality or town. Some participants expressed false high security before the flood event but did re-evaluate their vulnerability to floods. For instance, Participant 2 has trusted in the protective measures she took prior to the 2024 flood but learned that she was not prepared enough and therefore reassessed her vulnerability to floods. Unsurprisingly, those who have been impacted most by the flooding in 2024 saw themselves highly vulnerable. In addition to the vulnerability of each enterprise, some participants showed signs of personal vulnerability. To be specific, one interviewee explained the psychological stress that was triggered when hearing rain for the first time after the disaster. Others related their vulnerability to the dependence on public flood protection or infrastructure and outlined how they, as individuals, cannot be fully responsible for flood protection as it exceeds their sphere of action.

Compared to PTS, PTV seems to have a much stronger effect on the overall flood protection behaviour of the participants. Participants 1, 2, 9, and 12 show high PTV. Accordingly, these are the participants who actively want to improve their flood protection. In contrast, Participants 5, 6 and 7 do not feel the need to improve flood protection because their enterprise is on an elevated location, such as a hill. Similar, Participants 4 and 11 also do not feel vulnerable to floods due to the specific physical set-up of their enterprise. It can be concluded, that the *perceived threat vulnerability* of each business owner strongly influences the flood protection of the enterprise. A practical consequence of the importance of PTV over PTS is that flood awareness communication should be framed accordingly, urging MSE owners to check their own vulnerability instead of solely focusing on the increasing likelihood and frequency of floods in their area.

4.3.3 Response Efficacy (RE)

The findings on *response efficacy*, which is the belief in the effectiveness of protective actions, were mixed. Generally, participants distinguished between different types of protective measures and different magnitude levels of flooding. For instance, Participant 8 has built a wall to protect the enterprise from river overflows. However, last September, the water entered the enterprise from the street side (not the river side) due to a dam failure. He concluded that his flood protection would have been effective for water entering the premises from the bordering river, but not from the street. A few other participants were certain that their protection measures would have been effective for smaller floods, but the flooding in 2024 was too severe.

“But even if we put up these dam logs here on our property, it will make no difference at all. With a flood like the one we had now, (...) I would have to make a two meter high dam around the entire thing (property). It’s impossible” (Participant 10, *heavily affected*).

Highest *response efficacy* was shown in cases where flood protection proved to be effective, such as the case of Participant 3, who also showed the highest levels of preparation in this study. He learned from a flood experience in 2002 and successfully applied the gained knowledge to prevent flood damage in 2024. Participant 4 explained that the particular set-up of his construction site paid off, indicating the effectiveness of these measures even if they come with a cost.

“Back then, we had to build this facility accordingly, which paid off in retrospect, but at the time it led to enormous investment costs. Of course, it had an impact, as you can see, it paid off” (Participant 4).

But also, business owners who did experience flood damage showed signs of high *response efficacy* and high *self-efficacy*. To illustrate, Participant 12 is sure that by acting differently during the next flood, he can successfully protect his company from severe flood damage. This example demonstrates the common overlap between *response efficacy* and *self-efficacy*.

“I believe that since we have been affected so badly, we have learned from it and with small measures or quick measures we can very quickly prevent such great damage, which we have experienced now” (Participant 10, *heavily flooded*).

Summing up, RE does seem to influence the protection motivation of the participants, but a clear conclusion cannot be made. Participants were more likely to believe in the effectiveness of protective measures, if these measures have proven to be effective during a past flood event. For some business owners, the flooding of September 2024 served as a test event to check the effectiveness of implemented measures. This indicator, however, lacks clarity in two ways: 1) It does not distinguish between different measures (e.g. a participant could have implemented multiple measures of which only some were effective), and 2) it does not distinguish between different types of floods (e.g. a participant could believe in the effectiveness of a measures for smaller floods but not for bigger floods). To gain stronger results of the effect of RE on flood protection behaviour, this study would need to distinguish between different measures and different types of floods when assessing RE.

4.3.4 Self-Efficacy (SE)

Findings around *self-efficacy* varied strongly. There were several reasons for low *self-efficacy*, including a lack of employees, a lack of knowledge about effective measures, and a lack of know-how on how to best implement certain adaptation actions. Some owners said that they would need help in installing physical flood barriers. Others expressed that they would like an expert to identify their vulnerabilities and the most effective measures for their property.

“I think that if (...) a technical expert, someone who doesn’t do anything else but that, tells me ‘You should do this and that for safety reasons’, then I would do it” (Participant 1, *heavily flooded*).

Self-efficacy seemed high for participants who could mitigate much of the potential flood damage, such as Participant 3, who translated learnings into protective measures, or Participant 4, who is confident that his business can withstand any flood because it was not damaged during the heavy flood in 2024.

Similar to RE, *self-efficacy* depended heavily on the type of protective measure and the circumstances. Some types of protective measures require authorization of local authorities. Participants 1, 5 and 8 have experienced long bureaucratic processes or strict regulations which challenge their ability to implement flood protection. Some participants describe circumstances that

challenged the implementation of protective measures. To illustrate, while the *self-efficacy* of placing sandbags in front of doors was high for most participants, some explained that they have failed to do so because there was not enough time, and the water entered before they could seal all entrances.

To conclude, this study found indicators that prove the effect of *self-efficacy* on protection motivation. Business owners are willing to implement measures, where *self-efficacy* is high, even if the measures might be ineffective. For example, many participants used sandbags to create a water barrier even if the water was not fully stopped by the sandbags. Any measure which is outside of the participants' scope of action (e.g. activities related to the public flood protection or early warning systems) was not treated as a part of the enterprise flood protection plan. This indicates that the flood protection behaviour of MSEs centers around measures that they can implement by themselves and excludes community-wide forms of protection on which they have low *self-efficacy*.

4.3.5 Response Cost (RC)

Conclusions regarding *response cost* closely connect with the findings on useful resources in resilience building, which were discussed in the open coding section. The most mentioned types of costs are financial costs and time. Financial costs seemed to be the most dominant determinant of whether a business owner decides to pursue a certain protection measure or not.

Some participants list effective low-cost adaptation measures. For instance, Participant 4 has emptied the water tanks of their internal wastewater treatment system to store excess rainwater and prevent water damages. These types of practices were described as highly efficient and low-cost. Other participants placed sandbags and other low-cost flood barriers in front of entrances. While these certainly are low-cost measures, the participants acknowledged that these practices would only work for less severe floods. Generally, cheap and fast practices can be considered as the "low hanging fruits" of adaptive measures in this study.

Two types of answers regarding high *response cost* can be distinguished: Those who describe the cost as a barrier for implementation and those who justified the cost with the effectiveness of the measures. Cost as a barrier was frequently coded in context of insurance. There was an agreement amongst some participants that flood insurance is too expensive which led to a rejection of insurance as a way of flood protection. In contrast, some measures seemed to be worth the investment. The best example is Participant 3, who invested in pumps to keep water levels in his enterprise low during the flood.

"In 2002, the damage was around 220,000 Euro. And the pumps and everything I did there cost about 10,000 Euro. That's not even 20%. (...) So, it was worth it" (Participant 2, *heavily flooded*).

Like RE, the results on *response cost* are a bit vague because the study did not distinguish between different types of measures and different levels of flood severity. While the cost of a measure, in terms of money, time or effort, is an important factor for business owners when deciding if they implement a certain flood protection measures or not, the study could not identify the conditions that lead the participants to accept high costs of certain measures.

4.3.6 Summary of Results related to PMT

In summary, all five core variables of the Protection Motivation Theory were found to affect the implementation of flood protection of the participants, but the magnitude of their effect seemed to vary. Due to the nature of the qualitative data, it cannot be investigated which variable has the strongest effect on the independent variable. Still, some approximate conclusions on their effects can be made.

Perceived threat severity does not seem to have a strong influence on protection motivation because participants have had a similar perception of flood risk but showed very different adaptive behaviors. More importantly, *perceived threat vulnerability* seemed to affect protection motivation. This factor is better in reflecting the individual challenges and circumstances of each enterprise than *perceived threat severity*. Together with the extra variables, *fear* and *maladaptive awards*, these two variables explain the *threat appraisal* process of participants. While *fear*, along with other emotions, seemed an omnipresent theme in the interviews (mostly related to the vulnerabilities of each business), *maladaptive awards* were rarely mentioned explicitly. Rare examples are participants who said they were saving money when avoiding insurance, or Participant 12, who preferred to immediately react during a flood event, instead of preemptively investing in expensive physical measures. Therefore, these factors are indicated with “insufficient responses” in Figure 8. The *threat appraisal* of participants in this study is highly influenced by personal vulnerabilities related to location and the nature of each business, as well as emotions which were commonly related to personal flood experiences.

The *coping appraisal* of the participants is constructed by *response efficacy*, *self-efficacy* and *response cost*. Ambiguous results were created for *response cost* due to the big number of different response types and the variety of related costs. To get better results for this factor, a more detailed questionnaire is necessary, which delves deeper into the specifics of different adaption measures. Results on *response efficacy* and *self-efficacy* were mixed but seemed to be closely related to flood experience. Flood experiences were used as the main argument for the effectiveness of certain measures and the participants’ ability to implement them. Participants who had successfully mitigated flood damage were more likely to show high *response efficacy* and *self-efficacy*. Owners of flood-damaged enterprises could identify weaknesses and limits of their current protection measures and distinguish between different severity levels of floods.

Figure 7 pictures the Protection Motivation Framework with adapted lines showing how strong the influence of each variable on protection motivation was, based on the answer-narratives found in this study.

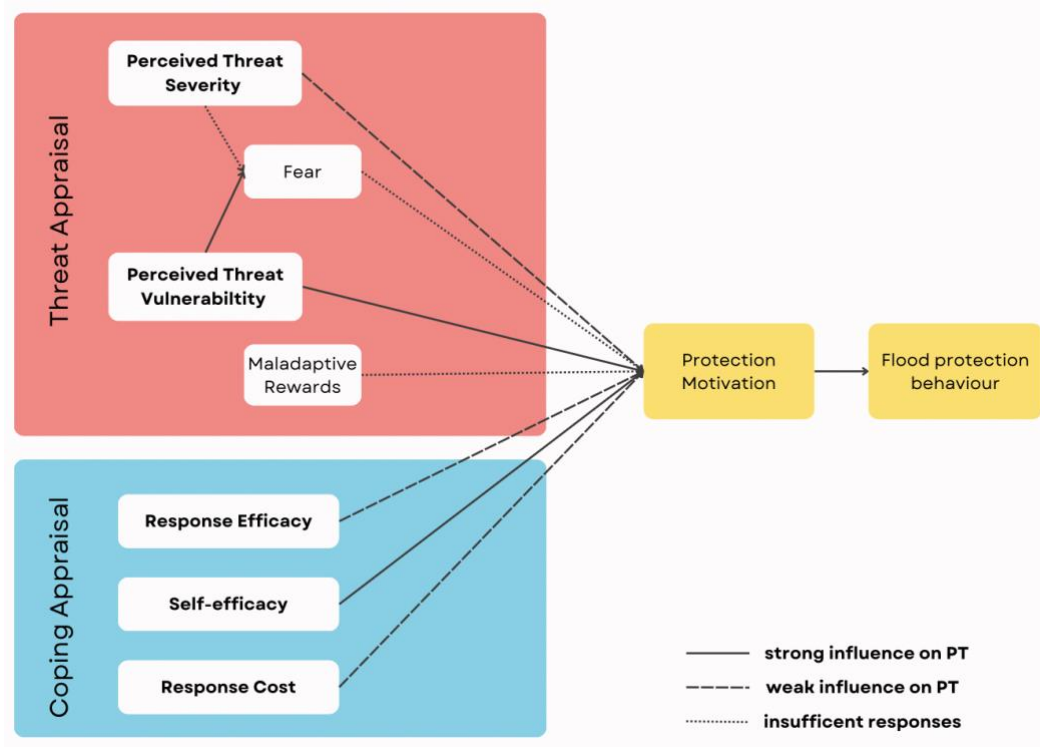


Figure 7. The Protection Motivation Framework with Lines describing the Influence of each Factor on the Protection Motivation (PT) of the Participants (Author's own figure based on data from Marikyan and Papagiannidis, 2023).

Overall, the study could offer interesting insights into the realities, challenges and learnings of flood-affected MSE owners in Austria. The results provide ground for discussion in sight of previous studies and findings from the literature analysis.

