Making Sense of Critical Incidents: Navigating Reliability and Rehabilitation in a Swiss Correctional Facility

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PREFACE AND ACKNOWLEDGEMENTS

"Life can only be understood backwards; but it must be lived forwards."
Soren Kierkegaard

This quote not only describes my fascination with sensemaking, the key concept in this dissertation; it is also exemplary for this PhD project. Trusting the journey, despite not knowing how and if the dots will connect in the future, was not always easy. Fortunately, I was surrounded by wonderful people who kept believing in me and gave me the confidence to move forward. This project would not have been possible without the support and guidance of these people, who in one way or another contributed to the completion of this dissertation. It is with great pleasure that I express my gratitude to all of you.

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DISCLAIMER

This study is for educational purposes only, not for any other purpose. It does not aim to evaluate the quality of the work carried out at the chosen research site. Representatives of the research site were given the opportunity to proofread parts of this dissertation to avoid issues with anonymity. They approve the publication of this thesis and confirm that the anonymization of the dissertation is sufficient.

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1 CHAPTER 1: INTRODUCTION

1.1 Background

Societies often delegate collective high-reliability tasks such as health care, energy production, and criminal justice to specialized high-reliability organizations (HROs) like hospitals, power plants, and correctional facilities. These organizations operate under heightened public and political scrutiny driven by societal expectations of high reliability. Fluctuations in performance are met with minimal tolerance, and any lapses typically result in consequences that affect both individuals and the organization as a whole. Failures in HROs often attract harsh judgment and little forgiveness, underscoring the pressure these organizations face (LaPorte & Consolini, 1991).

HROs are characterized by their ability to operate continuously in complex and hazardous environments while maintaining nearly error-free performance and preparing for potential reliability threats (Weick & Sutcliffe, 2015). Achieving this level of performance has been attributed to a culture of resilience, expertise, and a continual preoccupation with potential failures, which together ensure adaptability and mitigate the impact of lapses in reliability when they occur (Weick & Sutcliffe, 2015). Central to this culture is the process of sensemaking, particularly in response to early indicators or 'cues' of critical incidents that pose threats to organizational reliability and, by extension, societal well-being (Weick, 1988; Weick, Sutcliffe & Obstfeld, 2005; Dwyer, Hardy & Maguire, 2021). Maitlis and Christianson (2014) describe sensemaking as "the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations", and this is the definition I adopt in this dissertation.

Sensemaking and the maintenance of organizational reliability in HROs are thus intrinsically linked. Reliability is described by Weick and Sutcliffe (2015: 17) as a "dynamic non-event, which is short-hand for the notion that adaptability and resilience are critical for ensuring continuity when the performance of an organization is threatened by disruptions or breakdowns". They further elaborate that "adaptability and resilience in the face of surprises depend on how units manage weak signals of failure, temptations to simplify, the fine grain of operations, and their usage of expertise" (Weick & Sutcliffe, 2015: 17). In this dissertation, I argue that managing these weak signals through effective sensemaking is not only integral to the concept of reliability – it *is* reliability.

The early literature on sensemaking was centered around crisis scenarios, yielding valuable insights into organizational responses to extreme events (Weick, 1988; 1990; 1993). However, as

the research focus shifted from disaster-driven to more routine organizational settings, the emphasis on HROs waned. Maitlis (2005), for example, explored sensemaking in the day-to-day context of a symphony orchestra. Despite this important shift, the integration of 'mundane' sensemaking with Weick's foundational insights on sensemaking in disaster situations – in which reliability threats often stem from technological or natural factors – has remained fragmented and incomplete. While Maitlis and subsequent scholars redirected the discussion from catastrophic events to the social dynamics of organizing, the reconnection to the high-reliability context has been largely absent.

Simultaneously, while early HRO research primarily focused on technological threats to reliability, more recent inquiries like those by Müller-Seitz (2014) have begun addressing threats from non-technological sources, such as disease outbreaks. However, despite the recurrent emphasis on the importance of human elements, including relational and interpretative aspects, in reliable organizing and sensemaking (e.g., Weick & Roberts, 1993; Weick, 1995; Maitlis, 2005; Balogun, 2015), the exploration of the human factor in HRO contexts, particularly where the threats to reliability stem from human actions, remains inadequately explored in the HRO literature. Indeed, there is a clear gap in understanding how HROs, especially those confronted with reliability threats arising from human actions, address these challenges through sensemaking.

My dissertation aims to bridge this research gap and contribute to the literatures on sensemaking and HRO by focusing on a specific type of HRO – a low-security correctional facility – that faces incidents resulting from human behavior on a daily basis and relies on rapid sensemaking to prevent lapses in reliability. Accordingly, I seek to answer the research question *How do HROs make sense of critical incidents?* by connecting the concepts of reliability and sensemaking through an emphasis on the human factor.

1.2 Empirical context and methodology

To achieve this aim, I conducted an *interpretative comparative case study* as outlined by Gioia et al. (2013) and Eisenhardt (1989; 2021) to explore and analyze sensemaking processes and practices in the selected correctional facility. High reliability is crucial in such facilities as they balance public safety with the rehabilitation of detained persons – a complex endeavor fraught with the potential for lapses in reliability. The high expectations from politics and society reflect the intense scrutiny typical of HROs (LaPorte & Consolini, 1991). Correctional facilities are thus exemplary loci for studying reliability.

My focus on a low-security correctional facility is warranted for two additional reasons. First, while meeting the conventional definition of an HRO perfectly, my research site experiences critical incidents as a part of its rehabilitative mission – unlike traditional HROs, which typically aim to prevent such incidents altogether. This context provides unique insights into the sensemaking of critical incidents, offering perspectives that might be less apparent in other HROs. As a result, the learnings from this setting are not only applicable to other HROs but also carry wider implications for various organizational types. Like low-security correctional facilities, most organizations balance multiple goals beyond safety and reliability, such as production and sales. In these settings, as highlighted by Leveson (2009), the optimal strategies for attaining these diverse objectives often diverge from those focused solely on minimizing risk, suggesting that insights from this research can inform broader organizational strategies and risk management practices. Second, the chosen site represents a particularly revelatory context for studying sensemaking due to its emphasis on rehabilitation over containment – thus, critical incidents cannot be fully ruled out. The facility's commitment to thorough documentation and the accessibility of its staff for interviews and observations enable an in-depth exploration of sensemaking activities. This approach is in concordance with the interpretative research tradition, which examines how particular meanings become shared, dominant, and contested in situations in which alternative meanings and understandings are present and possible (Langley, 1999; 2007).

Furthermore, recognizing the dominance of single-case studies in sensemaking research, this dissertation adopts Maitlis and Christianson's (2014) suggestion to advance the field by examining multiple instances of sensemaking. By analyzing nine distinct critical incidents in a single organization, I intend to compare and contrast sensemaking processes across different scenarios. The use of an embedded multiple case study design facilitates theoretical rather than external generalization, as highlighted by Eisenhardt (1989) and Gioia, Corley, and Hamilton (2013). I place particular emphasis on the *process* of sensemaking, drawing insights from Christianson and Barton (2021), who in their work on the COVID-19 pandemic illuminated the importance of studying sensemaking trajectories, to enrich our understanding of the factors that shape the unfolding of sensemaking over time.

My data collection comprised three primary sources: documents, interviews, and observations, and took place from March 2022 to July 2023. My analysis employs a theory-building approach, integrating interpretative coding techniques (Gioia et al., 2013) with comparative case analysis tactics (Eisenhardt, 1989), to inductively construct theory from the gathered data, as recommended by Ketokivi & Mantere (2010). This iterative process aims to evolve from descriptive to conceptual

modeling, guided by continuous engagement with both the data and relevant literature (Miles & Huberman, 1994; Saldaña, 2014). The within-case analysis focuses on elements such as the assessment of incident criticality, the nature of the sensemaking process (individual vs. collective), the structure of the process, risk evaluation, and consensus on the sensemaking approach. A cross-case analysis facilitates the identification of recurring themes in the sensemaking process and their impact on reliability outcomes, comparing steps and outcomes across cases to discern patterns and connections. Through this comparative analysis, I seek to illuminate factors contributing to the success or failure of both sensemaking and reliability, thereby enhancing the understanding of these processes. Based on my within- and cross-case analyses, I develop an empirical model detailing the observed sensemaking steps and practices. This model, structured around the themes of criticality, risk, and reliability, encapsulates the systematic practices identified across the cases. It provides a structured framework for understanding sensemaking in my specific empirical setting, but also for creating a conceptual model of the sensemaking process that can illuminate sensemaking in broader settings beyond my specific research site.

1.3 Structure of this dissertation

The rest of this dissertation is structured as follows: In Chapter 2 (Positioning), I present an outline of the methods I employ to review the literature, followed by a detailed discussion of previous research on sensemaking, HROs, and critical incidents, in that order. Lastly, I discuss the research gap identified in my literature review and formulate and discuss the related research question. In Chapter 3 (Methods), I detail, and provide a rationale for, the methodology behind the research conducted. First, I describe the empirical context by mapping the terrain and explaining the research site. Second, I shed light on the process of case definition and data selection. Lastly, I explain the individual steps in my analysis of the data. Altogether, this chapter will give the reader a clear understanding of how I carried out my field analysis, setting the stage for the presentation of my empirical model and research findings in the following chapter. In Chapter 4 (Field Analysis), I begin by presenting my empirical model, explaining the themes, steps, and practices that constitute the sensemaking process. Subsequently, I apply the model to describe and analyze the sensemaking process in four polar cases (Eisenhardt, 2021) based on within-case analysis. In Chapter 5 (Theorizing), I draw upon the results of my field analysis to provide answers to my research question: *How do HROs make sense of critical incidents?* I present a conceptual model of the sensemaking process, as well as a typography of sensemaking and reliability. In doing so, I explore how the practices I observed in my research site might be applicable to other HROs. My

aim in this chapter is to develop theory inductively, providing a second-order abstraction from the first-order field analysis to answer the research question (Ketokivi & Mantere, 2010). Lastly, in Chapter 6 (Discussion), I elaborate upon the theoretical and practical implications of my research in greater detail. I discuss the theoretical implications of my findings first in light of the literature on sensemaking of critical incidents in HROs, and then focus on the implications of my typology of sensemaking for the sensemaking literature more broadly and subsequently for the HRO literature. Subsequently, I discuss the main practical implications of my research and then conclude with some reflections on future research opportunities.