5 Discussion

This chapter first summarizes the key findings of this study and links them to insights from the literature review. Then, the two research questions are answered and practical recommendations are given. In the last section, the limitations of this research are discussed and an outlook for further research is presented.

5.1 Summary of Key Findings

The narrative of this thesis is to provide a qualitative, experience-driven investigation of how Austrian MSEs perceive and make sense of flood risk, with the goal of understanding how resilience is built and challenged. Protection Motivation Theory was blended with empirical data and linked to the realities and experiences of business owners directly or indirectly affected by the September 2024 flood.

First, the results indicate that flood risk experience strongly influences the risk perception and resilience behaviour of the participants in this study. This finding resonates with the general academic tenor that flood experiences are a window of opportunity to gain knowledge, learn, adapt and build resilience (Harries et al., 2018; Hewawasam & Matsui, 2023; Kuang & Liao, 2020). The flooding in September 2024 demonstrated a turning point for many of the participants, from which they either improve flood preparations or kept them as they are. The latter one happens in the case of MSE owners who believe that their existing protections are strong enough or who do not believe that any other protection is feasible. While it is beneficial for resilience building that flood experience brings attention to climate adaptation, it is still a reactive behavior, meaning that enterprises first need to experience flood damage in order to understand their resilience level and raise motivation to protect themselves. As a result, businesses who are exposed to flood threat but have no experience with floodings are more likely to underestimate flood risk and the importance of flood resilience, making them especially vulnerable. Ideally, resilience building happens preventative, without the need of a flood experience as a wake-up call.

Secondly, this study has found a strong focus on physical flood preparations, and an underestimation of other approaches, such as employee involvement, trainings, long-term planning and preparedness plans. Only a few participants have emergency plans, as promoted by Coates et al. (2013) and Xiao et al. (2020), and even less participants actively involve employees in preparedness and response, despite employee engagement being a crucial enabler to preparedness (Weber et al., 2015). None of the respondents participated in trainings or conducted regular emergency drills, even though these activities effect flood preparedness (Hewawasam & Matsui, 2023). Participants of this study describe stressful situations in which physical flood protections were not effective enough, leading to unprepared and uncoordinated behavior during the flood, and to flood damage that could have been prevented. This indicates that physical flood barriers are not always effective, and the above-mentioned types of preparation are enablers for flood resilience, especially when keeping damage to a minimum during the flood. In other words, it is not sufficient

to build a flood barrier around a business property. Instead, the organization itself needs to increase resilience.

The third key result of this study relates to the heterogeneity of the small business sector. MSEs have unique characteristics, vulnerabilities, capabilities and circumstances. Resilience building must reflect this uniqueness, which is why there is not one solution that fits all businesses. Consequently, many business owners show a lack of knowledge of their business' vulnerabilities and adaptation options related to floods. They need to find out how they can build resilience according to their needs and local flood risk, which results in multiple different ways of flood management. This resonates strongly with a study by Sultana et al. (2018), who found that the high heterogeneity of companies in terms of sector, size or business process, lead to significant differences in flood management. Due to this high heterogeneity, the authors have found only weak links between business interruption costs and duration. Similar, in this study the recovery time of the participating MSEs varies greatly and cannot be explained business size or sector.

Lastly, the results underline the applicability of the Protection Motivation Theory in an environmental risk context and on an organizational level. The study showed that PMT can be used as a lens to investigate the understudied perception of flood risk of small business owners (Harries, 2021). However, a weakness of the framework in this context was identified. While the framework is strong in assessing one particular protective activity (e.g. “take this medication”, as in Fu et al. (2025)), the framework loses precision when it is used a general way (e.g. “protect yourself for floods”). Without specifying the single activities that lead to “flood protection behaviour”, discrepancies between the components of the framework may occur. For example, in this study, it was difficult to understand the coping appraisal properly because a participant's *response efficacy* could be high for activity X, but low for activity Y. If both activities contribute to the overall flood protection behaviour, the framework loses credibility. Consequently, this framework works better for particular activities, than for general behaviors.

5.2 RQ 1

RQ 1 asks, how Austrian MSEs make sense of flood risk and perceive flood preparedness. The question aims to explore business owners' attitudes, viewpoints and perceptions regarding flood risk and identify how risk perception relates to the decision-making of MSE owners. Special attention is given to the effect of previous flood experience on building resilience to future events.

The participants' perception of flood risk and flood resilience of this study can be contextualized in relation to key aspects discussed in the literature review. The predominate perception of resilience is focused on external resilience, rather than internal resilience, for instance, by addressing how their enterprise responds to environmental uncertainty, instead of focusing on internal instability. Therefore, their perception is placed within the original research strand by Staw et al. (1981) and Meyers (1982). The simplified idea of *the more resilient, the less vulnerable* seems to resonate with the participants responding's too. The type of resilience addressed in this study, as distinguished by Chelleri et al. (2015), is specific resilience — in other words, the participants discussed preparations for specific extreme weather events rather than general stress levels. At the same time, some participants acknowledge the importance of general resilience, as a capacity to

withstand stress while being able to retain the properties of their business (Chelleri et al., 2015). For instance, Participant 1 points multiple times to the difficult economic situation in Austria's gastronomy sector, indicating that general resilience is needed to constantly withstand in a troublesome sector.

Even though the participants of this study did not directly use the term 'tradeoff', there were indications on how resilience at one scale or time is achieved only at the expense of another scale or time (Chelleri et al., 2015). To illustrate, Participant 9 had to use the financial resources from the recovery fund to repair the damages even though he would have preferred to invest these resources in long-term adaptation measures, e.g. buying better flood-protection and re-building the business in a more resilient way.

Both, the engineering and socio-ecological perspectives of resilience were reflected in the interviews. Almost all participants have mentioned in one way or the other how they needed to recover and bounce back to the state before the flood quickly. This is a strong indicator "business-as-usual" is perceived as a goal that needs to be achieved as fast as possible, while mostly ignoring the possibility that a transformation of organizational processes and a different way of doing business could be more beneficial in the long run. Only a few participants hinted on transformative elements and a social-ecological perspective of resilience. Some mentioned how they have learned and developed through this flood experience, which led them to take different decisions based on the newly gained knowledge. This practice confirms the learning process described by Kuang & Liao (2020). Radical and transformational changes to organizational business structures - such as new production processes, changes in products, or a relocation of business premises - were not observed in this study.

When applying the resilience framework of Linnenluecke & Griffiths (2010) to this data, both interpretations on flood resilience become visible. The authors distinguish two types of organizational response towards shocks: 1) resilience as the capacity to recover and the question of *how fast* the organization can recover, and 2) resilience as the capacity to rebound from adversity and the question of *how much* disruption an organization can withstand before losing function.

- 1) The first resilience perception was reflected in the data in a clear manner. „How fast“ a business can recover from a disruption was described with days, week, or months starting from the moment the disruption ended. In the study, this was assessed by asking the participants about the recovery time needed after the flood and the actions they took to speed up the recovery process. For Participant 11, the recovery time of his business was a direct indicator for resilience. He could re-open his business already a few days after the flood, which was much faster than comparable businesses nearby.
- 2) The second type of resilience distinguished by Linnenluecke & Griffiths (2010) was reflected in the data by the severity of the flood damage. Some participants mentioned that their preparation measures would have worked for a smaller flood but could not withstand the impacts of such a severe flood. Another participant had protections in place that would have stopped river overflow coming from one side, but could not stop water coming unexpectedly from the street side. The framework does not distinguish what „how much“ disruption means, it does not provide a scale of disruption, making it rather difficult to compare between different levels of disruption.

In terms of the participants perception and sensemaking of preparedness levels, the study could bring new insights to the overall academic discourse. Participants of this study tended to directly translate the level of preparedness with the level of resilience - *the more prepared, the more resilient*. Moreover, they translated protective measures into resilience – *the more protected, the more resilient*. There is only one example of a participant who mentioned that letting some things unprotected on purpose will increase the overall resilience: Participant 2 explained that during the next flood she intends to deliberately allow water into her store, taking water damage into account, because keeping the water out could cause the walls to collapse under pressure. By doing so, Participant 2 addressed a trade-off, accepting damages inside the store but reducing the risk of walls collapsing and with that, enhancing her overall resilience.

Based on the overall attitudes of the participants to flood risk, the following types could have been identified: *Proactive*, *reactive* and *wait-and-see*. *Proactive* MSE owners are those that actively engage in flood preparedness pre-event. They believe that advance mitigation is worth it and therefore build different flood protection strategies. A good example for a proactive business owner is Participant 3, who has invested in pump equipment in 2002 in order to be ready for the next flood. *Reactive* MSE owners are those that have not put much thought into flood risk and flood resilience before the disaster but changed their mind and adapt based on their flood experience. In this study, Participant 11 is a reactive business owner, as he has decided to improve the information flow between employees to be more resilient during stressful events. The last type, *wait-and-see*, describes those business owners, who do not feel the need to invest into flood protection and prefer to take the risk. Participant 7 describes himself as a wait-and-see business owner. Due to its elevated location, his enterprise has not been damaged by the flooding in September 2024. Therefore, he does not feel the need to react to this event or proactively prepare for the next potential flood event. It should be noted however, that the attitude towards floods changes with time. As a result, some participants can be assigned to multiple types. To exemplify, Participant 9 had certain flood protection measures in place before the event (proactive), but still additionally learned and reacted to the flooding afterwards by adapting strategies or coming up with new ideas on how to build flood resilience (reactive).

To summarize the answer for RQ1, Austrian MSE owners make sense of flood risk through an experiential lens. They mostly interpret risk by using direct experiences or family knowledge and sometimes interpret risk by using official risk designations (e.g. red zones). They usually have a practical viewpoint on flood risk and tie flood risk closely to flood protection and preparation. Lastly, many participants demonstrated growth and showed learnings through experience, arming them with important knowledge for any future flood.

5.3 RQ 2

The second RQ asks about the key challenges in the ability of Austrian MSEs to build resilience against floods. It aims to shed light to obstacles in resilience building.

According to Skouloudis et al. (2023) organizational resilience is the ability of an enterprise to anticipate a flood event, withstand it using preventive actions and quickly recover to a functional

state. Therefore, there are three points in time where mitigation can happen (see also Figure 7, (Kunreuther & Useem, 2011)): During *advance mitigation* when flood consequences are prevented or minimized, during the *response* to the flood itself, and during the *recovery* after the event. The results of this study indicate challenges faced by MSE owners at each of these three stages.

During *advance mitigation*, MSE owners face challenges due to limited resources. Business owners have other priorities than flood mitigation, which is summarized in a statement of Participant 8 in Chapter 4, and reflected by scholars such as Skouloudis et al. (2023). A low risk awareness and a lack of financial resources and technical expertise further hinders resilience building prior to a flood event. Additionally, some mitigation activities, such as building flood barriers that protect multiple actors, are slowed down through unclear responsibilities between public and private entities and regulatory obstacles.

During *response*, challenges are mostly linked to untrained employees, the absence of emergency protocols, and a reliance on informal communication instead of coordinated communication networks. During this stage, most participants explain how there was not enough time to save goods and objects due to water levels raising extremely fast. This time pressure added another level of stress and often resulted in chaotic and unsophisticated decision making.

During *recovery*, challenges include the inability to produce goods, sell their products or serve customers, and the application of recovery funds and other forms of financial compensation. Some participants emphasized that during the aftermaths of the flood, they found themselves in a coordinator role as they had to delegate high numbers of volunteers and take important decisions related to damage repair. In addition to the recovery of their business, many MSE owners also must manage the recovery of their damaged private houses. During this time, heavily damaged business owners may struggle with emotional psychological problems and might deal with existential crises.

Together, these challenges show the blind spots in resilience building of local MSE owners in Austria and bring attention to problems that need improvement.

5.4 Practical Recommendations

Building onto the key results of this study, three practical recommendations are made.

Resilience building ideally happens preventative and not as a reaction to experienced flood damage. Therefore, the collective memory of past flood events needs to be shared with unexperienced MSE owners with the goal of raising awareness about flood risk, sharing learnings on resilience building, and creating preventative protection motivation. To increase demand for preventative resilience building, municipalities, regional government authorities, business associations or the local business chamber should provide tailored information campaigns for small local businesses on the topic. Furthermore, these actors could also provide networking platforms where small business owners can interact, share knowledge and learn about flood-related issues with the goal of strengthening overall community resilience and incentivizing collaboration between MSEs and local governments (Ingirige & Russell, 2015; Mees et al., 2016). Such networking events have been successfully conducted in other parts of Austria to raise awareness on climate risks for local SMEs including floods (Amt der Stadt Dornbirn, 2024).