2 CHAPTER 2: POSITIONING

2.1 Overview

Understanding how organizations use past experiences to make sense of events that violate their expectations has been a focus of long-standing interest among organizational scholars. This area of study encompasses early research on sensemaking, including the seminal works of Weick (1988; 1990; 1993; 1995) up to the literature review conducted by Maitlis and Christianson (2014). Scholars have also been keen to explore how organizations can maintain error-free operations in hazardous environments. Their research forms a strand of the literature concerned primarily with high-reliability organizations (HROs), as seen for example in the works of Roberts (1990), Weick and Sutcliffe (2015), and Berthod et al. (2017). Sensemaking plays a central role in these high-reliability contexts, as well (Weick, 1988; Weick, Sutcliffe & Obstfeld, 2005; Dwyer, Hardy & Maguire, 2021). Additionally, there is a subset of the HRO literature that examines threats to an organization's reliability in the form of critical incidents or near-failures (e.g., Blatt et al., 2006, Catino & Patriotta, 2013).

These three bodies of literature are interrelated and partially overlap, reflecting the recursive relationship between the two main concepts in this dissertation: sensemaking and HROs. Indeed, from an HRO point of view, sensemaking represents a key capability to ensure organizational reliability. In turn, from a sensemaking point of view, HROs are the most relevant sites to study sensemaking in practice, particularly the sensemaking of critical incidents. Weick and Sutcliffe (2015: 17) define reliability as a "dynamic non-event", emphasizing the importance of remaining adaptable and "cultivating resilience to sustain continuity when performance is threatened by breakdowns".

I adopt Weick and Roberts's (1993: 357) definition of HROs as organizations that require "nearly error-free operations all the time because otherwise they are capable of experiencing catastrophes". Moreover, I define critical incidents as a threat to an organization's reliability. For the concept of sensemaking, I employ the definition from Maitlis and Christianson's (2014: 57) comprehensive review, which describes it as "the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations". Broadly speaking, sensemaking is triggered by discrepant cues (Blatt et al., 2006), which can range from events that stem from crises and threaten the fundamental goals of an organization (Weick, 1988) to unexpected experiences that bear little or no resemblance to past experiences (Garud, Dunbar & Bartel, 2011). In his foundational work on sensemaking, Weick (1993) conceptualized reality

as an ongoing accomplishment, suggesting that the human need for order and understanding drives sensemaking as a hermeneutic process that enables action. Paradoxically, action often precedes interpretation, creating a recursive dynamic in which certain events and structures are brought into existence and set in motion (Weick, 1988). Furthermore, the very act of exploration influences what is being explored, meaning that some of the findings explorers make retrospectively are consequences of their own actions (Weick, 1988).

Empirically associated with sectors such as aviation, aircraft carriers, and power plants, HROs are characterized by their ability to maintain error-free operations in complex and hazardous environments while being prepared for threats to their reliability (Weick & Sutcliffe, 2015). According to Weick and Sutcliffe (2015), organizations can achieve reliability by avoiding rigid categorization (thus avoiding cues being overlooked), remaining aware and alert (regardless of expectations), cultivating resilience and minimizing the impact of errors when they occur, relying on expertise, and, lastly, maintaining a preoccupation with failure. Altogether these principles entail staying alert to small emerging failures and detecting early cues, and it is precisely here that sensemaking comes into play and where I position this dissertation: at the nexus of reliability and the sensemaking of early cues, reliability threats, and critical incidents. Thus, this dissertation does not focus on fatal disasters but rather on *reliability threats*, such as near-errors and critical incidents, that have not (yet) led to fatalities. These types of threats are of particular relevance for HROs because they are instrumental in strengthening and developing processes and practices to ensure reliability.

The remainder of this chapter is organized as follows: In the next section, I present an outline of the methods I employed to review the literature, followed by a discussion of sensemaking, HROs, and critical incidents, in that order. Lastly, I discuss the research gap identified in my literature review and formulate and discuss the related research question.

2.2 Review methodology

The goal of this chapter is to conduct a formative review of the three bodies of literature on the following concepts: sensemaking, HROs, and critical incidents. Rather than replicating existing reviews in these areas (Maitlis & Christianson, 2014; Weick & Sutcliffe, 2015), the chapter focuses on research on the sensemaking of critical incidents in HROs. To achieve this, I employ a thematic, inductive approach, following the example of recent exemplary reviews (e.g., Suddaby et al., 2017; Überbacher, 2014).

2.2.1 Inclusion criteria

I selected studies according to four criteria: research domain, journal quality, search terms, and time period. I only searched for articles in journals situated in the following three research domains: management, organization, and public management and administration. This selection was based on two considerations: (a) the discussion on sensemaking mainly occurs in management and organization literature, and (b) studies on HROs are found across all three domains, reflecting the prevalence of HROs in the public sector. Furthermore, for all three concepts, I only included articles published in 'top tier' journals, which I defined as those with the highest impact factor in my research domains according to the Social Science Citation Index (SSCI). Following these criteria, I identified a total of 18 journals as relevant for this review. An overview of these selected journals is provided in Table 1.

Table 1: Overview of selected journals per domain

Domains	Journals
Management	Academy of Management Journal
	Academy of Management Review
	Academy of Management Annals
	Academy of Management Perspectives
	Journal of Management
	Journal of Management Studies
	Administrative Science Quarterly
	Journal of Management Inquiry
Organization	Organization Science
	Organization Studies
	Organization
	Human Relations
	Journal of Organizational Behavior
Public Management and Administration	Journal of Public Administration and Research Theory
	Public Administration Review
	Public Management Review
	Public Administration

2.2.2 Literature on sensemaking

I used two different time periods when searching and reviewing the sensemaking literature. The first period encompasses the foundational work leading up to the literature review by Maitlis and Christianson (2014), who took stock of all sensemaking research up to 2014. A key figure in this foundational period is Karl Weick, whose groundbreaking work paved the way for years of extensive research on the concept of sensemaking. Because it would go beyond the scope of this dissertation to review all of the literature on sensemaking, I begin, in this first half of this chapter, by discussing the seminal contributions of Weick on sensemaking from the late 1970s into the 1990s, followed by the literature review of Maitlis and Christianson (2014).

After this, my review concentrates on developments in the sensemaking literature from 2014 to 2023. I chose this timeframe based on the extensive coverage provided by Maitlis and Christian (2014), along with two additional reviews on sensemaking published shortly thereafter: by Brown et al. (2015) and Sandberg and Tsoukas (2015). Together, these three reviews suggest that the sensemaking literature up to 2014 has been sufficiently covered. To identify recent sensemaking work, I conducted a search in the Business Source Ultimate Database on EBSCOhost using the search term "sensemaking". I limited my search to the 18 journals identified as relevant to this review and to the time period from 2014 to 2023. Importantly, because I wish to contribute to the literature on sensemaking, I did not specifically search for studies on sensegiving. Sensegiving describes the process through which individuals attempt to influence the sensemaking of others (Gioia & Chittipedi, 1991). Nevertheless, it is impossible to omit all publications on sensegiving (or other specific types of sensemaking for that matter) since many of the recent publications study very specific types of sensemaking.

2.2.3 Literature on HROs

In the early 1990s, the HRO literature began to flourish with contributions from scholars like Roberts (1990), LaPorte and Consolini (1991), and Weick and Roberts (1993). Weick and Sutcliffe continued to develop the concept of HROs with the publication of their book *Managing the Unexpected* in 2001, in which they detailed the five principles of high-reliability organizations (Weick & Sutcliffe, 2001). The continued evolution of their ideas was evident in the latest edition of their book in 2015 (Weick & Sutcliffe, 2015). Since the early work in the 1990s, the concept of HROs has gained scholars' attention across the domains of management, organization, and public admin-

istration. I thus searched for HRO studies in the Business Source Ultimate Database on EBSCOhost using the search term “high reliability”, limiting my search to the 18 selected journals and to the time period from 1990 to 2023.

2.2.4 Literature on critical incidents

The concept of a critical incident is not as well defined as the other two concepts examined in this dissertation. Its origins can be traced to the critical incident technique (CIT) developed by John C. Flanagan in 1954 (Flanagan, 1954). However, CIT is not used in this dissertation because it is known primarily for its practical applications, and the goal of this dissertation is to extend existing theory and not to provide a practical review of specific critical incidents. Therefore, I searched the Business Source Ultimate Database on EBSCOhost using the search term “critical incident” but excluded publications related to the CIT, critical-incident-based surveys, and critical incident methodologies. I limited my search to the 18 selected journals and to the time period from 2000 to 2023 in order to focus on recent work. I also limited my search to empirical work that examined actual critical incidents.

2.2.5 Study selection

Altogether my three searches of the Business Source Ultimate Database yielded 111 records (sensemaking: 56, HRO: 40, critical incidents: 15). I screened these records in a two-stage process. In the first stage, I read the title, abstract, and keywords of each identified record for eligibility based on the inclusion and exclusion criteria I had defined for each of the three bodies of literature. This led to the exclusion of 20 records (sensemaking: 3, HRO: 10, critical incidents: 7). Reasons for exclusion included factors such as the empirical context not being specifically related to HROs, an overemphasis on general safety concepts rather than a focus specifically on reliability, or studies focusing on very specific subtypes of HROs, such as high-reliability health care in war zones (Shen et al., 2022). Additionally, some studies were excluded for being too focused on practical implications rather than making theoretical contributions, for having a predominant focus on a general learning perspective without employing sensemaking, for overly concentrating on cultural aspects, or for primarily addressing governmental crisis management or political aspects.