Resulting from the second key take-away of this study, is the lack of implementation of preparedness measures beyond physical flood protection on property level. To raise the overall level of preparedness, it is recommended that Austrian MSE owners adopt a diversified preparation approach. In practice this means that a business owner should avoid relying solely on a single type of flood protection, and instead also incorporate other preparedness strategies. This includes regular trainings to enhance knowledge, capacity-building and preparedness capabilities (Rattanakanlaya et al., 2022), which should ultimately lead to a culture of resilience within the business (McEwen et al., 2016). Also, long-term planning, regularly updated flood preparedness plans, and disaster recovery plans were found to be crucial to enhance organizational preparedness and longevity (Coates et al., 2013; Josephson et al., 2017; Skouloudis et al., 2020). Lastly, employees should be involved in the preparedness process (Coates et al., 2013; Weber et al., 2015). After combining the responses of the MSE owners who showed the highest level of preparedness, these recommendations from literature are best achieved through the following: The flood preparedness strategy should be accessible to all employees and communicated transparently by the business owners. Flood safety should be treated like fire safety and an emergency plan should be placed on a visible spot. Flood emergency instructions are given to all employees regularly. For example, every six months the business owner communicates all measures that need to be taken prior to a flood (e.g. where to move stock, how to turn on pumps, etc.). This could also be done through a flood emergency drill.

The last recommendation resulting from the key findings of this study relates to the heterogeneity of the small business factor and the big variety of flood protection options. The results indicate that business owners are uncertain about what options are most effective in mitigating flood damage. Usually, MSE owners have other priorities than flood mitigation, which is why they do not have the capacity to properly assess the flood vulnerabilities of their business or test the effectiveness of different adaptation options. This is why consultation options are necessary. Multiple participants of this study mentioned that they would appreciate if local authorities or economic associations such as the local business chamber provide flood expertise and consultation and education options for small businesses. By providing seminars or consultancy business owners could continue to educate themselves about the vulnerabilities of their business. Furthermore, having an expert assessing a business, as recommended by Chelleri et al., (2015), helps to find tailored flood mitigation measures. As a result, they could come up with practical toolkits and effective flood mitigation strategy which after all saves time and financial resources.

5.5 Limitations and Further Research

There are a few limitations of the generalizability of this research.

First, the sample size is small and limited to a specific geographical area. As a result, all responses are embedded within the local context. Findings related to the expectations of MSE owners on the flood management of local authorities and business associations or challenges resulting from local regulations are not fully generalizable, but at least transferable. For example, the results could be used as guiding points for similar studies in other countries to see if local business owners experience similar challenges.

Second, it needs to be taken into consideration that the research timing might have influenced the results. The interviews were conducted a few months after the flood event. This implies that some memories might have already changed. Like many others in this field, this research was conducted retrospectively. A subsequent study could bring valuable insights if it would assess flood risk perceptions and resilience behavior before and after a disaster, to fully understand the effect of flood experience. As this study was conducted in the post-event phase, the only way to evaluate if there was a change in attitude is by asking the participants, which is creating a dependency on the participant's honesty. Generally, the generalizability of the result is limited as they heavily depend on the answer of the participant and could always be biased. To overcome these limitations, different research methods could be used in addition to the qualitative interviews.

Third, while the PMT framework used in this study generally worked well, it could be further improved by applying it to specific adaptation activities, instead of general behavior, to ensure that components such as self-efficacy or response efficacy are analyzed more clearly.

Further studies could therefore adopt a mixed-method design, which combines qualitative interviews with quantitative measures, and applies the PMT framework to specific adaptation measures. Also, in this study, decision-making of MSE owners was mostly treated encapsulated of other stakeholders. It was beyond the scope of the study to address detailed questions of community resilience and the networks around the MSE owners. This could be investigated in a subsequent study, with the goal of identifying the actors around MSE owners who influence their resilience building.

6 Conclusion

This thesis aimed to shed light on attitudes, perceptions and viewpoints on flood risk and business resilience of Austrian micro and small enterprise owners. The central questions guiding this research were as follows.

RQ 1: How do Austrian MSEs make sense of flood risk and perceive flood preparedness?

RQ 2: What are the key challenges in the ability of Austrian MSEs to build resilience against floods?

To answer the research questions and achieve the corresponding objectives, literature research was conducted and linked to the empirical findings of this thesis. The empirical part involved semi-structured interviews and systematical analysis using the coding software Altas.ti. This step involved both, open coding to identify themes and patterns and deductive coding to align the participants' narratives with the Protection Motivation Theory. As a result, the aim and the objectives of this thesis were achieved through the following:

Objective 1 - Evidence on attitudes perceptions and viewpoints of MSE owners in Austria regarding flood risk

Understanding the viewpoints of small business owners was found to be a crucial step in determining the organizational resilience strategies of MSE, which further justifies the choice of qualitative interviews as the research method of this project. The study found that flood experience can have a transformative effect on flood risk perception, especially if it is the first flood experience of someone. Participants of this study expect more flooding in the future, often relating the increased risk to climate change, but not all claim to intensify their adaptation measures. This is mostly the case when business owners are convinced that they are already protected enough (e.g. by coming through a flood with little to no damage), or when they think that their business is located at a flood save place (e.g. a hill).

The study found mixed answers on how business owners perceive the connection between business resilience and community resilience. One common thought related to this topic is that business owners were aware that their sphere of action is limited and some parts of flood management are the responsibility of local authorities. However, there does not seem to be a common understanding of how a community could work together to increase their overall resilience, beyond investing in public flood infrastructure. Therefore, further research could pick up on this topic and address how collective resilience building is enhanced. And to what extent does a local community perceive resilience as a shared goal, in addition to the perception of resilience being an organisational trait.

The results related to Objective 1 have led to a typology of different attitudes on flood risk, including *proactive*, *reactive* and *wait-and-see* attitudes. All types were represented in the sample size of this study. It should be noted that flood risk attitudes change with time (often enhanced through flood experience). Therefore some participants can be assigned to multiple categories.

Objective 2 - *Insights on the level of preparedness of MSEs towards floods*

Generally, there is little knowledge about the preparedness level of Austrian MSEs towards floods. This thesis holds as a first attempt to identify how MSE owners approach flood preparedness – and how this approach was influenced by a recent flood experience. The results of this research show that the participants have overemphasised physical preparation measures (such as building flood barriers, flood-proving their property etc.), while underestimating other types of preparation, including continuing education in the form of workshops and seminars, active employee involvement, or long-term planning. This goes against recommendations found in the literature review, which underlines how these measures enhance resilience and preparation. One aspect of the literature review that this study could confirm is the rare use of insurance as a preparation instrument in Austria.

The level of preparedness of the participants can be described as advanced but not ideal. Most interviewed business owners have dealt with flood preparations before, but many claim that the severity of the past flood has exceeded their preparations. This result emphasises the unpredictability that comes with climate change and serves as a wake-up call that even those who have some flood preparations in place might not be protected enough.

One of the most interesting discoveries of this study is the case of Participant 3. His narrative serves as a best-case example of flood resilience and demonstrates how flood experience can lead to learning which then leads to enhanced resilience. After being affected by a flood in 2002, the participant used this experience as a window of opportunity to learn and adapt which resonates strongly with ideas on flood knowledge building by Kuang et al. (2024).

Objective 3 - *Identify challenges that MSE face in building resilience to floods*

The challenges in resilience building usually relate to different points in time. In the mitigation phase, low risk awareness and limited financial resources hinder MSE owners from investing in flood preparedness. This is often accompanied by the fact that flood resilience is not a top priority of most MSEs. During the response phase, untrained employees, the absence of flood emergency plans, and time pressure often result in unsystematic and chaotic reactions, leading to more flood damage than necessary. Lastly, in the recovery phase, MSE faced existential crises especially when the flood was ontologically significant. On a side note, this could lead to a rethinking of existing sensemaking structures resulting in a sharpened flood risk perception (Harries et al., 2018). Other challenges during the recovery phase are related to emotional stress (often due to additional flood damage on the personal property of business owners) or managing and coordinating the recovery of the business efficiently.

One key result of this study is that the flood-related challenges of MSEs in Austria are quite heterogeneous, which mirrors the characteristics of the small business sector. As a result, targeted

resilience-building strategies are necessary to identify the vulnerabilities of each business, which reflects the work of other scholars (Coates et al., 2013; Adeniyi et al., 2022). A theme that was commonly identified in the narratives of the participants was the lack of financial resources and knowledge, especially before a flood event. The lack of these resources demonstrates a key challenge in building organisational flood resilience.

In addition to the results related to the objectives and research questions, the thesis provides some insights related to the Protection Motivation Theory. All five core variables of the theory were represented in the participants' narratives. However, their effect on flood protection behaviour seemed to vary. *Perceived threat vulnerability* and *self-efficacy* were the factors that seemed to have the biggest effect. It is acknowledged, that the qualitative research design of this study is not adequate to quantify the effect of different components. A subsequent study could build on these findings by examining whether the observed patterns of the PMT components hold in a quantitative survey of MSE owners.

Resulting of this work, I propose three practical recommendations to improve the flood resilience building of Austrian MSEs.

1. Preventative resilience building should be promoted by sharing collective flood experiences. For this to happen, local authorities or business associations could provide a platform where inexperienced and experienced MSE owners could interact and build community-wide preparedness.
2. Preparedness strategies beyond physical flood protection should be encouraged, including long-term planning, flood emergency plans, employee involvement, and training. The aim is to create a culture of resilience within the organization, instead of solely surrounding the property with flood barriers.
3. To decrease the lack of knowledge about flood resilience, MSE owners should have access to tailored expert consultations. These could help them to identify the specific flood vulnerabilities of their business and select effective mitigation options.

By implementing these recommendations, stakeholders could contribute to the flood resilience of Austrian MSEs and take meaningful steps toward a climate-adapted and disaster-resilient future.

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Annex I - Interview Guide

Table 4. Interview Guide and Justification for Each Question with Reference to Previous Studies.

RO	Nr	Interview questions	Explanation	References
Intro	1	Please briefly introduce yourself and your business - Are you the owner of the firm or the manager/managing director? - What type of business do you run? - How long have you been in operation? - How many employees do you have? - Where is it located? Would you consider it A FLOOD-PRONE AREA? - Is your business in a rented premises or are you/someone from your company the owner?	warm-up questions are proposed by Taylor et al. (2016) to give the interviewee time to feel comfortable, get used to the situation and open up.	(Taylor et al., 2016)
	2	Has your business ever been impacted by flood? - Please describe if you had direct or indirect impacts from a flood – ‘Tell me about the flood...How did it affected you, your business? how did you feel during this event? after? - Did you receive help from anyone? - What was your immediate response and impact? (short-term) - Let’s consider the weeks and months after the flood. What were the challenges in the aftermath of the flood? (long-term) How long did it take until you were back in business-as-normal?	Flood experience can be a window of opportunity to gain knowledge, learn, adapt and build resilience (Harries et al., 2018; Kuang & Liao, 2020). Past experiences can significantly shape attitudes toward risk and preparedness (Hewawasam & Matsui, 2023).	(Harries et al., 2018; Hewawasam & Matsui, 2023; Kuang & Liao, 2020)
RO1 (perception of flood risk)	3	How do you perceive the risk of flooding in your area? - Have the recent flood events in Austria influenced your perception of such risk? - How important do you consider flood risk compared to other forms of risks affecting your enterprise? - Do you think you business will be impacted by a flood in the future?	Understanding local perceptions of flood risk is essential, as it influences preparedness and response strategies (Adelekan & Asiyambi, 2016; Skouloudis et al., 2023). Past experiences can significantly shape attitudes toward risk and preparedness (Hewawasam & Matsui, 2023). Perception of floods risk (“threat appraisal”) is understudied (Harries 2021). Recognizing the perceived impacts of flooding can help identify areas for resilience building (Chinanuife et al., 2024)	(Adelekan & Asiyambi, 2016; Chinanuife et al., 2024; Harries, 2021; Hewawasam & Matsui, 2023; Skouloudis et al., 2023)
	4	What emotional responses do you associate with the threat of flooding? - indifference, fear, hopelessness, despair based on previous impacts...	Emotional responses can influence decision-making and preparedness actions (Ching et al., 2023). Emotions are a central part of sensemaking (Harries et al 2018).	(Ching et al., 2023; Harries et al., 2018)
	5	What sources of information do you rely on to understand future flood risks?	Information sources can affect how business owners assess and respond to risks	(Verrest et al., 2020a)
	6	What role do you think government policies play in shaping your understanding of flood risks?	Government policies can significantly influence business preparedness and risk perception	(Asbullah & Tarigan, 2024)
	7	How do you feel about the effectiveness of local flood warning systems and/or flood defense infrastructures? - Do you feel that flood protection is solely-primarily responsibility of the	The perceived effectiveness of warning systems and whose responsibility is flood protection can impact preparedness behaviors (Sultana et al., 2018).	(Sultana et al., 2018) (Khalid & Khaver, 2019)