Subsequently, in the second stage, after obtaining full texts of the remaining records, I read the abstract, introduction, and findings section of each study with the aim to identify further references. This led to the inclusion of 15 more studies, which I all categorized under critical incidents. In these studies, the wording ‘critical incident’ was typically not mentioned; however, these studies were at the nexus of sensemaking, high-reliability organizations and had in common that they

revolved around an incident, albeit different in the 'fatality' of said incident. Ultimately, this two-stage process yielded a total of 106 studies (sensemaking: 53, HRO: 30, critical incidents: 23), which inform this chapter. An outline of these studies is provided in appendix A.

2.3 Review of the literature

To provide an in-depth overview of the identified studies, I will discuss the three bodies of literature on sensemaking, HROs, and critical incidents separately. By juxtaposing these three concepts, my objective is to identify any research gaps and subsequently formulate and discuss my research question.

2.3.1 Sensemaking

The concept of sensemaking is important because it contributes to the literature on decision-making (e.g., Cornelissen et al., 2014), strategic change (e.g., Gioia & Thomas, 1996), organizational learning (e.g., Christianson, Farkas, Sutcliffe & Weick, 2009), and innovation (e.g., Drazin, Glynn & Kazanjian, 1999). While the definition of sensemaking has evolved over the years, in this dissertation, I define it as *the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations* (Maitlis & Christianson, 2014). As mentioned earlier, I bracketed the sensemaking literature into two time periods. The first encompasses the sensemaking classics, beginning with Weick's foundational work (e.g., Weick, 1979) and extending to the comprehensive review by Maitlis and Christianson in 2014, encapsulating over 30 years of research on sensemaking. The second time period runs from 2014 to 2023, encompassing what I refer to as 'recent sensemaking publications'.

Key tenets from foundational work: sensemaking classics (1979 – 2014)

Karl Weick's influence in the field of sensemaking is undeniable. He introduced the concept of sensemaking in 1979 in *The Social Psychology of Organizing*, and his groundbreaking work in this area has continued to inspire scholars for over 50 years, including my own research. Among the five sensemaking 'classics' I identified, four were authored by Weick. The fifth classic is the important work by Maitlis on the social aspects of sensemaking (2005). Her research marked an important shift in the sensemaking community from a focus on strictly disaster-driven sensemaking to more mundane organizational contexts, thus enhancing the applicability of the concept to 'normal' organizations.

Weick (1988): Action precedes cognition; How can I know what I think until I can see what I say? In his analysis of the 1984 Bhopal disaster, Weick explored the tensions between dangerous action, which produces understanding, and safe inaction, which produces confusion (1988). In the disaster, one of the worst industrial accidents in history, human errors led to a leak of highly toxic methyl isocyanate gas, killing almost 4000 people immediately, injuring many more, and leading to thousands of additional deaths in the following weeks, months, and years (Broughton 2005). Studying this disaster and the initial response, Weick observes that our actions are always a little further ahead of our understanding. As a result, people can intensify crises before they know what they are doing. Weick therefore concludes that it is important to understand errors fully and quickly in order to prevent them from turning into full-blown disasters.

This understanding of the sensemaking process in small crises plays an important role in impeding larger crises, specifically through developing an understanding of the 'enacted sensemaking'. Weick coined this term in his study to emphasize how action precedes cognition. In his 1988 work, Weick focuses on the action element of sensemaking, suggesting that people tend to recognize only those events they believe they can influence. Weick also describes how people can become committed to an action before fully understanding it and then justify this action retrospectively (emphasizing again how action precedes cognition). This kind of action under pressure has reliability consequences because it produces blind spots. Ultimately, Weick's early contributions to sensemaking established the framework for understanding it as a retrospective process that actively shapes its environment.

Weick (1990): Pressure leads people to fall back on what they learned first and most fully. In his 1990 analysis of the Tenerife Air disaster, the deadliest incident in aviation history, Weick continued to explore how small events can become linked so that they escalate into a disaster. In this case, two planes collided on the runway, killing almost all of the passengers. In his analysis of the voice recorder from one of the flights, Weick was able to study the interactions among the crew members immediately before the crash. The pressure the crews faced provided Weick with a context to study the components of a highly stressful environment. Weick concluded that this pressure leads people to fall back on what they learned first and that more complex and recently learned behaviors are more vulnerable to disruption. In such scenarios, small details can be amplified and create problems that exceed the grasp of individuals or groups. Specifically, Weick describes a breakdown of coordination in a stressful environment due to individualism and divergent judgments of the situation not being voiced until it is too late. The consequences for

reliability lie in the fact that communication is necessary to detect false hypotheses. This underlines the importance of the social aspect of sensemaking. Misunderstandings can lead to the breakdown of coordinated actions, resulting in breaches of reliability.

Weick (1993): Reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs. Building upon his analysis of the Tenerife air disaster, Weick asked the question, "Why do organizations unravel?", and, more importantly, "How can organizations be made more resilient?" (Weick, 1993: 628). In this work, he analyzed the Mann Gulch fire, framing reality as an "ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs" (Weick, 1993: 635). This analysis highlighted the important role of expectations in sensemaking: the firefighters in Mann Gulch, expecting a manageable fire, interpreted their situation within this frame, inadvertently producing blind spots in their understanding of the unfolding crisis. Moreover, Weick observed that when the foreman instructed the firefighters to drop their tools – a directive that probably would have kept them safe but deviated from their roles and expectations – they could not comply: old labels were not working anymore. For the reliability of organizations, Weick's analysis suggests that, under pressure, people tend to revert to old ways of responding, but the loss of old labels and role structures can lead to the disintegration of shared meaning and thus of the organization as a whole. In the Mann Gulch disaster, the absence of emotional support and explanations contributed to the escalation of the crisis because the people involved in the situation felt that the universe was no longer a rational and orderly system, experiencing what Weick calls a 'cosmology episode'. Weick suggests that building resilience involves adopting an attitude of wisdom characterized by questioning and acknowledging the limits of what can be known and fostering joint subjectivity through respectful interactions.

Weick (1995): Seven properties of sensemaking. In his book *Sensemaking in Organizations*, Weick describes sensemaking as a process that is initiated by a discrepant cue and is retrospective in nature, in which individuals develop plausible explanations to make sense of the cue. He delineates this concept through the 'seven properties of sensemaking'. First, Weick emphasized the role of identity, positing that maintaining one's identity is the core preoccupation in the sensemaking process (property 1). Weick then reiterates the retrospective nature of sensemaking, describing reality as the moment of vision before intellectuality takes place (property 2). Enactment continues to play a key role in the sensemaking process according to Weick, as he describes how people are enactive of sensible environments (property 3). The social aspect of sensemaking, according to Weick, does not need to be marked by the presence of others; their presence can also

be imagined (property 4). Furthermore, sensemaking is an ongoing activity (property 5), in which the disruption of flow induces emotional responses that drive the search for plausible explanations. This sensemaking process is focused on extracted cues (property 6), which guide individuals' sense of unfolding events. Lastly, Weick argues that sensemaking is based on plausibility rather than accuracy (property 7), suggesting that people often prefer immediate action over detailed analysis given that "the cost of taking a close look is generally too high" (Weick, 1995: 58).

These seven properties (Weick, 1995) were groundbreaking in the development of sensemaking research, shaping the field until more differentiated takes on sensemaking emerged (e.g., Maitlis & Christianson, 2014; and more recent publications on sensemaking after 2014). Central to Weick's definition is the idea that sensemaking begins with, and is focused on, discrepant and extracted cues. This focus on cues as the catalyst for the sensemaking process is in line with my focus in this dissertation on critical incidents as the starting point of the sensemaking process.

Maitlis (2005): Mundane sensemaking – sensemaking in everyday organizing. By 2005, Weick had attracted the attention of many scholars with his concept of sensemaking in extreme contexts. Recognizing that organizations in other contexts could benefit from the insights gained from the study of sensemaking, Sally Maitlis sought to normalize sensemaking outside of extreme settings. In her study of sensemaking in orchestras, she explored sensemaking as an integral part of daily organizational life (Maitlis, 2005). While agreeing with Weick's notion of reality as an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs, she focused on the social aspects of sensemaking, positing that organizational sensemaking is a social process. She found that organizational members interpret their environment through interactions with others in order to comprehend the world and act collectively; furthermore, she identified four forms of organizational sensemaking, with sensegiving being the variable explaining differences in the sensemaking process (Maitlis, 2005). Apart from sensegiving, Maitlis described a certain routinization of sensemaking, noting that the organizational sensemaking process can be controlled through scheduled meetings, formal committees, and planned events (Maitlis, 2005).

Weick et al. (2005): Meanings materialize through language – "What's the story here?" and "Now what should I do?" In their 2005 work, Weick, Sutcliffe, and Obstfeld (2005) revisited the concept of sensemaking. Moving away from the concept of sensegiving, they argued that sensemaking shapes organizations rather than merely being a product of organizational effort. They continued to portray the concept of sensemaking as an ongoing, retrospective activity that

rationalizes actions already in progress. Here, Weick and colleagues take a closer look at expectations, suggesting that people engage in sensemaking when the expected and perceived worlds are no longer the same. They posited that humans need to stay in action, with individuals seeking narratives that justify the continuation of their actions. Although those involved in sensemaking might believe they are pursuing accuracy, Weick and colleagues describe the process as prioritizing plausibility: "If plausible stories keep things moving, they are salutary" (Weick, Sutcliffe & Obstfeld, 2005: 415). The authors once again touched upon the role of communication, illustrating how meanings materialize through language: "Situations, organizations, and environments are talked into existence" (Weick, Sutcliffe & Obstfeld, 2005: 409).