		pertinent governmental bodies-authorities?	Understanding what small businesses expect from local authorities can help policy development (Khalid & Khaver, 2019)	
	8	Do you believe that local enterprises can play a critical role in community-wide flood risk management and flood mitigation efforts?	Collaborative efforts can enhance the effectiveness of initiatives aimed at flood risk reduction (Mees et al., 2016). Engaging with others from a community can enhance learning and resilience (Ingirige & Russell, 2015).	(Ingirige & Russell, 2015; Mees et al., 2016)
	9	In your opinion, what are the most significant problems in understanding and assessing flood risks within small businesses such as yours? - Do small business not have the time to assess their flood risk? Or is there a lack of available information etc.?	Identifying barriers can help in developing targeted educational-training initiatives	(Wedawatta & Ingirige, 2012a)
RO2 (preparedness)	10	Have you implemented specific measures to prepare your business for potential flooding in case it occurs in the future in your area? - Trainings and workshops ? If yes, what did you learn? - Have you involved your employees in flood preparedness planning? - A flood preparedness plan ? If yes, do you review it? - What challenges have you faced in implementing flood preparedness measures? - low-cost/short-term interventions VS. longer term property-level flood mitigation measures/investments -	Understanding preparedness measures can inform best practices for resilience. Understanding challenges can help in developing solutions to enhance preparedness (Hashim et al., 2019; Sakijegge, 2024). Long-term planning is crucial for sustainable resilience building (Skouloudis et al., 2020). Training can enhance knowledge, capacity-building and preparedness capabilities (Rattanakanlaya et al., 2021). Participation in training can enhance knowledge and preparedness, fostering a culture of resilience (McEwen et al., 2016; Adeniyi et al., 2022). (Hewawasam & Matsui, 2023) found that participation in drills influenced vulnerability of SMEs. Employee involvement can strengthen overall preparedness and response (Weber et al., 2015). Employee engagement is crucial for effective implementation of preparedness strategies (Coates et al., 2013; Xiao et al., 2023). Existence of a flood preparedness plan along with regular reviews-updates are crucial for maintaining effective preparedness strategies (Josephson et al., 2017). Formal disaster recovery plan is essential for ensuring business continuity and resilience (Coates et al., 2013; Xiao et al., 2023).	(Coates et al., 2013; Hashim et al., 2019; Hewawasam & Matsui, 2023; McEwen et al., 2016; Rattanakanlaya et al., 2022; Sakijegge, 2024; Skouloudis et al., 2020; Weber et al., 2015; Xiao et al., 2023)
	11	What is your opinion on flood insurance as a means of transferring financial burdens of MSEs' flood damages to private markets/insurers? - Does insurance play a role in your firm's flood preparedness?	Insurance is a critical component of risk management for small businesses Insurance is a critical component of risk management, yet many small businesses remain underinsured (Bhattacharya-Mis & Lamond, 2014; Luu et al., 2018)	(Bhattacharya-Mis & Lamond, 2014; Lamond et al., 2019; Luu et al., 2018)
	12	What resources would you find most helpful in your flood preparedness efforts? - financial, technical, informative etc.	Identifying resources can help in understanding the support needed for effective preparedness and can guide policymakers and organizations in providing targeted support	(Alharbi & Coates, 2018; Khalid & Khaver, 2019; McEwen et al., 2016)

RO3 (challenges in resilience building)	13	What do you consider the biggest challenges (barriers?) to building flood resilience in your business? - Financial constraints? - Technology? - Support from local authorities?	Identifying challenges can help in developing targeted resilience-building strategies Identifying resilience factors can help businesses focus on strengthening these areas (Adeniyi et al., 2022; Coates et al., 2020).	(Adelekan & Asiyinbi, 2016; Coates et al., 2020; Wedawatta & Ingirige, 2012a)
	14	How do financial constraints impact your ability to prepare for flooding? If you're not so interested, what are the reasons? (lack of trust, complexity etc.)	Financial limitations can significantly hinder preparedness efforts.	(Isa & Mardalis, 2022; Li & Coates, 2016)
	15	What support do you think is necessary from local authorities and/or other stakeholders (business associations, local business chambers) to enhance your business's resilience to flooding?	Identifying support needs can guide policy development and resource allocation Understanding what small businesses expect from local authorities can help policy development (Khalid & Khaver, 2019)	(Asbullah & Tarigan, 2024; Khalid & Khaver, 2019)
	16	Have the past flooding events in Austria made you reconsider your approach to business resilience over such weather events? - What did you learn /take from these events?	Learning from past experiences can enhance future preparedness and resilience Reflecting on lessons learned can provide insights into improving future preparedness and resilience strategies (Hewawasam & Matsui, 2023). (Kuang & Liao, 2020) lessons learned (=flood knowledge, resulting actions) as a result form flood experience	(Bhattacharya-Mis & Lamond, 2014; Hewawasam & Matsui, 2023; Kuang & Liao, 2020)
	17	Do you feel that flood resilience can be a competitive advantage for your enterprise? or do you consider the time/resources allocated to such interventions are an additional cost-burden for the enterprise? - Do you think that collaboration with other businesses plays an important role in building resilience to flooding? How can business collaborate in this regard?	this question tries to identify drivers for resilience building Collaboration can enhance resource sharing and collective preparedness efforts Collaboration can foster shared learning and resource pooling, enhancing community resilience (Habib et al., 2023).	(Mees(Habib et al., 2023) et al., 2016)
	18	What future steps, if any, do you plan to take to improve your firm's resilience to flooding? - In this respect, what advice would you give to other small business owners in terms of flood risk mitigation and/or flood resilience?	Future planning is crucial for ongoing resilience development. Sharing advice can foster a culture of preparedness and resilience among small businesses . Sharing advice can foster a culture of preparedness and resilience among small businesses (Hewawasam & Matsui, 2023; McEwen et al., 2016).	(Hewawasam & Matsui, 2023; Khalid & Khaver, 2019; McEwen et al., 2016)

Annex II - Codebook

6.1 Inductive Codes collected during Open Coding

Table 5. Codes Created Through Open Coding, their Definition and an Example.

Code	Definition	Example (from interview transcripts - translated from German to English)
Challenge – existential crisis/threat	Quotes indicating that the enterprise was extremely impacted by the flood to a point where the flood damage threatens the existence of the enterprise	"In the first moments (of the flood event) I had existential doubts" (Participant 12)
Challenge – lack of financial resources	Quotes indicating that a challenge in building resilience is the lack of financial resources.	"to be honest, I don't know if I want to invest 50.000 Euros into pumps" (Participant 12)
Challenge – lack of knowledge	Quotes indicating that a challenge in building resilience is the lack of knowledge or know how, e.g. what flood protection measures would be most efficient for their business.	"(...) but only if the flood enters from the river side. If the flood reaches us through the street side... To be honest, I don't know what I should do then" (Participant 8)
Challenge – having other priorities	Quotes indicating that a challenge in building resilience is that he or she has other priorities within the business.	"as a company owner, I have other problems. I need to ensure that we can deliver to our customers, that we receive enough money, that I can pay my employees, that I can pay my taxes, and so on. I have so many things to do that I forget about things like flood protection" (Participant 8)
Challenge – lack of time	Quotes indicating that a challenge in building resilience is the lack of time. This can be both, the lack of time due to other priorities prior to a flooding and the lack of time to take measures during a flood event.	"Everything happened very fast. I couldn't consult with other company managers, like I did during Covid." (Participant 4)
Challenge – regulations/beaurocratics	Quotes indicating that a challenge in building resilience are the regulations and beaurocratic process to take protection measures, such as building a wall along their property.	"The cellar window (...), I can't permanently close it. This is an emergency exit, in case of a fire. This is ordered by the administrative district authority" (Participant 1)
Change in opinion	Indicators that the participants (or other relevant people) have reflected on their previous opinion.	"Now I think a bit differently about that (Regulations). Before the flood I was annoyed about all the requirements and the extra work I had to do. At hindsight I am glad that we did all that" (Participant 4)
Change in risk perception	Indicators that the participants (or other relevant people) have changed their perception of risk, often stimulated through the flood experience.	"Before (the flood) I didn't think that a small flood could turn into a big flood in such little time" (Participant 2)
Criticism on others	Participant expresses criticism on others, such as neighbors, citizens, etc.	"I don't think that other people working in agriculture have changed the way they think – unfortunately" (Participant 5)
Criticism on authorities	Participant expresses criticism on local authorities, politicians etc.	"They say, they take care of it. But in reality, they don't do anything. They promise they do something but then they don't. This is the problem" (Participant 8)
Early warning systems	This code was used whenever participants mention any form of early warnings, or the lack thereof.	"The first step is to warn everyone early enough – that's what they could do." (Participant 7)
Emotion	Indicating expressed emotions related to the flood event or its aftermaths.	"3 to 4 weeks after the flooding it was raining for the first time. This was horrendous for my psyche, the sound of the rain. I didn't know how to deal with it" (Participant 1)
Experiences with flood	Participant tells about experiences to floods (or similar disasters).	"When I was a kid, we had many sand avalanches coming from the hill. I was used to staple sand bags" (Participant 1)
Feeling of preparedness	Quotes that indicate a certain level or feeling of preparedness.	"During the next flood, I will be able to prevent more damage. For example, I will move the vehicles away." (Participant 12)
Flood management - satisfied	Participants mention that they are happy or satisfied with the flood management in their	"I have to say that around Vienna the river constructions are great, I think" (Participant 11)

	area, e.g. constructions around rivers and dams etc.	
Flood management – responsibility of local authorities	Participants mention that local authorities are in charge of flood management – either what they already do, or what they should do in their opinion.	“They should keep the rivers clean from trees and to excavate the stream bed. These are the most important measures here” (Participant 3)
Flood management – own responsibility	Participants mention certain elements of flood management which they assume is their own responsibility (usually in addition to public flood management).	“But yes, of course its also everyones own responsibility to have certain safeguards. There are many possibilities to do so.” (Participant 10)
Inaction	Quotes that indicate the lack of action of someone.	“They (the local municipality) know our names, our addresses etc. (...) I know that they were stressed but still they could have made a Whatsapp group with everyone and say ‘please be careful’” (Participant 11)
Ineffective measures	Participants mention that something they (or someone else) did, was not effective to mitigate the flood.	“We have built some barriers to save the vehicles, but nothing worked (to stop the water from entering)” (Participant 9)
Insurance – effective preparation measures	Quotes indicating that the participant perceives insurance as a good way of dealing with flood damage.	“Definitely! (...) The insurance paid around 500.000-800.000 Euros of the flood damage. It would have been tough to pay all that by myself” (Participant 12)
Insurance – ineffective preparation measures	Quotes indicating that the participant does not want to rely on insurance to mitigate flood damage.	“Sometimes the insurance refuses to pay. (...) because the damage is too big and there is flood damage in the whole area. There is so much flood damage that they are not able to pay anymore” (Participant 8)
Insurance – skeptical/mixed opinion	Quotes indicating that the participant has a conflicted, or mixed opinion on flood insurance or is skeptical if the insurance is an effective way to mitigate flood damage.	“The question is: Is it worth it? (...) It’s hard to say that in every case an insurance makes sense.” (Participant 2)
Investment was effective	Participants explaining that a flood protection or related activity they did was effective.	“I bought this (pump/equipment) in 2002 and last year in 2024 we used it. It was totally worth it.” (Participant 3)
Lack of experience	Quotes indicating that that flood experience and the lack thereof is relevant when it comes to flood measures	“The big difference is whether a company has experienced a flood before or not. All enterprises who already had flood damage once reacted differently (to the flood in September 2024)” (Participant 12)
Lack of information	Quotes indicating that information or the lack thereof is relevant in terms of flood protection measures.	“The missing information is inconvenient. (...) The communication and information policy (of the local authorities) is completely catastrophic” (Participant 11)
Learning through experience	Participants expressing things that were improved because of a flood experience.	“This time (September 2024) the water supply company have emptied the barrier lake in time. (During the flooding) in 2002, they did that too late” (Participant 3)
Other challenges	This code was used to save any other challenge in resilience building that isn’t covered by the other codes. Examples are challenging economic times, sickness of key person, sector-specific challenges such as challenges during harvest, or international politics.	“My father fell from the raised hide in the week before the flood and was injured. That’s why no one was at the store during the flood, because I was working for the fire brigade” (Participant 2)
Preparation measures – preparing employees	Participants mentioning that they have had talks with employees about flood emergencies.	“I told my employees (during the flood): don’t be sad, in two years we will see that the world went on and we are still here and everything is normal” (Participant 12)
Preparation measures – plan	Participants mentioning that they have a written or verbal plan on what to do in case of a flood or a plan on protective measures that they have already or will implement.	“This is how I executed it. Its not written. But my father and me planned it and we pass it on verbally” (Participant 9)
Preparation measures – property level	Participants mentioning flood protection measures on their property or company building which have been implemented prior to the flood.	“There is a gas boiler in the cellar. And we put in on stilts so that it doesn’t stand on the ground, but 1m above” (Participant 3)
Preparation measures – organizational	Participants mentioning measures on an organisational levels such as relocating machines or equipment to safer places, moving goods away before the flood,	“Before the flood we have moved all computer servers into the second floor” (Participant 8)
Preparation measures – workshops/seminars	Answers of participants to the question if they ever have participated in flood related workshops or seminars or similar.	“No I have never (...) but a seminar where we could speak about protective measures would be useful” (Participant 3)

Recovery time	Quotes indicating how long the interviewee or the company needed to go back to business-as-usual.	"I still don't live in my house. If I could move back in in June that would be good" (Participant 1) "Water was inside the company building for 4 to 5 days" (Participant 9)
Relationship between MSE and community	Quotes indicating whether a resilient MSE is helpful for the community or not.	"It is my company. I think it doesn't matter for the others (if I am protected or not)" (Participant 2) "Yes (I see a connection between my own resilience and the community resilience). (...) We provided containers for the municipality for cleaning up the flood damages." (Participant 4)
Resilience as a competitive advantage	Quotes that indicate that the participant thinks that resilient enterprises have a competitive advantage towards comparable less resilient enterprises.	"Yes this is an advantage over competitors. If we (...) reopen the restaurant three days (after the flood) and restaurant X over there takes three weeks, where do you think will the customers go?" (Participant 11)
Resilience as a positive trait	Quotes that indicate that the participant generally thinks that resilience is a positive characteristic of any enterprise.	"I would say yes because you need it (resilience) in many situations, not only when there is water (...) but also for instance if there is a lack of employees" (Participant 9)
Resources needed - Employees	Participants indicating how employees serve as a resources when building resilience	"During recovery, I was glad to see that our employees were supporting us 100%" (Participant 10)
Resources needed - Financial	Participants indicating that financial resources are needed to build resilience	"If he (neighboring business owner) would protect his building against floods, I think that would cost him around 25.000-30.000 Euro. (...) He would need to regulate all his doors and windows with some kind of flood protection and that costs a lot of money" (Participant 1)
Resources needed – knowledge/experience	Participants indicating that knowledge, know-how and/or experience are needed to build resilience	"I think (to build resilience) you need money most importantly, but also experience" (Participant 9)
Resources needed - time	Participants indicating how time is a resources when building resilience	"More important than money is time. Just invest a couple of hours, not much, and it will have a great effect." (Participant 10)
Risk awareness/perception	Quotes that indicate how the participant perceives flood risk	"My kids recently asked me: Dad, will you be alive when the next flood happens? And I said: I am very certain about that" (Participant 7)
Slack resources	This code marks any passage concerning slack resources.	"I don't think slack resources are helpful. I don't have space to store more products." (Participant 2)
Support from business association such as Chamber of Commerce	Quotes that say what these actors do in terms of flood management or resilience building, or what the participant thinks they should or could do.	"I have made positive experiences with the chamber of commerce and their support (...). They could coordinate enterprises and provide spaces to continue their work while they renovate their company buildings" (Participant 6)
Support from friends/citizen etc.	Quotes that indicate that friends or citizens have helped or would help in before, during or after a flooding.	"I think there is a strong solidarity. Even if they think differently, they would help their neighbors when it's raining" (Participant 4)
Support from military/fire brigade etc.	Quotes that indicate that the military, the fire brigades or similar organisations have helped or would help in before, during or after a flooding.	"then the military came in tanks and worked nonstop and the fire brigades too. We had fireman from Vorarlberg, Tirol and everywhere" (Participant 1)
Support from local authorities	Quotes that indicate what local authorities do or should do before, during or after a flooding.	"I wish and expect that my municipality speaks/coordinates with other municipalities" (Participant 8)
Support through information	Quotes that indicate how information could contribute to resilience building before, during and after a flood.	"They should inform us more. Somewhere in the internet the warnings might stick. I prefer to have more warnings than just one warning that in the worst case ends up as spam in my email. The more the better" (Participant 7)
Organizational support	Quotes that indicate how organizational solutions or management could contribute to resilience building before, during and after a flood.	"A partner firm helped us to process and package our goods. Due to their help we managed to deliver to our customers already two days after the flood." (Participant 8)
Type 1 – "invest in preparation"	Codes mark the answer to the question if the participant prefers to "invest in preparation" or uses a "wait-and-see" approach to flood preparation.	"I am type 1. (...) It is important to invest time, just a couple of hours, and that will have a great effect." (Participant 10)
Type 2 – "wait and see"	Codes mark the answer to the question if the participant prefers to "invest in preparation" or uses a "wait-and-see" approach to flood preparation.	"I waited. I would have never thought it could be as bad as it finally was" (Participant 7)

6.2 Deductive Codes based on Protection Motivation Theory

Table 6. Codes based on PMT framework, their explanation, hypothetical example and their effect on protection behaviour.

Code category	Explanation (from Marikyan & Papagiannidis, 2023)	Code range and hypothetical example	Relationships and effect on PM
Perceived threat severity	How serious the individual believes that the threat would be to him- or herself (Milne, Sheeran & Orbell, 2000)	High – I think that there will be another flood like this	High PTS increases the motivation to adopt protective behaviours
		Low – my business is located in a flood-safe area	Low PTS decreases the motivation to adopt protective behaviours
Perceived threat vulnerability	How personally susceptible an individual feels to the communicated threat (Milne, Sheeran & Orbell, 2000)	High – even a small flood would hit me hard, because...	High PTV increases the motivation to adopt protective behaviours
		Low – my business is pretty resilient. Only a 300y flood would impact me, the smaller ones I can withstand.	Low PTV decreases the motivation to adopt protective behaviours
Fear	A negatively valenced emotion representing a response that arises from recognizing danger. This response may include any combination of apprehension, fright, arousal, concern, worry, discomfort, or a general negative mood, and it manifests itself emotionally, cognitively, and physically (Boss et al., 2015)	No range	A mediating factors that can push individuals to protect themselves. High PTS and high PTV leads to fear.
Maladaptive rewards	The general rewards (intrinsic and extrinsic) of not protecting oneself, contrary to the fear appeal. (Boss et al., 2015). Perceived benefits of not taking adaptation measures e.g. convenience or cost savings.	Its better not to do X now, I prefer to wait-and-see. Its better not to take measures X because then I will save money and I have more time for other things.	If strong maladaptive rewards are recognized by an individual, he or she is more likely to decide against protection measures.
Response Efficacy	The belief that the adaptive response will work, that taking the protective action will be effective in protecting the self or others. (Floyd, PrenticeDunn & Rogers, 2000)	High – my preparations will work; I can take effective actions to protect myself from floods	High RE increases the motivation to act, because of the individuals confidence that protective actions are effective.
		Low – there is nothing I can do to protect myself for a flood	Low RE decreases the motivation to act.
Self-efficacy	The perceived ability of the person to actually carry out the adaptive response. (Floyd, Prentice-Dunn & Rogers, 2000)	High – I am able to do X to protect myself.	High SE increases the motivation to protect oneself as the individual believes they are capable of executing the action.
		Low – I am not able to do X, even if it would protect me, because of regulations, limited resources, etc.	Low SE decreases the motivation to adopt protective measures.
Response Cost	The costs (e.g. monetary, personal, time, effort) associated with taking the adaptive coping response (Floyd, Prentice-Dunn & Rogers, 2000)	High – this action is expensive, needs much time, effort or personal.	If RC are high, the individual is less motivated to engage in protection measures
		Low – this action is easy to implement as it doesn't need much money, time, effort or personnel.	Low RC can increase the motivation to engage in a certain measures.

Annex III – Interview Transcript Example in German

SPK_1 = Interviewer

SPK_2 = Participant

00:00:05 SPK_1

Hallo, hier spricht Tabea Boehler von der Hochwasserstudie. Hallo, haben Sie Zeit, heute passt das wie ausgemacht

00:00:12 New Speaker

jawohl.

00:00:13 SPK_1

Super, das freut mich. Geht es ihnen gut, alles in Ordnung, super und sie sind an einem Ort, wo sie gut sprechen können oder nehme ich an, wunderbar, ja gut, dann starten wir gleich, würde ich sagen, vielen Dank erstmal, dass sie sich Zeit genommen haben und willkommen zum Interview über Hochwasserresilienz ganz wichtig am Anfang, das Interview ist natürlich anonym und es ist auch freiwillig, wir können jederzeit pausieren oder abbrechen. Einverständniserklärung haben Sie mir schon geschickt, falsche Antworten gibt es keine und bei Forschungsinterviews ist es üblich, dass man die Gespräche aufnimmt, damit ich dann mit den Daten leichter arbeiten kann. Die Aufnahme wird hinterher gelöscht, wäre das in Ordnung für sie?

00:00:59 SPK_2

Ja.

00:01:00 SPK_1

Wunderbar. Dann noch kurz ein Wort zum Ablauf. Ich würde am Anfang ein paar generelle Fragen zum Unternehmen und zu Ihnen stellen und. Danach würden wir dann 3 Themen besprechen. Das erste ist das Thema Hochwasserrisiko. Also einfach die Risiken, das zweite, die Vorsorge und zum Schluss das Kernthema Resilienz. Haben sie derweil noch fragen, bevor wir starten? Wunderbar. OK, dann geht es los, dann würde ich Sie bitten, am Anfang mal kurz sich selber und ihr Unternehmen vorzustellen.

00:01:35 SPK_2

Ja, wir sind wie gesagt ein Kleinunternehmen. Wetter. Haben eine Tischlerei, haben den besagten Standort mit. Derzeit 3 Mitarbeitern. Ja, mach ich schon einmal mehr gehabt. Ja, und wir fertigen Möbel für den gesamten Innenausbau.

00:02:00 Speaker 1

Ja, Mhm.

00:02:02 SPK_1

Würden Sie sagen, das Unternehmen befindet sich in einem Hochwasserrisiko Gebiet oder Standort?

00:02:09 SPK_2

Ja.

00:02:10 SPK_1

Ja OK, also das war auch vor.

00:02:12 SPK_2

Dann direkt neben dem Fluss und ich glaub das ist auch im Prinzip ein Hochwassergebiet.

00:02:21 SPK_1

OK, haben Sie das auch vor dem letzten September so wahrgenommen?

00:02:27 SPK_2

Genau, weil wir wo haben wir es 2002 auch in Hochwasser gehabt und das war um einen Meter höher als das jetzige Hochwasser.

00:02:36 SPK_1

Ah ok, da kommen wir gleich dazu eine Frage noch ist das Gebäude, in dem sie untergebracht sind, sind sie da in Miete oder gehört ihnen?

00:02:46 SPK_2

Das ist Eigentum und dieser altes Gebäude war früher Mühle und ist jetzt als Tischlerei umgebaut worden.

00:02:53 SPK_1

Okay wunderbar, Dankeschön soweit einmal gut, also es geht ja um Hochwasser, die von Starkregenereignissen induziert werden, also in kürzester Zeit extrem viel Regen kommt, kann ja zu jeder Jahreszeit theoretisch sein, überall in Österreich in Tag und am Tag und in der Nacht. Jetzt hat es ja dieses in.