Conclusion of sensemaking classics: a shift from disaster-driven sensemaking to studies of mundane sensemaking as a social process. Although Weick remained consistent regarding certain aspects of sensemaking, his view on the subject nevertheless evolved over time. In a special issue of the Journal of Management Studies (JMS) commemorating the 50th anniversary of the publication of Weick's *The Social Psychology of Organizing*, Glynn and Watkiss (2020) noted that while Weick focused in his earlier work on the action in organizing, his subsequent research shifted towards a deeper exploration of meaning (Glynn & Watkiss, 2020). Indeed, Weick came to view sensemaking as the vehicle for accomplishing organizing itself (Glynn & Watkiss, 2020). Glynn and Watkiss (2020) observed how scholars have mostly emphasized Weick's earlier framework, often treating organizations as mere context for sensemaking (e.g., Catino and Patriotta, 2013; Christianson et al., 2009; Drazin et al., 1999; Gioia & Thomas, 1996; Maitlis & Sonenshein, 2010). They criticized the lack of research using Weick's later framework, which positions organizing and sensemaking as intertwined processes (Weick, 1995a; Weick et al., 2005).

Weick (1995) brought identity into focus in his articulation of the seven properties of sensemaking. With regard to research context, the approach to sensemaking also evolved in the early years of sensemaking research. While Weick focused on disasters and other extreme events (1988, 1990, 1993) as unique opportunities for studying sensemaking, over the years the research moved from disaster-driven to organizational sensemaking (e.g., Maitlis, 2005). The aforementioned strands of research have in common that they agree on the discrepant cue as the starting point of the sensemaking process, as well as the fact that sensemaking happens retrospectively and prioritizes plausible explanations over accurate ones. There has, however, been a shift in context: Whereas the contexts studied by Weick were extreme, those studied by Maitlis were mundane and unrelated to HROs. At the time when Maitlis shifted the focus to a quotidian context (2005), the literature had

not yet linked this new people-centered focus, nested in interaction, with Weick's insights regarding sensemaking around disasters, in which reliability threats stem from technology or nature (i.e., with people making sense of their environment). In short, Maitlis took the step from sensemaking of technology or nature to sensemaking of social aspects of organizing in 2005 but did not yet link this back to a high-reliability context.

Since this important shift in the sensemaking literature, many scholars have studied organizational sensemaking. Their work was the subject of the landmark literature review of Maitlis and Christianson (2014), which I will discuss in the following section.

Taking stock: literature review by Maitlis and Christianson (2014)

After the concept of sensemaking gained traction in the community of management and organization scholars, it led to a large body of research beyond the seminal works of Weick outlined above. Following Weick and colleagues' overview of this research in 2005 (Weick et al., 2005), Maitlis and Christianson undertook a comprehensive review in 2014 to chart the development of the concept of sensemaking to that point (Maitlis & Christianson, 2014). In this seminal review, Maitlis and Christianson acknowledged the widespread scholarly engagement with sensemaking since Weick's early work. However, they observed that despite this extensive research, the literature on sensemaking remained fragmented, lacking a coherent direction. They argued that the disconnected conversations around sensemaking had resulted in ambiguity about the future trajectory of sensemaking research. By taking stock of the sensemaking literature, Maitlis and Christianson aimed not only to consolidate existing knowledge but also to identify promising future research opportunities for sensemaking scholars.

In their definition of sensemaking, Maitlis and Christianson clearly refer to Weick's conceptual framework. They describe sensemaking as the process that organizational members engage in when they encounter moments of ambiguity and uncertainty. This process involves extracting and interpreting cues from the environment to construct a plausible account that brings order to, and 'makes sense' of, what has occurred, and through which organizational members continue to enact the environment (Maitlis & Christianson, 2014: 58). This definition, like Weick's seven properties (1995), highlights the importance of the role of *cues* in initiating sensemaking, an aspect that is particularly relevant to this dissertation. The definition also raises important questions, such as how cues are identified and why certain cues are noticed over others

In their literature review, Maitlis and Christianson defined sensemaking as "the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some

other way violate expectations" (Maitlis & Christianson, 2014: 57). This definition has been widely adopted by sensemaking scholars in recent years and, as noted earlier in this chapter, is the definition of sensemaking I use in this dissertation. Maitlis and Christianson described sensemaking as a dynamic process, which starts with violated expectations and involves attending to and bracketing cues in the environment, creating intersubjective meaning through cycles of interpretation and action, and thereby enacting a more ordered environment from which further cues can be drawn (Maitlis & Christianson, 2014). Sensemaking is therefore more than an interpretation of what is happening. Maitlis and Christianson's emphasis on enactment is in line with Weick's view that people play an active role in constructing the situations they are trying to comprehend (Maitlis & Christianson, 2014). With my research, I also wish to deepen our understanding of how discrepant cues are noticed as part of the sensemaking process.

The field of sensemaking continues to grapple with ontological differences, which manifest in the variety of definitions and interpretations of sensemaking found throughout the sensemaking literature. For example, a fundamental debate in sensemaking research revolves around whether the process of sensemaking is inherently social and a product of negotiated meaning or rather an individual and cognitive process (Maitlis & Christianson, 2014). Both sides of the debate are accompanied by a distinct stream of the sensemaking literature (Maitlis & Christianson, 2014). Maitlis and Christianson (2014) concluded that when scholars examine sensemaking as a social process, they emphasize language, narratives, and discursive practices, as well as interactions between people. I align my work with researchers who view sensemaking as a social process. I assert that sense is not made in isolation, *but* rather is deeply intertwined with who is involved in the sensemaking and the people or things around which sense is being made.

Furthermore, as noted by Maitlis and Christianson (2014), the temporal aspect of the sensemaking process plays an important role in the literature on sensemaking. While sensemaking has traditionally been viewed as a retrospective process (e.g., Weick, 1988), some scholars have looked at sensemaking in a more prospective manner, studying the intentional consideration of the possible future impact of actions. Maitlis and Christianson (2014) pointed out that the role of action, especially during crises and unexpected events, has been thoroughly studied in sensemaking research. The contexts of this action have been diverse and have included organizational crises, threats to organizational identity, and planned organizational change initiatives. Furthermore, HROs represent ideal sites to study sensemaking because sensemaking is not only a continuous necessity but also a critical process for maintaining operational integrity. These organizations cannot rely solely on technical design for failure-free operation. As noted by Vaughan (1990), technology is not the

only culprit; the human element is also crucial. Staff in HROs need to be adept at making sense of early cues, whether technical in nature or otherwise.

Key tenets from recent sensemaking work (2014 – 2023)

The research on sensemaking has had a large impact not only on the field of sensemaking itself but has also extended its impact to related concepts such as strategic chance, decision-making, innovation and creativity, and organizational learning (Maitlis & Christianson, 2014). Following the seminal literature review by Maitlis and Christianson in 2014, the field of sensemaking research expanded both in scope and depth. Early calls by Weick et al. in 2005 for more research into the intersections of sensemaking with emotion, power, and institutional theory set the stage for this expansion. Subsequently, Maitlis and Christianson (2014) themselves suggested broadening the focus to include change, learning, creativity, and innovation. Brown et al. (2015) specifically called for more research into prospective sensemaking and research in 'mundane' contexts rather than crises. In turn, Sandberg and Tsoukas (2015) highlighted the need for studies on embodied sensemaking and sensemaking triggered by minor or unplanned events. They expressed surprise that most of the previous research had emphasized the process of interpretation in sensemaking at the expense of creation and enactment. Like Brown et al. (2015), Sandberg and Tsoukas (2015) advocated for more research on prospective sensemaking, specifically in response to the lack of anticipatory perspectives in sensemaking studies.

In response to these scholarly calls, numerous management and organization researchers have studied the concept of sensemaking. Their contributions can be grouped into three broad categories of studies: (a) those that focused on thematic aspects of sensemaking, such as the role of emotions and materiality in the sensemaking process (e.g., Cornelissen et al., 2014), (b) those that used sensemaking as an analytical lens to examine phenomena such as strategic change (e.g., Weissner, 2021), and (c) those that have explored different sensemaking types, such as post-inquiry-sensemaking (e.g., Dwyer et al., 2023).

The thematic aspects of sensemaking examined in the first category of recent literature include emotion (Cornelissen et al., 2014; Heaphy, 2017; Schabram & Maitlis, 2017; Mikkelsen et al., 2020; Dywer et al., 2023), materiality (Cornelissen et al., 2014; Hultin & Mähring, 2017), sociomateriality (Berthod & Müller-Seitz, 2018), space (Steigenberger & Lübcke, 2022), the use of cognitive frames (Cornelissen et al., 2014; Hahn et al., 2014), updating (Christianson, 2019), time (Patriotta & Gruber, 2015; Dahm et al., 2019), power (Schildt et al., 2020), power and discourse (Vaara & Whittle, 2022), language (Whittle et al., 2023), and ethics (Reinecke & Ansari, 2015).

The literature using sensemaking as an analytical lens to contribute to other literatures – the second category of recent sensemaking research – have examined its relationship to corporate sustainability (Hahn et al., 2014), corporate social responsibility (Aguinis & Glavas, 2019), entrepreneurship (Ganzin et al., 2020), retention and turnover (Rothausen et al., 2017), identity (Dahm et al., 2019; Hay et al., 2021), organizational identity (Stigliani & Elsbach, 2018), work-life events (Crawford et al., 2019), change (Konlechner et al., 2019), strategic change (Balogun, 2015; Weissner, 2021), organizational change (Hay et al., 2021), decision-making (Kornberger et al., 2019), ethical decision-making (Parmar, 2014), power and politics (Whittle et al., 2016), innovative behavior (Shin et al., 2017), bystander behavior (Ng et al., 2020), grand challenges (Van der Giessen et al., 2022), and corruption (Schembera et al., 2023).

Lastly, the literature in the third category of recent sensemaking research has identified different types of sensemaking, including sensegiving (Cornelissen et al., 2014; Strike & Rerup, 2016; Heaphy, 2017; Stigliani & Elsbach, 2018; Weissner, 2021), mediated sensemaking (Strike & Rerup, 2016), adaptive sensemaking (Strike & Rerup, 2016), enacted sensemaking (Schabram & Maitlis, 2017; Kutscher & Mayrhofer, 2023), embodied sensemaking (De Rond et al., 2019; Kornberger et al., 2019; Meziani & Cabantous, 2020), collective sensemaking (Van der Giessen et al., 2022), environmental sensemaking (Höllerer et al., 2018), strategic sensemaking (Klarin & Sharmely, 2021), relational sensemaking (Balogun, 2015), prospective sensemaking (Konlechner et al., 2019; Ganzin et al., 2020; Dwyer et al., 2021), post-inquiry sensemaking (Dwyer et al., 2021; Mueller et al., 2023), post-incident sensemaking (Dwyer et al., 2023), and retrospective sensemaking (Gover & Duxbury, 2018).