00:03:17 SPK_2

Die Wahrscheinlichkeit dass es in den Sommermonaten kommt ist aber am größten.

00:03:20 SPK_1

Ja, eher. Da gibt es Schwankungen. Stimmt, das ist super, dass sie das so gut informiert sind auch. Jetzt hat es eben letzten September dieses Starkregenereignis gegeben, dass sie ja auch getroffen hat. Können Sie mir da vielleicht mal in aller Kürze beschreiben, was da denn genau passiert ist bei Ihnen? In im Unternehmen.

00:03:42 SPK_2

Ja, das war am Wochenende. Meine Gattin ist mit. Den Kindern zu einer Messe gefahren, die schon lange geplant hat. Drum war ich anfangs ganz alleine. Und ich habe in der Früh gemerkt, dass es eben regnet und habe mir natürlich die Prognosen auch ein bisschen angeschaut und habe schon befürchtet, dass das mehr steigen wird und mehr werden wird im Laufe des Tages und habe eigentlich in der Früh schon angefangen sämtliche Vorkehrungen, die es immer 2002 aufgeschrieben habe, auf einer Liste schrittweise abzuarbeiten. hm. Und die haben diesmal Früchte getragen, weil wir im Keller das Wasser durch Pumpeneinsatz auf 12 cm halten, haben können und diesmal nicht das Erdgeschoss überschwemmt worden ist.

00:04:55 SPK_1

Wir kommen nachher noch zu den Vorkehrungen im Detail, aber da wollte ich noch kurz fragen, was war denn für sie in den Monaten danach also? Bis sie, langfristiger gedacht, die größte Herausforderung.

00:05:13 SPK_2

Ja, ich rede jetzt von Hochwasser 2002, weil da sind wir stark überschwemmt worden oder wollen sie nur einen von dem jetzigen Hochwasser?

00:05:21 SPK_1

Na, ist beides relevant?

00:05:23 SPK_2

Ja, weil dort haben wir eigentlich die höchsten Schäden gehabt. Und da war natürlich die größte Herausforderung zuerst einmal alles wieder Reinzukriegern und dann die ganzen Maschinen zu erneuern, oder die Ersatzteile zu beschaffen. Dass man wieder in den Betrieb gehen haben können.

00:05:45 SPK_1

Sie sich noch erinnern, wie lange es gedauert hat bei beiden, also 2002 und 2024, wie lange sie wieder, wie lange es gebraucht hat, bis sie wieder ganz normal arbeiten konnten.

00:05:55 SPK_2

2002, wo er sich einen Monat sag einmal. Und jetzt? War es eigentlich nur 2 Tage. Sag einmal, wo wir die Möbel wieder hin und her geräumt haben.

00:06:11 SPK_1

OK. Hat ihnen jemand geholfen, in diesem einen Monat oder in diesen 2 Tagen beim Aufräumen oder haben sie das innerhalb vom Unternehmen selber regeln müssen?

00:06:26 SPK_2

2002 haben wir natürlich die Mitarbeiter geholfen und aber auch aus der Freundeskreis und Bekanntenkreis haben auch einige mitgeholfen.

00:06:38 SPK_1

Okay dann kommen wir schon zum ersten Thema, und zwar wäre das Hochwasserrisiko und die Wahrnehmung, da würde ich sie mal ganz allgemein fragen, was bedeutet denn Hochwasserrisiko für Sie eigentlich?

00:06:52 SPK_2

Na ja, erstens wo man ist. In was für einer HQ Lage man ist nicht. Um einen Fluss ist oder eher weiter oben. Und natürlich, das ist im Prinzip das, das Risiko und halt die Regenmengen, die dann niederfallen.

00:07:19 SPK_1

Also rechnen sie damit, dass es so ein Hochwasser wie im September oder wie 2002 wieder einmal kommt.

00:07:28 SPK_2

Vor 2002 bis jetzt haben wir 20 Jahre oder 22 Jahre kein Hochwasser gehabt und ich habe jetzt schon gesagt, das nächste wird in

10 Jahren wieder kommen, aber ich fürchte, dass möglicherweise früher kommt. Also man sieht ja weltweit und so weiter dass das mehr wird.

00:07:54 SPK_1

Glauben Sie, dass Sie, dass dieses Ereignis im September letzten Jahres ihre Wahrnehmung von Risiko von Hochwasserrisiko irgendwie beeinflusst hat?

00:08:05 SPK_2

Ja, schon, dass es natürlich geschärft worden ist, und dass man natürlich die Wettervorhersagen genauer beobachtet und auch die Maßnahmen, die man im Betrieb setzt, also was man halt zur Verfügung hat. Und schaut, dass man halt die Möglichkeiten nutzt, was man tun kann.

00:08:33 SPK_1

Ok, ich verstehe, wenn Sie jetzt über diese Gefahr und dieses Risiko von einem Hochwasser betroffen zu sein, über das Nachdenken oder auch zurückdenken an die Schäden, die sowas anrichten kann. Welche Emotionen kommen da hoch oder welche mit welchen Gefühlen verbinden Sie das?

00:08:53 SPK_2

Na ja, und keine guten Gefühle.

00:08:57 Speaker 1

Mhm.

00:08:58 SPK_2

Aber auf der anderen Seite wieder, dass man es geschafft hat im Nachhinein. Und sicher war es schwierig, aber man hat durch das, dass man auch Hilfe von außen gekriegt hat und so weiter, hat man da viele Menschen auch besser kennengelernt und doch den Zusammenhalt gemerkt, was in der Gesellschaft dann doch wieder da ist, wenn es wirklich ankommt zu helfen.

00:09:34 SPK_1

Okay. Glauben Sie ganz generell, dass wenn eine Gemeinschaft also mit Gemeinschaft, meine ich jetzt ihrer Gemeinde, ihre Nachbarn, andere Unternehmen, Zulieferer, Kundschaft und so weiter all diese Leute. Oder die Feuerwehr etc., glauben sie, dass wenn Ihr Unternehmen gut geschützt ist, dass das dann auch der gesamten Gemeinschaft etwas bringt?

00:10:03 SPK_2

Oh, Ja, sicher, dass sie dann weniger helfen müssen dann und vielleicht für Privathaushalte, dann mehr Zeit haben. Wenn man jetzt zum Beispiel von der Feuerwehr reden. Da profitiert zum Beispiel der Nachbar durch das, dass bei mir die Feuerwehr nicht kommen hat müssen, weil man selber die Pumpen gehabt haben zum Auspumpen.

00:10:30 SPK_1

Mhm, also es gibt schon einen Zusammenhang zwischen wie gut geht es der Gemeinschaft, wie gut geht es mir.

00:10:36 SPK_2

Genau, Mhm.

00:10:38 SPK_1

OK, jetzt gibt es ja in ihrer Gemeinde vermutlich einiges oder manches an Infrastruktur, die mit Hochwasser oder die Hochwasserschutz Hochwasser schützen sollte. Und es gibt auch eine Art Frühwarnsystem. Ich hab gelesen, die Landeswarnzentrale hat bei euch auch schon Warnungen rausgeschickt in den Tagen davor, die die die Menschen eben informieren soll. Was halten Sie denn zum einem von dieser Infrastruktur und zum anderen diesen Frühwarnsystemen, sind die wirksam ihrer Meinung nach?

00:11:12 SPK_2

Na ja, sicher sind sie wirksam, wenn man sie. Darauf vorbereiten kann oder halt noch Maßnahmen setzen kann.

00:11:22 SPK_1

Sie meinen die Frühwarnsysteme jetzt?

00:11:26 SPK_2

Von der Niederösterreichischen Landeswarnzentrale habe ich keine Nachricht kriegt. Ich weiß nicht, wo die gewarnt hätten. Ich persönlich hab eigentlich nur im Internet den Wetterdienst verfolgt. Das tschechische Wetterradar ist bei uns ganz gut. Aber ich hab von der niederösterreichischen Landeswarnzentrale keine Warnung gekriegt.

00:11:55 SPK_1

Sie mussten sich eigentlich aktiv selber informieren. Die Information hat sie nicht einfach so erreicht. Glauben Sie, da gab es andere Leute, die ein bisschen im Dunkeln gelassen worden sind?

00:12:09 SPK_2

Glaube ich nicht.

00:12:10 SPK_1

OK, also die meisten Leute haben es schon mitgekriegt.

00:12:13 SPK_2

Mhm, ja, da sollten es mitgekriegt haben, dass 2002 ja schon vorgewarnt worden oder das schon mal mitgemacht haben. Ja, aber es hat in der Nachbarschaft auch Leute gegeben, die gar nichts gemacht haben, ja, und sich dann gewundert haben, dass das wieder das Hochwasser gekommen ist.

00:12:34 SPK_1

Und wie wirksam sind Ihrer Meinung nach die Infrastrukturen in ihrer Gemeinde?

00:12:42 SPK_2

Na ja, die Feuerwehr ist natürlich sehr wirksam.

00:12:45 Speaker 1

Mhm.

00:12:47 SPK_2

Aber halt auch nur so weit sie helfen kann. Sie kann nicht überall gleichzeitig dann sein ab, aber sicher ist die Feuerwehr mit Auspumpen und so weiter eine große Hilfe. .

00:13:00 SPK_1

physische Strukturen, also die Verbauungen und so weiter glauben sie, das ist alles in Ordnung und intakt jetzt rund um den Fluss, der durch ihre Gemeinde fließt?

00:13:11 SPK_2

Hochwasserschutzmaßnahmen gibt es direkt bei uns im Ort keine.

00:13:16 Speaker 1

Mhm

00:13:18 SPK_2

Das einzige war, dass sie die Bäume halt im Fluss wieder weggeschnitten haben, damit es nicht zu Verklausungen kommt aber direkt hochwasserschutzwände oder sowas haben wir da nichts.

00:13:32 SPK_1

Und glauben Sie, dass grundsätzlich der Job ist oder die Aufgabe ist von der Regierung und von der Politik, dass sie Sie vor Hochwasser schützen. Oder ist es auch teils Ihre eigene Verantwortung?

00:13:48 SPK_2

Oh, es ist schwer zu sagen. Ich glaube, dass so wie es bei uns ist, würde es keine sinnvollen Maßnahmen geben, so Hochwasserschutzwände aufzustellen, weil das so ein Kostenfaktor war, was eigentlich nicht machbar ist. Also darum. Glaube ich eher, dass man halt selber drauf. Also ich kann halt nur für mein Haus mehr oder weniger Hochwasserschutzmaßnahmen vornehmen. Aber ich denke nicht, dass die Regierung da bei uns irgendwas tun könnte, ja wie gesagt, die Bäume eben freischneiden und das Flussbett wieder ausbaggern, dass es ein bisschen tiefer ist. Das sind die Maßnahmen, die man bei uns machen kann, aber. Ok, und bei uns war es ja auch mit dem Stausee, weil wir haben ja noch einen Stausee und da hat ja die EVN das mal rechtzeitig schon Wasser abgelassen, was 2002 erst zu spät gewesen ist. Deswegen sind alle die unter dem Stausee waren dann natürlich auch stärker betroffen gewesen. Da mussten natürlich schon die Regierung und die EVN Maßnahmen treffen.

00:15:04 SPK_1

Mhm okay ja, verstehe ich. Inwiefern glauben Sie, beeinflussen den Vorschriften oder Initiativen aus der Politik, wie sie mit Hochwasserrisiko umgehen oder was das für sie bedeutet?

00:15:22 SPK_2

Ja, das mit diesen Gebieten, die HQ Linien, das glaub ich hat schon verstärkt, dass man dort in diese Gebiete nicht bauen darf, wo man neu baut zum Beispiel, das Glaube ich schon verschärft worden beziehungsweise ein bisschen nach oben, also die Latte ist nach oben gelegt worden.

00:15:47 Speaker 1

Mhm.

00:15:49 SPK_2

Und ja.

00:15:51 SPK_1

Also diese Dinge haben ihnen, kann man sagen, schon geholfen, Risiken besser zu verstehen?

00:15:56 SPK_2

Ja schon.

00:15:58 SPK_1

OK, danke, dann wären wir schon fertig mit dem ersten Teil im zweiten Teil vom Interview geht es um Vorbereitung und einfach alles, was wir vor einem Hochwasser tun. Wir haben eh schon ein paar Sachen besprochen, aber ich würde gerne nochmal auf die ganzen Maßnahmen kommen, die sie getroffen haben, um ihr Unternehmen vorzubereiten und da haben sie jetzt vorher schon glücklicherweise diese Liste. Angesprochen, die sie 2002 gemacht haben. Die würde mich natürlich sehr interessieren, was sie denn da 2002 mitgenommen haben und was sie denn da daraufhin umgesetzt haben bevor dem September.