In the following sections, I will discuss these three categories of literature in the order presented above.

Thematic aspects of sensemaking. In the first category of recent sensemaking research, scholars have endeavored to break down different thematic aspects of sensemaking and study them individually. These include the interplay of sensemaking with emotions, the influence of materiality and space, the use of frames and cognition, the dynamics of updating in sensemaking, routines, and the navigation through ethical dilemmas. I will describe these in detail in the remainder of this section.

Emotions. Weick et al.'s (2005) and Maitlis and Christianson's (2014) calls for research into the relationship between sensemaking and emotion have been heeded by multiple scholars. For example, Schabram and Maitlis (2017) found that emotional responses to sensemaking triggers

vary, with emotions driving the sensemaking process. Cornelissen et al. (2014) also focused on the role of emotions in sensemaking, observing in their study of the Stockwell shooting how emotions were contagious. During this incident, in which an innocent civilian was mistaken for a terrorist and shot and killed by the police, motions were spread and heightened, leading to a shared emotional state that subsequently impacted the sensemaking process (Cornelissen et al., 2014).

But how do these often unconscious emotional processes influence sensemaking? Scholars have been seeking to understand the role of emotions in organizations. In extreme contexts, especially in life-or-death situations, emotions are heightened. In their study of emergency management practitioners who were involved in a major wildfire, Dwyer et al. (2023) found that different emotions had a wide range of effects, particularly in the phase of post-incident sensemaking. Anxiety, in particular, turned out to affect the sensemaking process, with emotions like fear, sadness, anger, and apathy even leading to individual or organizational paralysis (Dywer et al., 2023). Mikkelsen et al. (2020) further underscored the importance of emotions and sensemaking in organizing, defining organizing as a ritualized interaction of emotions, sensemaking, and behavioral responses. They found that when people feel threatened, the resulting social defenses drive action and the sensemaking process. Heaphy (2017) highlighted that through interactions and emotion work, people can actively influence the sensemaking of others (Heaphy, 2017).

Materiality and space. Recent studies of sensemaking have also examined how the sensemaking process is mediated by materiality (Cornelissen et al., 2014; Hultin & Mähring, 2017) and its close cousin, sociomateriality (Berthod & Müller-Seitz, 2018). Cornelissen et al. (2014) identified three types of materiality that have an effect on sensemaking: the material circumstances in which sense is made, physical demonstrations and gestures, and material objects that actors have at their disposal. However, it is not always 'just' about objects and materials, but also the meaning attributed to objects and materials through discourse and practices (Hultin & Mähring, 2017). Especially in high-reliability contexts, specifically those in which an organization depends on complex technology for reliability, sense is made of the technology itself. This becomes even more complex when sensemaking is inadequate or failing. In their study of cockpit communications before a plane crash, Berthod and Müller-Seitz (2018) found that the pilots had an attitude of "mindful indifference" towards the system and were not paying sufficient attention to potential problems. They neglected to make the switch to mindful attention, thus failing to notice how the chain of events became too complex to make sense of. Other studies carried out in high-reliability contexts (Steigenberger & Lübcke, 2022) have linked sensemaking and the enactment of space.

First, through enacted decisions, an ‘enacted space’ is produced. Subsequently, through micro activities, a “lived space” is created, in which sensemaking takes place (Steigenberger & Lübcke, 2017). However, sensemaking and the activities influence the enacted space as well, creating an interaction between sensemaking and the space in which the sensemaking takes place.

Frames and cognition. The use of cognitive frames in sensemaking has also received increased attention (Cornelissen et al., 2014; Hahn et al., 2014). Research suggests that due to bounded rationality, a full understanding of the events and cues in complex situations is not possible; consequently, people rely on cognitive frames to make sense of these situations (Hahn et al., 2014). People commit to a certain frame, regardless of whether it is accurate, and use it as a basis for their sensemaking (Cornelissen et al., 2014). Cognitive frames influence sensemaking because they determine which cues are being picked up, which aspects of a situation are noticed, and which information is processed (Hahn et al., 2014). Through communication, people can collectively become committed to a certain framing of a situation by means of enforcement of interpretations (Cornelissen et al., 2014).

Updating in sensemaking. The antidote to committing to an erroneous cognitive frame is the effective updating of inaccurate sensemaking. Updating the sensemaking process involves evaluating whether the sense that has been made thus far continues to make sense. This updating consists of three phases: noticing the cues, searching for alternative explanations, and then testing these explanations (Christianson, 2019). The quality of the updating strongly relies on the extent to which a team is capable of balancing their ongoing work with the ongoing (i.e., updated) sensemaking, especially in high-reliability contexts. When interpretations of cues are neither accurate nor updated, negative consequences can and will accumulate (Christianson, 2019). Effective updating relies on noticing cues in a timely manner, confirming them with others, evaluating changes over time, and quickly testing new plausible explanations (Christianson, 2019).

Routines. Expectancy frameworks can also be an important resource for sensemaking, especially when organizations are dealing with both planned and unexpected events (Patriotta & Gruber, 2015). These frameworks can provide a baseline for sensemaking by filtering information and supporting the interpretation of incoming cues (Patriotta & Gruber, 2015). However, this categorization process of incoming cues only functions if expectancy frameworks are updated accordingly. Patriotta and Gruber (2015) concluded that the interaction between routines (expectancy frameworks) and mindful processes (updating) in response to unexpected events determines an organization’s effectiveness in sensemaking.

Similarly, in many organizations, sensemaking is facilitated by routines. Routinized sensemaking helps organizations deal with unexpected events (Schildt et al., 2020). However, a more mindful consideration of events can threaten established power relations within an organization (Schildt et al., 2020) because power determines the content and shape of the sensemaking process. Scholars have also studied the relationship between power and sensemaking through a discursive lens. Vaara and Whittle (2022) argued that power, language, and sensemaking are intertwined, advocating for more research into various aspects of power struggles, including discursive strategies, genres, and discourse. Answering their own call one year later, Whittle et al. (2023) highlighted how language provides the cognitive associations, schemas, and frames used in sensemaking. Their focus on discourse aimed to reveal how discursive structures enable or constrain sensemaking.

Ethical dilemmas. Lastly, recent studies on sensemaking have focused on how people make sense of ethical dilemmas. Reinecke and Ansari (2015), for example, argued that ethics is a process of sensemaking and constructing meaning when dealing with moral questions. They found that people dealt with ethical complexity through collective sensemaking in ambiguous situations.

Sensemaking as an analytical lens. In the second category of the recent sensemaking literature, we see that many scholars have used *sensemaking as an analytical lens* to elucidate other concepts that could not be sufficiently explained through existing perspectives. These concepts include corporate and entrepreneurial life, identity, change, decision-making, behavioral topics, and grand challenges. However, by using sensemaking as an analytical lens, scholars have also contributed to the sensemaking literature itself. In this section, I will discuss how the sensemaking literature has been advanced by being used in this manner.

Corporate and entrepreneurial life. In studying corporate sustainability, Hahn et al. (2014) found that cognitive frames affect the sense of control that managers feel they have over sustainability issues. Sensemaking has also been identified as a mechanism through which individuals are proactive and intentional agents who find meaningfulness through work – a finding of relevance to the literature on corporate social responsibility (Aguinis & Glavas, 2019). Revisiting Weick's cosmological aspect of sensemaking (1993), Ganzin et al. (2020) focused on how spirituality helped entrepreneurs trust in their own entrepreneurial endeavors. In this context, the authors identified three elements of 'magical thinking': finding one's path, obtaining the answers, and being at peace. Lastly, in another study that used sensemaking as a sensitizing concept to understand and explain a certain phenomenon, Rothausen et al. (2017) employed sensemaking as a concept to

understand retention and turnover. They found that sense was made through various cycles to cope with threat and strain. Most people used social support, as well as fantasy and reflection, to integrate ideas, but their response to sensemaking cues changed as strain escalated (Rothausen et al., 2017).

Identity. Identity is not only the first of Weick's seven properties of sensemaking (1995); it has also contributed to the identity literature itself through a sensemaking lens. For example, Dahm et al. (2019) applied this perspective to understand how early achievers experience identity affirmations as a threat to their career and family identities. The authors found that time-related sensemaking serves as a strategy for these individuals to achieve dual identity affirmation, meaning that they can mentally travel to the past and future, enabling a larger time window through which they can view themselves in the present. Looking at identity in relation to organizational change failure, Hay et al. (2021) studied employees' identity-related cognitions, emotions, and behaviors within their sensemaking about organizational change, arguing that employees can hold ambivalent views about change (Hay et al., 2021). In order to contribute to organizational identity literature, Stigliani, and Elsbach (2018) used the sensemaking perspective to understand how industry founders can address the tension between organizational distinctiveness and industry coherence in emerging industries. They found that through both sensegiving and sensemaking, industry founders can establish a distinctive organizational identity, as well as a coherent industry identity. Connecting identity and sensemaking to the work-life literature, Crawford et al. (2019) studied how dual-earner couples dealt with work-life shock events. They argued that people hold different identities in a hierarchal order, with the more salient role determining the identity framework that is activated to make sense of life events. Crawford et al. (2019) emphasized the role of relational identity in sensemaking, i.e., the understanding that partners have of their relationship ('who we are and how we do things').

Change. Multiple scholars have added to the recent sensemaking literature by studying organizational change processes. For example, Hay et al. (2021) combined the concepts of identity and change, showing how identity influences the sense that is made of a change process. They found that employees crafted narratives about a failed change project through their work identity and can have ambivalent views about change (Hay et al., 2021). Similarly, through studying change, Konlechner et al. (2019) showed how people develop their expectations of a change project and how these expectations affect the sensemaking process. These expectations are embedded in frames and influence how cues are interpreted. Initially, expectations are shaped by the perception of the fit between perceived problem pressure and the change initiative. Although frames

develop over time, some are 'stickier' than others, depending on the expectations shaped by prospective sensemaking (Konlechner et al., 2019).