00:16:38 SPK_2

Das waren zum Beispiel, dass man für sämtliche außen Fenster und Türen druckerplatten angefertigt haben. Das sind diese dicken Platten. Und die, was man außen dann auf die Türrahmen und Fensterrahmen aufschrauben kann. Die haben wir jetzt lagernd und beschriftet. Das habe ich jetzt heuer auch wieder gemacht, dass ich die außen noch einmal aufgeschraubt hab und mit Silikon verschmiert hab. Dann, dass man das WC verstopft. Die Muschel und alle Kanal Zugänge die was offen sind muss man verstopfen wenn außen das Wasser höher ist dann sprudelt es da heraus. Oh. Dass man die Pumpe vorbereitet. Wir haben eine große Sorgpumpe gekauft, die was man eben im Keller aufstellen kann, und dann auspumpen.

00:17:50 Speaker 1

Mhm.

00:17:52 SPK_2

Und dass die mehr oder weniger mit Treibstoff versorgt ist und dass es auch anspringt. Weil es nutzt die beste Pumpe nichts, wenn es nicht anspringt.

00:18:05 SPK_1

Jawohl.

00:18:06 SPK_2

Der Treibstoff da ist. Das nächste ist, dass wenn der Strom ausfällt und der ist 2002 ausgefallen. Dass man für die Pumpe einen Notstromaggregat hat. Und auch das haben wir sich 2002 gekauft. Und. Dass das Notstromaggregat. meins ist nämlich mit einer Starterbatterie versehen. Und die verliert ja normalerweise die Kapazität, wenn es 23 Jahre nicht steht. Darum habe ich mir so eine Batterie gekauft, wo man erst im Bedarfsfall die Säure einfüllt in die Batterie und dann starten kann und das habe ich. Auch beim heurigen Hochwasser, als Erstes in der Früh gemacht, dass ich die Starterbatterie mit Säure befüllt habe. Und geschaut habe, dass das Notstromaggregat funktioniert. Und eben die Pumpe funktioniert.

00:19:12 Speaker 1

Mhm.

00:19:15 SPK_2

Und im Keller mehr oder weniger alles Stromlos macht. das waren so die Maßnahmen und natürlich in der Werkstatt also was ebenerdig ist, weil wir haben Gott sei Dank einen 1. Stock noch ein Lager, dass man mehr oder weniger die Tischlerprodukte, die in der Werkstatt schon fertig waren oder Teilfertig alles in den 1. Stock Raufgeräumt haben.

00:19:48 SPK_1

Das nehme ich einfach das.

00:19:50 SPK_2

Dass wenn das Wasser wie kommt, dass dann nicht da die ganzen Waren zerstört werden.

00:19:52 SPK_1

ok, das ist ja echt einiges. Also es klingt sehr fortgeschritten. Wie würden Sie das denn einschätzen? Also diese Maßnahmen haben sie quasi vor dem größten Schaden gerettet, kann man das so sagen, OK und wenn sie das alles nicht gemacht hätten, wäre der finanzielle Schaden viel größer gewesen, nehme ich an genau und glauben Sie es hat sich rentiert in diese ganzen Dinge zu investieren, weil das klingt auch wie sie. Kostenspielig diese ganzen Geräte zu kaufen. Hat sich rentiert.

00:20:23 SPK_2

Ja, ja.

00:20:24 SPK_1

Mhm, OK, wie?

00:20:25 SPK_2

Gesagt, Ja, haben wir es oder September letzten Jahres haben wir es im Keller auf 12 Zentimeter halten können, dank der Pumpe.

00:20:35 SPK_1

Was glauben Sie oder was schätzen Sie? Wie groß, also wie hoch wäre der Wasserspiegel gewesen ohne diese Pumpe nur zum sich das vorstellen.

00:20:41 SPK_2

Dann war da der Keller gefüllt.

00:20:44 SPK_1

Gewesen, ja.

00:20:46 SPK_2

Und daher weiß ich nicht so hoch wie 2002. Also erdbodenniveau Erdgeschoss vielleicht, dass ein bisschen nur hineingeschwappt war, aber. Also im Erdgeschoss haben wir keinen Schaden gehabt, aber im Keller. Also im Keller die Heizung, vom Aufzug der Triebwerksraum, also für Elektrik und der Spänebunker ist auch im Keller, der war 2002 komplett gefüllt. Den haben wir dann ausräumen gegessen.

00:21:26 SPK_1

Okay also. Das klingt, das klingt total beeindruckend. Ja, passt.

00:21:32 SPK_2

Gut. Wir haben einen Gaskessel auch im Keller. Und den haben wir dann nach 2002 auf Stelzen gestellt, mehr oder weniger, dass der nicht am Boden steht, sondern in einem Meter Höhe der Gaskessel.

00:21:48 SPK_1

Auch noch okay. Was glauben Sie denn? Haben das andere? Weil ich habe mich nicht so informiert über das Hochwasser 2002, weil es bei uns hauptsächlich um das 24 er Hochwasser geht, aber gleich. Da haben andere Unternehmen das auch gemacht, sich so intensiv vorzubereiten. Oder sind Sie da ein ein, ein besonderer Fall, ein Vorzeigefall?

00:22:12 SPK_2

Also, in der Stadt haben wir jetzt nicht so viel Handwerksbetriebe, das sind wir ziemlich der einzige Glaube, was da betroffen worden ist. Aber wir haben einen Eisenhändler zum Beispiel, und der hat natürlich auch diese Maßnahmen ergriffen, der hat auch außen die Druckerplatten und auch so Einschubprofil, wo man die Platten dann nur einschieben kann, und die haben das genauso. Gemacht. Mir ist bei manchen Privaten aufgefallen, dass die gar nichts gemacht haben.

00:22:44 SPK_1

Ja.

00:22:46 SPK_2

Und wie ich dann teilweise gefragt haben muss, was ich gemacht.

00:22:50 SPK_1

Hab also die wollten dann eigentlich von euch lernen, quasi.

00:22:54 SPK_2

Ungefähr.

00:22:55 SPK_1

Ja, sehr spannend. Wie schaut's denn aus mit Hochwasserversicherung? Ist das auch ein Weg, den Sie wählen, um den Schaden klein zu halten?

00:23:05 SPK_2

Oh ja, auch keine Extrige Versicherung, aber das ist bei der Betriebsversicherung ein geringer Teil dabei und komplett, dass man alles versichern kann, das geht gar nicht bzw da war die Prämien so hoch, aber es ist ein kleiner Teil, es ist halt vergütet worden.

00:23:27 SPK_1

Dann habe ich noch ein paar kurze Fragen noch zu der Vorbereitung und dann sind wir eh fertig mit dem Teil. Auch schon haben Sie Schulungen, Workshops, Seminare oder dergleichen mal besucht, um sich da zu informieren, noch nicht OK und haben sie mit ihren Mitarbeitenden mal so aktiv darüber geredet, was man im Falle eines Hochwassers tun sollte.

00:23:51 SPK_2

Ja, schon. Dass die natürlich auch mitgerissen haben und so weiter. Aber natürlich man schaut dann schon drüber und sie haben Mehr oder weniger durch das Mitarbeiten gesehen, was man alles tun kann.

00:24:03 SPK_1

Ja ok, verstehe und haben Sie sowas wie einen Vorsorgeplan, also eine irgendeine Art Dokument, an das sie sich halten, wie Sie sich? Immer mehr vorbereiten oder passiert alles in ihrem Kopf?

00:24:16 SPK_2

Ja, nur eben nur die besagte Liste. Was ich mir 2002 gemacht habe und was ich für Maßnahmen setzen kann.

00:24:24 SPK_1

Ok, wunderbar. Dann eine Frage noch zu den Vorbereitungen. Zwar haben Sie irgendwas beobachten können bei anderen Unternehmen, also sie haben schon den Eisenhändler angesprochen, aber sonst auch bei anderen Unternehmen, wie die sich vorbereitet haben, eine irgendeine Vorbereitung, die denen geholfen hat bei dem Hochwasser.

00:24:49 SPK_2

nein konkret fällt mir da jetzt nichts ein

00:24:56 SPK_1

Ok, Dankeschön dann. Würden wir schon zum dritten und letzten Teil des Interviews kommen. Und zwar geht es da um Resilienz. Das Wort ist ein bisschen abstrakt und ich hatte da schon Missverständnisse in den Gesprächen, deswegen beschreibe ich kurz, was ich unter Resilienz verstehe, damit wir auf der gleichen Seite sind. Hier heißt Resilienz für mich, dass ein Unternehmen in der Lage ist, diese Auswirkungen den Auswirkungen von einem Hochwasser zu. Widerstehen und quasi mit ganz geringen Schäden durch diese Katastrophe zu kommen und dann auch nach dem Hochwasser sich schnell wieder erholt und ziemlich schnell wieder den Betrieb wieder aufnehmen kann, währenddessen ein nicht resilientes Unternehmen viel anfälliger ist für diese Schäden und es dauert halt sehr lange, bis das Unternehmen wieder auf Fahrt ist. Und im schlimmsten Fall wäre das Hochwasser sogar der finanzielle Ruin für das Unternehmen. Haben Sie da noch Fragen zu diesem Wort? OK, wunderbar, dann nehmen wir mal an sie. Beschließen oder eigentlich haben sie ja schon beschlossen, ihr Unternehmen Resilient gegenüber Hochwasser zu machen. Was? Sind denn da die Hauptressourcen, die dafür benötigt? Werden also ist das Technologie, ist das Geld, ist das Wissen, brauchen sie mehr Arbeitskräfte, brauchen Sie mehr Zeit. Was war so auf ihrer Reise von 2002 bis 2024, was waren die Ressourcen, die sie gebraucht haben, um sich das alles aufzubauen?

00:26:31 SPK_2

Ja, natürlich. Das wissen, was für Maßnahmen sinnvoll sind.

00:26:36 Speaker 1

Mhm.

00:26:38 SPK_2

Das ist die Voraussetzung einmal und dann dann natürlich die technische equipment, sprich Pumpen und Druckerplatten oder und so weiter und Natürlich braucht man für das auch ein Geld. Oder muss halt was investieren.

00:27:00 SPK_1

Glauben Sie, dass jemand, der noch nie ein Hochwasser erlebt hat, dass diese Person, oder wie glauben sie würde diese Person am besten das Wissen bekommen, diese Dinge zu machen? Glauben Sie, da würde es Schulungen brauchen, weil wir wollen ja alle darauf vorbereiten, oder wir wollen ja nicht, dass jeder einmal einen Schaden erleben muss, bevor er oder sie anfängt, sich vorzubereiten, was glauben? Sie ist denn ein guter Weg, wie man da das Wissen verbreiten könnte.

00:27:29 SPK_2

Ja, sicher wäre eine Schulung sinnvoll, oder zumindest einmal, dass man spricht darüber, was man tun könnte, falls der Fall eintritt. Beziehungsweise dass eruiert wird ob man in einm Hochwassergebiet ist oder nicht oder wie wahrscheinlich das ist oder ob da schon einmal ein Hochwasser war, wenn man neu übernimmt. Ja sicher eine Schulung, und dass man das mit der Feuerwehr vielleicht irgendwie verbindet, weil die vor Ort ist. Nicht weil es gibt ja auch von der Feuerwehr zum Beispiel die Brandschutzpläne, was in einem Betrieb vorgeschrieben sind und dass man da dazu hängt, für die Betriebe, was in einem Hochwassergebiet sind, auch gleichzeitig einen Hochwasserschutzplan.

00:28:43 Speaker 1

Mhm.

00:28:45 SPK_1

OK.

00:28:47 SPK_2

Das wäre eigentlich das naheliegendste. Wennn jemand die Brandschutzpläne für seinen Betrieb macht, dass er dann auch gleich den Hochwasserschutz macht

00:28:59 SPK_1

Jetzt haben sie auch das Geld angesprochen und wir haben ja auch vorher kurz besprochen, dass sie da investiert haben in diese Geräte zum Beispiel. Haben können Sie vielleicht irgendeine Art Verhältnis. Also ich erklären wieviel Sie investiert haben und

wieviel höher der Schaden gewesen wäre, nur dass man sich vorstellen kann, was da so die Einsparungen sind. In so einem Fall. Ich weiß, dass es nicht so leicht zu beziffern, aber nur, dass man eine Vorstellung.