Other work on change and sensemaking has focused on change and leadership. Balogun (2015), for example, emphasized the importance of relational and interpretative contexts in sensemaking during strategic changes. Her research indicated that the sensemaking process during strategic changes is shaped by the person or people with whom a senior team is engaging in sensemaking (e.g., through personal interaction) to interpret the implications of the change (Balogun, 2015). Additionally, Weissner (2021) discussed how discursive actions and substantive sensegiving, which materially modify organizational structures, processes, or practices, can lead to similar sensemaking outcomes (Weissner, 2021).

Decision-making. Although sensemaking and decision-making are closely related, with decision-making often forming part of the sensemaking process, there has been relatively limited exploration of these two concepts in tandem. Kornberger et al. (2019) combined these two concepts, introducing the concept of the 'logic of tact' to explain how decisions are made in situations of high uncertainty and extreme pressure. This concept represents a nuance to the sensemaking perspective because it challenges the idea of action over thought, emphasizing instead decision-making as an embodied action, akin to "feeling out a situation" (Kornberger et al., 2019). Further bridging the gap between the sensemaking and decision-making literature, other scholars have explored the ethical dimensions of this relationship. Parmar (2014), for example, has shown how sensemaking can raise moral issues through disruptions, labels, and actions.

Behavioral aspects. An example of a study in which the sensemaking perspective is used to highlight a specific desirable behavior is the work of Shin et al. (2017). They used the sensemaking perspective to examine the conditions under which employees' perception that a job requires innovative behavior will actually increase such behavior. They found that the perceived requirement functions as an external cue, influencing employees' sensemaking in such a way that they interpret innovative behavior "as a potentially desirable thing to do". However, studies have also used the sensemaking perspective to explain less desirable behavior, such as bystander behavior in workplace bullying (Ng et al., 2020) or corruption (Schembera et al., 2023). Ng et al. (2020) showed that bystanders engage in sensemaking of severity, victim deservingness, and efficacy, and that this, in turn, influences bystanders to enact certain behaviors. They also emphasized the social aspect of sensemaking, with sensemaking of bullying being shaped by, but also shaping, the social network in which the bullying occurs.

Grand challenges. Schembera et al. (2023) discovered that sensemaking of compliance and achievement in the governance of corruption changes over time through ongoing communications about the problems experienced and underlying norms and values. In their work on power and politics, Whittle et al. (2016) introduced the term 'sense-censoring', the process through which actors consciously censor their sensemaking accounts. Actors have to make sense of who has power, how it is produced, and how best to enact it; processes of sensemaking and sensegiving are therefore important for how power is understood and political agendas or motives are established (Whittle et al., 2016).

Different types of sensemaking. In the third category of the recent sensemaking research, we can observe how scholars have been seeking to carve out their own niches in this large and growing body of work. To do so, they have been narrowing down the types of sensemaking they explore, examining for example how people shape other people's sensemaking, investigating the concept of recursivity, focusing on the body as a context beyond the physical setting alone, and considering different temporal orientations. In this section, I will provide an overview of the different types of sensemaking that have emerged in this category of the recent literature.

Sensegiving: shaping the sensemaking of others. With sensegiving being one of the earlier (Maitlis, 2005) and more persistent types of sensemaking, I will briefly discuss this concept and how it has advanced our understanding of sensemaking. Sensegiving refers to the strategic discursive and framing efforts of actors to influence "the sensemaking and meaning construction of others toward a preferred redefinition of organizational reality" (Gioia & Chittipeddi, 1991: 442). Sensegiving is often seen as top-down and planned (e.g., Strike & Rerup, 2016). Early acts of sensegiving have been shown to influence how individuals make sense of their circumstances, with the frame that is initiated through early sensemaking being likely to stick (Cornelissen et al., 2014). Sensegiving can influence others' sensemaking through emotion work (Heaphy, 2017). A concept related to but slightly different from sensegiving is mediated sensemaking – a term coined by Strike and Rerup (2016). Mediated sensemaking differs from sensegiving in that sensegiving is planned whereas mediated sensemaking is not; additionally, unlike sensegiving, mediated sensemaking is not initiated from above, but rather a mediator brings forth cues from many directions. The mediator tries to influence others' sensemaking process by slowing the sensemaking down and facilitating doubt (Strike & Rerup, 2016). Through mediated sensemaking, adaptive sensemaking can be initiated, describing the ability of sensemakers to doubt their initial frame and to mobilize an adapted or alternative one (Strike & Rerup, 2016).

Enacted sensemaking: exploring recursivity. Weick introduced the term 'enacted sensemaking', which he defined as a process of recursive interpretation and enactment where people "create the materials that become the constraints and opportunities they face" (Weick, 1995: 31). Recent sensemaking publications have elaborated upon the concept of enacted sensemaking, such as by focusing on the role of emotions in enacted sensemaking. Schabram and Maitlis (2017) argued that people respond differently to challenges because they interpret these differently and have different emotional responses, which in turn lead to different kinds of enacted sensemaking. For example, Kutscher and Mayrhofer (2023) found that early career setbacks led people to engage in deliberately enacted sensemaking, because their interpretation of the setback helped them see it as an opportunity for a growth-based career. These authors viewed the persistence of deliberate sensemaking as a contributor to career success after setbacks, because in order "to enact the available possibility in the career space," people can benefit from "leaving the zone of routinized familiarity" (Kutscher & Mayrhofer, 2023: 1145).

Embodied sensemaking: bringing the body in. Scholars of the sensemaking literature have criticized that many researchers focus too strongly on the interpretation of cues rather than on how the cues are noticed – in other words, that too much emphasis is placed on cognition and too little on the senses. These scholars have argued that research should pay more attention to the sensemaking agents and consider their embodied experiences and actions (Cornelissen et al., 2014). Some researchers have heeded this call, going to great lengths to study embodied sensemaking, such as the enactive ethnography of rowing the Amazon conducted by De Rond et al. (2019). They emphasized how sense is made through the totality of the experience and how the body can prompt sensemaking through its feel for its surroundings and through the embodiedness of emotion (De Rond et al., 2019). Indeed, "feeling out" a situation (or, demonstrating "Fingerspitzengefühl") is part of an embodied form of sensemaking, as shown by Kornberger et al. (2019). Embodied sensemaking moves away from the idea of sensemaking purely taking place in the mind and tries to understand how people "act their intuition into sense" (Meziani & Cabantous, 2020). Meziani and Cabantous (2020) described how discourse, cognition, body, and materiality are involved in each phase of the sensemaking process, such as how speaking assertively combines discourse (words) and body (voice).

Environmental sensemaking: bringing the context in. The term 'environmental sensemaking' as used by Nigam and Ocasio (2010) refers to processes of collective sensemaking regarding events and their social contexts. Van der Giessen et al. (2022) further elaborated on this concept by demonstrating how collective sensemaking is driven by different forms of interaction

among actors. They identified three patterns of collective sensemaking that are used to validate approaches aimed at personal recovery, alleviation, and change, each distinguished by the form of interactions – isolating, situating, and rejecting – that trigger the sensemaking of diverse actors. These patterns are characterized by the emerging 'sense' that evolves through these interactions and the resultant individual and collective actions (Van der Giessen et al., 2022). Höllerer et al. (2018) argued that in spatially dispersed incidents necessitating sensemaking across a variety of discursive communities, it requires a major effort to make narratives resonate and be perceived as valid. A concept closely related to collective sensemaking is relational sensemaking, which focuses on the dynamics of the relations between sensemakers and the subjects of their sensemaking (Balogun, 2015). In her work on organizational change, Balogun (2015) illustrated why the relational context matters, showing how sensemaking about other people within an organization leads to a different assessment of the change process.

Prospective sensemaking: considering temporal orientation. In recent years, research on several subtypes of sensemaking has increasingly focused on the temporal aspect, distinguishing in particular between prospective and retrospective sensemaking, the latter of which is also known as post-inquiry or post-incident sensemaking. Prospective sensemaking can be described as the processes by which people's attention is primarily directed at events that may occur in the future (Rosness et al., 2016: 55). Dwyer et al. (2021) illustrated that prospective sensemaking occurs through the recognition of cues embedded in anticipated future events, such as those associated with the implementation process, as well as those embedded in practitioners' imaginations. In their study of the implementation of a new critical incident reporting system, Konlechner et al. (2019) found that the formation of initial expectations about a change initiative was influenced by the perceived degree of fit between it and perceived problem pressure. These expectations then become embedded in cognitive frames through prospective sensemaking. Ganzin et al. (2020) focused on the role of spirituality in prospective sensemaking, introducing the notion of 'magical thinking' to this area of research to refer to clusters of beliefs that maintain people's motivation and focus by transmuting human agency to a wider cosmological belief system. They identified three elements of magical thinking: finding one's path, obtaining the answers, and being at peace. Such a form of prospective sensemaking helps people to project a positive vision of the future and keep moving forward (Ganzin et al., 2020).

Other studies, such as that by Dwyer et al. (2023), have shown that sensemaking continues even after an incident ends. A disaster is usually followed by some sort of inquiry, which represents another occasion for sensemaking. Scholars have tried to distinguish between sensemaking at the

time of a disaster, sensemaking during post-hoc inquiries, and societal sensemaking following the publication of an official report (Mueller et al., 2023). Dwyer et al. (2023) found that sensemaking during an inquiry was different from sensemaking in the immediate aftermath of an extreme incident. During the inquiry, people were not simply making sense of the incident; they were also trying to make sense of the inquiring body and its deliberations (Dwyer et al., 2023). In turn, post-inquiry sensemaking has been described as a process involving three phases involving a "black box', which is "constructed and closed, re-opened and overturned" (Mueller et al., 2023).

Conclusion: key tenets of recent work on sensemaking. To conclude this section on the recent sensemaking literature: Whereas the focus of Weick's work was more on people being committed to a story ('plausibility rather than accuracy') as part of their sensemaking, the recent sensemaking literature has been more about people and organizations wanting to get the story right. There has also been a noticeable shift from research on cognitive individualistic sensemaking to studies of discursive social sensemaking. Moreover, while the early sensemaking literature started out with a focus on crisis sensemaking, probably because it is such a revealing occasion for the study of sensemaking (Weick, 1988; 1990; 1993), Maitlis' (2005) call for more research on mundane sensemaking of everyday organizational life has been answered.

Despite crises being powerful and thus frequently studied occasions for sensemaking, discrepant cues are key to its definition. There are different types of discrepant cues, ranging from crises and disasters to mistakes and near errors, and from high-reliability to more mundane contexts. Much of the recent work on sensemaking has focused on everyday organizing as the main object of inquiry rather than solely focusing on sensemaking in high-reliability contexts. This has moved our knowledge of 'normal' sensemaking and organizing forward tremendously, but the following questions remain: Is there still a lack of clarity? Should we strive for a more connected conversation? (Maitlis & Christianson, 2014).

In my dissertation, I try to connect our knowledge of mundane sensemaking with the early sensemaking research in high-reliability contexts by revisiting the HRO context with what we know today of mundane sensemaking. As noted in the introductory chapter, Weick & Sutcliffe (2015: 17) define reliability as a 'dynamic non-event': this is short-hand for the idea that ongoing adaptability and a premium on cultivating resilience sustain continuity when performance is threatened by breakdowns. They add that "adaptability and resilience in the face of surprises depend on how units manage weak signals of failure, temptations to simplify, the fine grain of operations, and their usage of expertise (Weick & Sutcliffe (2015: 17). In this dissertation, I thus contend that

managing these weak signals through effective sensemaking is not only integral to the concept of reliability – it *is* reliability.

I aim to explore how mundane sensemaking in everyday organizational life can contribute to error-free operations in an HRO context – i.e., how "the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some other way violate expectations" (Maitlis & Christianson, 2014: 57) can make organizations more reliable. In the next section, I will discuss the literature on HROs.

2.3.2 High-reliability organizations: context for sensemaking

There has been a long-standing fascination among scholars with organizations operating in hazardous contexts. However, it was not until the 1980s that concerted efforts were made to study and describe them. In what has come to be known as his Normal Accident Theory (NAT), Perrow (1984) suggested that accidents are to be expected and thus considered 'normal' in hazardous organizations due to their technological complexity and tight coupling. Perrow also argued that in such organizations small events can escalate rapidly into a catastrophe (1984). A contrasting and somewhat less pessimistic response to this theory is the concept of *high-reliability organizations* (e.g., Roberts, 1990; LaPorte & Consolini, 1991; Weick & Roberts, 1993).

Given their categorization, HROs represent the most relevant context for sensemaking because they aspire to, or even require, absolute or near-perfect reliability (e.g., Weick & Sutcliffe, 2015). In HROs, lapses in reliability can lead to severe consequences. Indeed, the preparedness of an HRO for hazardous events cannot depend solely on learning from actual failures or fatal disasters. Instead, it must begin much earlier, with the detection and management of reliability threats, such as near-errors and critical incidents that have not yet led to fatalities (Weick, 1990; Weick & Roberts, 1993). Thus, maintaining high reliability standards in hazardous environments requires effective sensemaking, even of the most subtle cues that could signal potential threats to reliability. Importantly, many HROs are public organizations (LaPorte & Consolini, 1991) entrusted with fulfilling the societal need for *highly reliable operations* in critical areas such as air traffic control, health care, power generation, and correctional systems.

The term HRO describes organizational entities that are capable of maintaining error-free operations in complex and hazardous environments and are prepared for threats to their reliability (Weick and Sutcliffe, 2015). I define reliability as *an organization's ability to manage risk well while reaching its organizational goals*. One way for an organization to achieve reliability is through technological design. However, as noted by Vaughan (1990:225) in her article on NASA's

decision-making regarding the space shuttle Challenger: "technology is not the only culprit". Therefore, for organizations to operate reliably, they must explore additional paths to reliability beyond just technological solutions. Achieving this requires continuous iteration between what is known and what is expected – a process achieved through sensemaking (Weick, 1993). In this dissertation, I wish to broaden the current scope of research on the role of sensemaking in identifying and responding to potential reliability threats in HRO contexts.

In the following sections, I will first describe the historical background and conceptual precursors of HROs. This will be followed by an examination of the new point of reference on HROs introduced by Weick and Sutcliffe in 2015 (Weick & Sutcliffe, 2015). Then I will present a structured review of the recent HRO literature, specifically focusing on developments since the first publication, in 2001, of Weick and Sutcliffe's five principles (Weick and Sutcliffe, 2001). Additionally, I will briefly touch upon the discussion on HROs vs. NAT before concluding this section.

Historical background: conceptual precursors of HROs

Perrow's NAT identified complexity and tight coupling as fundamental components of high-risk technologies, positing that such a combination means that accidents are bound to happen (1984). Prompted by this notion, a group of scholars from the University of California, Berkeley, questioned how some organizations manage to avoid such incidents despite operating in hazardous contexts in which errors could lead to organizational destruction or even significant public harm (Roberts, 1990). They thus began to study organizations that met Perrow's criteria for hazardousness (tightly coupled and technologically complex), coining the term 'high-reliability organizations' for these entities and initiating a strand of the literature dedicated to organizations that maintain error-free operations in circumstances where errors are to be expected.

One of these scholars, Karlene Roberts, elaborated upon and extended Perrow's discussion of complexity and tight coupling, noting that complexity is characterized by the "potential for unexpected sequences", "complex technologies", the "potential for systems serving incompatible function[s] to interact", "indirect information sources", and "baffling interactions". In turn, tight coupling is characterized by "time dependent processes", "invariant sequences of operations", "only one way to reach [the] goal", and "little slack" (Roberts, 1990). These organizations are under intense public scrutiny due to the severe consequences of organizational failure, with expectations of failure-free performance from both the public and political spheres (LaPorte & Consolini, 1991). However, Roberts raised the question: How many times could an organization have failed but did not? She reasoned that if the answer is "on the order of tens of thousands of times", then

the organization should be regarded as an HRO (Roberts, 1990). She went on to highlight how the existing organizational literature lacks research specifically on HROs because it assumes that HROs do not differ from other kinds of organizations. She therefore called for focused research on hazardous organizations that could have failed but did not.

In her study of a nuclear aircraft carrier, Roberts (1990) identified several characteristics typical of this kind of HRO (1990). She observed that (1) personnel are aware of and prepared for the possibility of unexpected events; (2) despite a strong hierarchy, decision-making can be pushed to the lowest levels possible when necessary, at least in the sense of vetoes; and (3) redundancy, constant training, and a "culture of reliability" that prioritizes safety contribute to the high reliability of these organizations, albeit, as Roberts noted "at a high financial cost". Similarly, other scholars, such as Bierly (1995), have noted how HROs prioritize reliability above profit and other organizational goals.

LaPorte and Consolini (1991) expanded on the characteristics of HROs, noting that they have very clear organizational goals, engage in effective decision-making, and invest significantly in the recruitment and socialization of newcomers. Weick and Roberts (1993) introduced the concepts of 'collective mind' and 'heedful interrelating' as an antecedent to HROs. The collective mind depends on communication, especially with newcomers. Heedful interrelating involves envisioning others as part of the system and understanding how one's own actions are part of this system; the focus is on the joint system (Weick & Roberts, 1993). Moreover, heedful interrelating relies on communication and social skills, not on technology; Weick and Roberts argued that the tight coupling in HROs can also be social, and interpersonal skills are therefore not just a luxury in these organizations (Weick & Roberts, 1993). This social aspect of HROs (or: 'the human factor') is of particular interest when studying sensemaking because sensemaking is an inherently social and discursive activity and thus of special interest in this dissertation.

Weick and Sutcliffe (2001): Managing the Unexpected – the new point of reference in the HRO literature. After the concept of HROs gained traction in the 1990s, Karl Weick and Kathleen Sutcliffe published their influential book on the five principles of HROs in 2001 (Weick & Sutcliffe, 2001), which they continued to develop up to the latest edition in 2015 (Weick & Sutcliffe, 2015). These principles are based on the premise of mindful organizing, which consists of sensemaking, continuous organizing, and adaptive managing (Weick & Sutcliffe, 2015). The five principles were derived from studying organizations that managed to operate reliably under hazardous and challenging conditions. Therefore, they describe the attributes of organizations that

have achieved the goal of high reliability. The five principles of HRO are: preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience, and deference to expertise (Weick & Sutcliffe, 2015). These principles have become the current point of reference in the HRO literature.

A *preoccupation with failure* means detecting small, emerging failures through heightened alertness (Weick & Sutcliffe, 2015). It is about working hard to notice subtle changes as they start to unfold. HROs are very clear about which mistakes they do *not* want to make, yet are aware of the limits of their knowledge. To compensate for this gap, HROs update their understanding of situations deliberately and often.

Reluctance to simplify is important for maintaining reliability because simplification, such as through categorization, can lead to missing important details (Weick & Sutcliffe, 2015). Therefore, HROs tend to delay simplification as much as possible. They encourage their staff to work with an open mind: acting on a first hunch can lead to overlooking or dismissing subsequent cues that do not fit the story of their first hunch. Because people tend to act only on those problems they feel capable of handling, strengthening their ability can increase the range of issues they can detect. The quality of sensemaking is essential here; simple sensemaking can lead to missing critical aspects of a situation. The heterogeneity of a team is fundamental because different people see different things and thus improve the overall quality of sensemaking.

Sensitivity to operations in HROs involves a mix of heightened awareness and alertness, as described by Weick and Sutcliffe (2015). Staff in HROs are attuned to changes and discrepancies between what they expect to happen and what is actually happening. The opposite of sensitivity is ignorance, casualness, and distraction. In HROs, people see their work as contributing to the organizational goal, not as a stand-alone activity – an attitude that Weick and Sutcliffe refer to as "heedful interrelating". The opposite of heedful interrelating would be a mindset of 'that's not my job'. In HROs, people deliberately create disruptions in their actions to reassess their current actions; this becomes especially important under pressure, when people tend to revert to familiar but potentially unsuitable first-learned reactions (Weick & Sutcliffe, 2015).