00:29:27 SPK_2

Ich meine man kann es vielleicht grob sagen, was 2002 war der Schaden, wenn man das so sagen kann bei uns ca 220.000. Und die Pumpen und das was ich halt da dazu gemacht habe waren ca 10.000 Euro. Also das sind ja nicht einmal 20%.

00:30:08 SPK_1

Ja, das ist richtig.

00:30:10 Speaker 1

Ja.

00:30:12 SPK_1

Ok, also es rentiert sich auf jeden Fall. Eine Frage noch zu den Ressourcen und zwar es gibt so eine Theorie, die sagt, dass wenn Unternehmen überschüssige Ressourcen haben also Slack Ressourcen, also zum Beispiel mehr Ware, mehr Mitarbeiter als nötig und so weiter, dass sie dann in schwierigen Situationen flexibler sind. Glauben Sie, dass bei Ihrem Unternehmen zu. .

00:30:42 SPK_1

Mhm, also mehr waren würden Ihnen helfen und mehr Mitarbeiter und so weiter.

00:30:51 SPK_2

Jetzt hab ich nicht verstanden. Können Sie die Frage nochmal stellen?

00:30:54 SPK_1

Einmal kurz stellen, ja klar. Also es gibt eine Theorie, die sagt, dass Unternehmen in Krisenzeiten sich leichter tun, wenn sie überschüssige Ressourcen haben, also zum Beispiel, wenn sie mehr Ware haben, als sie gerade eigentlich brauchen oder mehr Mitarbeiter haben, als sie gerade brauchen, weil dann können sie flexibler agieren. Stimmt, trifft das für ihr Unternehmen auch zu. Im Fall eines Hochwassers oder nicht?

00:31:21 SPK_2

Würde ich jetzt eher Nein sagen. Je mehr Ware ich unten habe desto mehr Ware müsste ich in den 1. Stock aufräumen. Viele Mitarbeiter da sind, hm. Würde ich eher nein sagen.

00:31:43 SPK_1

Neben Ressourcen kann ja auch Unterstützung hilfreich sein, um einem Unternehmen um ein Unternehmen resilienter zu machen. Wie schaut es bei Ihnen aus? Zum Beispiel mit der Wirtschaftskammer in Niederösterreich oder auch mit anderen Verbänden? Ich habe auf der Website von Ihnen gelesen, den im Wirtschaftsverband X sind. Sind diese Akteure irgendwie relevant, können die sie unterstützen bei Hochwasser?

00:32:12 SPK_2

Ja 2002 hat es da Unterstützung gegeben von der Wirtschaftskammer und auch vom Verband sogar. Und auch als Sachverständigen da waren bei der Schadenserhebung und so weiter also das war schon sehr hilfreich.

00:32:28 SPK_1

Okay die haben Sie dann finanziell unterstützt?

00:32:32 SPK_2

Ja finanzielle Unterstützung hat es auch gegeben, aber hauptsächlich war das organisatorische Unterstützung, die war eigentlich fast wichtiger als wir die Finanzielle.

00:32:44 SPK_1

Ok, wie meinen Sie das mit organisatorisch?

00:32:47 SPK_2

Dass wir beraten worden ist, was man bei den angefallenen Schäden tun soll und wie man es am besten sanieren kann und so weiter und auch die Schadenssumme ist ja da auch mitgeschätzt worden.

00:33:04 SPK_1

Haben die haben die euch auch gesagt, wie man sich besser vorbereiten kann oder? Da ging es erstmal ums Aufräumen.

00:33:12 SPK_2

Oh nein, das war ihr die Hilfe danach.

00:33:16 SPK_1

Ja, OK, und wie ist es mit Ihrer Gemeinde und dem Land Niederösterreich? Wie können die euch unterstützen?

00:33:28 SPK_2

Eben, dass der Fluss die Bäume, wie gesagt wieder frei macht. Das hat die Stadtgemeinde gemacht und dass sie das Bachbett wieder ausgebaggert. Das sind so die wichtigsten Maßnahmen bei uns.

00:33:48 SPK_1

OK. Noch mal zusammenfassend, wenn jetzt ein Unternehmen beschließt, resilient zu werden, so wie sie es getan haben, 2002, was glauben sie, ist die größte Herausforderung? Ist es da, das finanzielle oder das Wissen, oder was ist so, wenn man da so ein Wort unterstreichen wird, was ist die größte Herausforderung?

00:34:12 SPK_2

Ja, dass man die sinnvollsten Maßnahmen erkennt.

00:34:17 Speaker 1

Mhm.

00:34:19 SPK_2

Und das Wissen dazu sag ich mal.

00:34:23 Speaker 1

Mhm.

00:34:24 SPK_1

Also im Sinne von. Jeder Betrieb ist individuell und deswegen muss man quasi schauen, was für wen passt?

00:34:32 SPK_2

Genau, was am sinnvollsten ist und und und. Was man halt tun kann. Nicht dass man irgendwas investiert oder so was dann eh keinen Sinn hat, wenn das Wasser zu hoch steigt.

00:34:45 SPK_1

Ok, verstehe ich. Ok, gut, was gibt es noch irgendetwas, das Sie vom September 2024 gelernt haben? Also sie haben schon viel gesagt, was sie von 2002 gelernt haben, aber jetzt von dem neuen Hochwasser haben Sie da irgendwas mitnehmen können?

00:35:04 SPK_2

Ja, das ich mittlerweile noch besser vorbereitet bin wenn jetzt wieder ein Hochwasser kommen sollte, oder das ist schon quasi eine Routine, also nach dem dritten Mal weiß man natürlich dann schon noch besser, was man alles machen kann und sinnvoll ist. So.

00:35:28 SPK_1

Mhm, also Sie sind zuversichtlich, dass sie beim nächsten Hochwasser wieder damit umgehen können.

00:35:35 SPK_2

Wenn's nicht noch höher steigt. Also wenn es wieder so hochsteigt wie 2002, wird es wahrscheinlich auch wieder sein.

00:35:46 SPK_1

Ja, okay zurück zum Thema Resilienz, also Widerstandsfähigkeit. Glauben Sie, dass es generell eine Eigenschaft, die jedes Unternehmen braucht, also kann man damit auch sowas wie ein Wettbewerbsvorteil haben gegenüber einem anderen Tischler bei ihnen ums Eck, wenn sie resilienter sind?

00:36:07 SPK_2

Naja, sicher braucht man das, manches braucht man auch nicht nur beim Hochwasser, sondern in allen anderen Bereichen auch.

00:36:16 SPK_1

Also es ist schon etwas, auf das man als Unternehmer setzen kann und sollte. Mhm OK, ja, aus meiner Sicht gibt es.

00:36:26 SPK_2

Auch im privaten Bereich.

00:36:27 SPK_1

Ja, stimmt eigentlich, in allen Lebensbereichen oder okay. Ja, aus meiner Sicht gibt es irgendwie 2 Typen von Unternehmen in diesem Unternehmen in diesem in diesem Thema. Also die einen, die aktiv werden und eben Maßnahmen ergreifen und die anderen, die erstmal abwarten und schauen und vielleicht eher ein Risiko eingeben. Ich würde sie zu dem ersten Tipp zuordnen, ist das richtig okay super und haben sie jetzt nach diesem, also nach diesem zweiten Hochwasser, das sie jetzt schon erfahren mussten, haben sie da noch mehr Maßnahmen, die sie. Würden etwas, das Sie noch beschließen, zu tun.

00:37:08 SPK_2

Ja, natürlich. Gibt es Maßnahmen? Aber. Die hab ich bis jetzt auch noch nicht getroffen.

00:37:16 SPK_1

Aber sie haben sich schon überlegt.

00:37:19 SPK_2

Die haben ja schon einige Sachen wieder überlegt.

00:37:20 SPK_1

Ja OK, und was wär denn das?

00:37:23 SPK_2

Ja, zum Beispiel im Keller Abdichtungsarbeiten noch bei den Fugen, wo sie überall durchgekommen ist, das Hochwasser und wo natürlich dann je mehr der Druck ist, dass eben die Pumpe das dann noch erpumpt, dass man mehr oder weniger die Fugen und so weiter besser verschmiert.

00:37:45 SPK_1

Ja, OK. Ich hatte eine andere Teilnehmerin, die hat mir erzählt, bei ihrem Gebäude ist es so, dass die Statik so schlecht ist, dass sie lieber ein Teil des Wassers reinlässt, damit das ein Gegendrucker erzeugen kann, anstatt dass sie riskiert, dass die ganze Wand einbricht, weil der Druck so hoch ist, ist das auch bei ihnen ein Fall oder nicht so?

00:38:11 SPK_2

Ich glaube nicht. Das ist ein altes Gebäude, aber durch das dass das eine Mühle war früher, hat das Gebäude dicke Ziegelmauern die unten glaube ich fast 80 Zentimeter sind und von der Statik glaube ich, dass da nichts sein kann. .

00:38:30 SPK_1

glauben Sie grundsätzlich, dass das mehr Hochwasser gibt wegen der Klimakrise.

00:38:39 SPK_2

Ja.

00:38:40 SPK_1

Okay also da sehen Sie einen Zusammenhang, ja.

00:38:43 SPK_2

Mhm.

00:38:44 SPK_1

OK.

00:38:45 SPK_2

ja, ist ja auch wissenschaftlich erwiesen.

00:38:47 SPK_1

Ja, stimmt, also nur die Einstellung, also unterschiedlich. Deswegen frage ich gerne.

00:38:54 SPK_2

Jaja es gibt einige die das Verneinen.

00:38:55 SPK_1

Ja. Glauben Sie, dass bei Ihnen im Ort die Leute, die das nicht so anerkennen, sich auch weniger vorbereiten? Sehen Sie da irgendwie einen Zusammenhang oder nicht so? Kann man nicht sagen, oder?

00:39:12 SPK_2

Kann man nicht sagen.

00:39:13 SPK_1

Ja, OKOK dann letzte Frage, welchen Rat würden Sie denn einem anderen Kleinunternehmer geben, der denn gerne sein Hochwasserrisiko minimieren will und Resilienter gegen Hochwasser sein will? Haben Sie da einen Tipp?

00:39:32 SPK_2

Naja dass er sich überlegt welche Maßnahmen für seinen Betrieb sinnvoll sind und wenn er sich selber nicht überlegt, dass er sich vielleicht vor außen stehenden oder von der Feuerwehr halt beraten lässt, was er wirklich machen könnte, in dem Fall ne.

00:39:45 SPK_1

Mhm, also auf jeden Fall vorbereiten.

00:39:48 SPK_2

Ja.

00:39:49 Speaker 1

Mhm.

00:39:52 SPK_2

Ja.

00:39:53 SPK_1

Mhm, OK, wunderbar. Das waren alle Fragen. Gibt es zum Schluss irgendetwas, dass Sie noch mitteilen möchten, etwas, das zu kurz gekommen ist, oder ein Wunsch, den Sie haben?

00:40:08 SPK_2

Na, wollten wir jetzt ehrlich gesagt nicht mehr.

00:40:11 SPK_1

Ein okay. Ja, es wurde eh total viel gesagt.

00:40:16 SPK_2

Ja, wie gesagt, das habe ich gesagt, dass ich befürchte, dass es wahrscheinlich mehr werden wird die Hochwässer und dass man natürlich schauen muss wie man sich vorbereitet. Bzw. Betriebe die neu Bauen, dass die schauen, dass die halt auf keinen Fall mehr in einen Hofwassergebiet bauen.

00:40:48 SPK_1

Okay Sie haben. Davor noch einen Eisenhändler in Ihrer Gemeinde angesprochen, der sich auch vorbereitet haben, glauben Sie, die Unternehmer da wären bereit für ein Interview, wenn ich da mal anfrage. (...) Jawohl, OK, ja dann probiere ich es da mal. Super vielen, vielen herzlichen Dank für die ganze Auskunft. Das war sehr, sehr spannend für mich und auch schön zu hören, dass dass es was bringt, wenn man in Hochwasserschutz investiert. Also das ist wirklich erfreulich.

00:42:23 SPK_2

Dann wünsche ich Ihnen noch viel Spaß mit der Arbeit.

00:41:26 SPK_1

Dankeschön.

(...)