Commitment to resilience acknowledges that HROs are not infallible and error-free, but rather characterized by their ability to maintain performance despite disruptions. Resiliency is not about anticipating all possible error scenarios and preparing for them; instead, it focuses on adaptation and adaptability (Weick & Sutcliffe, 2015). This means that even under challenging conditions,

HROs can achieve the same outcomes. Such resilience is fostered by keeping errors small, improvising workarounds, and absorbing changes while continuing to function effectively.

Deference to expertise is also related to people in an HRO knowing the limits of their own knowledge; years of experience do not guarantee expertise in every situation (Weick & Sutcliffe, 2015). This principle values relative expertise, context sensitivity, and domain-specific knowledge. Deference to expertise is highly relational and involves relying on the sensemaking of all people involved. Doing so could entail migrating the decision-making to frontline staff or making decisions based on their sensemaking.

Weick and Sutcliffe (2015) argued that the ability to respond to unexpected events or situations in their early stages, when the signals are still weak, distinguishes HROs from other organizations. This concept aligns with the first of their five principles, the *preoccupation with failure*: HROs work hard to detect small and emerging failures (Weick & Sutcliffe, 2015). The managing of these weak signals of failure is achieved through effective sensemaking, a process that is the central focus of this dissertation.

Key tenets from recent work on high-reliability organizations (2003 – 2023)

Scholars studying HROs have used definitions deeply rooted in empirical data, vividly describing organizations that achieve failure-free operations even in hazardous contexts. Roberts (1990) defined HROs as organizations that exhibit continuous, nearly error-free operations even in multifaceted, turbulent, and dangerous task environments. Weick, Sutcliffe, and Obstfeld (2005) ascribed to HROs the capacity to continuously and effectively manage working conditions that are widely fluctuating, extremely hazardous, and unpredictable. Most scholars of HROs have drawn on these two definitions, with work in recent years showing a trend towards incorporating the five principles of HROs outlined by Weick and Sutcliffe (2015). Weick and Roberts (1993: 357) described HROs as organizations that require "nearly error-free operations all the time because otherwise they are capable of experiencing catastrophes." At noted in the introductory chapter, this is the definition of HROs that I will use in this dissertation.

Since the group from Berkeley published its early work on HROs, scholars have studied organizations that exhibit excellent reliability under challenging conditions. Through both quantitative and qualitative research, they have sought to understand what facilitates reliable performance, either by deepening existing knowledge to describe underlying mechanisms or by exploring hitherto unrecognized characteristics of HROs. Research into organizing for reliability has varied in focus,

including practices, context, cognitive dimensions, outcomes, and perspectives on advancing the field. In the following sections, I will discuss the recent work on HROs.

Organizing for reliability: practices. One strand of research on existing concepts focuses, for example, on the migration of decision-making to those with the most expertise during crises. This migration represents the fifth principle of HROs posited by Weick and Sutcliffe (2015) and is widely acknowledged in the HRO literature. However, in their study of the birth and evolution of a pediatric intensive care unit, Madsen et al. (2006) found that decision-making could remain decentralized not only during crises but also periods of routine operation. This decentralization led to reliable outcomes, suggesting that decentralized decision-making can be effective even outside of abnormal operations or crisis situations (Madsen et al., 2006). This finding expands the understanding of decentralized decision-making in HROs, indicating its potential applicability in a wider range of operational contexts. The concept of shared situation awareness, as discussed by Roth et al. (2006) is related to the concept of heedful interrelating introduced by Weick and Roberts (1993). In their study, Roth et al. (2006) found that organizational members in extreme contexts worked actively, often using informal cooperative communication practices, to build and maintain shared situation awareness of the location, activities, and intentions of other organizational members. These practices enabled them to detect and correct errors with safety consequences (Roth et al, 2006).

Learning has been considered an important characteristic of HROs. However, the high stakes often associated with HROs mean that learning through trial and error is often not possible, as errors can have severe consequences. However, when disaster does strike, or even a minor incident, how do HROs learn? Madsen (2009) tried to answer this question and found that organizations can prevent future disasters through the experience of a disaster, either in their own organization or a similar one. Minor accidents, however, remind organization members of the hazardous context in which they are operating and increase their compliance with existing safety routines (Madsen, 2009). Another way of developing norms that encourage safety is through after-action reviews (Dunn et al., 2016). In such reviews, groups of people collectively make sense of recent events and openly discuss individual and collective mistakes, as well as near misses (Dunn et al., 2016).

Incident command systems (ICSs) have been proposed as powerful structural tools for improving organizational reliability, as highlighted by Bigley and Roberts (2001): Thanks to their bureaucratic nature, these systems can be highly efficient. Moreover, the combination of structuring mechanisms with support for constrained improvisation produces reliable organizations. These

findings are in line with early research on HROs, which indicates that work in unpredictable contexts is often managed using practices like routines, standard operating procedures, rules and regulations, checklists, cross-checks, and system redundancies (Weick, 1987).

Organizing for reliability: context. It is well established that operating within a context of tight coupling and complex interactivity presents substantial challenges for HROs, as highlighted, for example, by Roberts (990). However, tight coupling and interactivity can be used as opportunities as well, as has emerged from research conducted by Roe et al. (2005). In their study on large-scale water supplies and electricity generation, they found that these organizations achieved reliability through invariance i.e., through careful management of fluctuations within pre-specified bandwidths (Roe et al., 2005). This approach implies that processes need not be reliable at all times; instead, allowing for controlled fluctuations can represent a strategy for ensuring reliable output.

Scholars have also attempted to extend the application of HRO characteristics to their study of organizations outside the traditional high-risk settings, such as railway organizations (Busby, 2006). These organizations may not face risks comparable to those of a nuclear aircraft carrier, but they are nonetheless subject to public and political demands for extreme reliability, with accidents potentially leading to catastrophes and loss of lives. In a *Journal of Organizational Behavior* editorial, Waller and Roberts (2003) assessed a common critique of HROs: their perceived or ostensible inapplicability to 'normal' organizations due to their 'exotic' contexts. They contended, however, that, in fact, HROs are "*the* experts when it comes to making fast decisions based on imperfect data and knowing when to abandon routines in favor of improvisation", positing them as exemplars for all organizations (Waller & Roberts, 2003).

Insights from HROs have also been applied to the study of organizations that, while expected to be reliable, frequently deal with incidents, such as organizations managing large disease outbreaks (Müller-Seitz, 2014). Scholars have tried to broaden the applicability of the concept of the HRO to such entities by reframing HROs as "reliability-seeking organizations": organizations at risk of organizational mortality due to the accumulation of small failures (Vogus & Welbourne, 2003). The concept of mindfulness through having skilled employees, positive employee relations, and an emphasis on training to innovate also applies to this kind of organization (Vogus & Welbourne, 2003).

Organizing for reliability: cognitive dimension. Mindfulness is the premise on which Weick and Sutcliffe built their five principles of HROs (2015). Vogus et al. (2014) studied how

mindful organizing is actually achieved. They found that mindful organizing is more likely when people are other-oriented (showing greater motivation to work for the benefit of others) and more open to incorporating the perspectives of others into their work. Another characteristic of mindful organizing is emotional ambivalence, such as experiencing two emotions at the same time (Vogus et al., 2014). This emotional ambivalence opens people up to alternative perspectives and helps them balance confidence and caution. Weick (1990; 1993) established early on that when under pressure, people revert to first-learned or, rather, familiar behaviors. Steigenberger and Lubke (2022) studied the role of space in a high-reliability context and confirmed this finding: under high cognitive stress, people used only familiar artifacts while ignoring unfamiliar ones. Another sub-theme that has emerged from the HRO literature is related to concepts connected to HROs and studied in an HRO context. As previously discussed in the section on sensemaking, scholars have found that examining certain concepts in an HRO context can deepen our understanding. Trust is one such concept, frequently identified as a relevant factor in social relations between organizational members, particularly in studies focusing on extreme contexts (e.g., Beck & Plowman, 2014). In HROs, trust helps people cope with the effects of highly demanding working conditions (Burtscher et al., 2018). Integrity, rather than ability, has been identified as an important factor in trust-building in the HRO context (Colquitt et al., 2011). However, sensitivity and tact, as part of a mindful mindset, have been shown to be as important as trust for achieving reliable performance. (Kalkman, 2023). Another concept that has been incorporated into the HRO literature is organizational identity, such as by describing an identity of safety within HROs. Through respectful interactions, organization members produce meaningful interpretations of organizational safety (Vaz et al., 2023).

Organizing for reliability: focus on the outcome. Another strand of research in the field of HROs focuses on the outcomes of organizing rather than underlying mechanisms. Scholars of HROs have faced criticism for being overly optimistic, while those studying failure have been criticized as overly pessimistic. Efforts to bridge these differences include studies on organizations that almost attained high reliability but ultimately failed. An important finding from such research is that organizations that are unable to systematically reform themselves are those at risk of failure (Busby, 2006). Organizational failure can also stem from the escalation of commitment, a process through which latent errors accumulate and decision-makers continue to invest in their decisions despite being confronted with negative outcomes (Ramanujam & Goodman, 2003). More reliable outcomes are produced when decision-makers heed negative feedback from their decisions and adjust their actions accordingly. In their study on wildlife fire management, Barton and Sutcliffe

(2009) found that the process of redirecting action is not a failure of noticing cues, but rather a failure of sensemaking. People are more likely to redirect ongoing activities if they stop and make sense of their situation (Barton & Sutcliffe, 2009). Giving voice to concerns or seeking alternative perspectives are triggers for interruption; if ongoing activities are not interrupted, people are less likely to reflect. This ongoing adaptation is important for ensuring reliability because solving small problems can help avert more widespread failures (Barton & Sutcliffe, 2009). NASA is an example of an organization that is expected to operate with high reliability but has been confronted with failure and the loss of lives on multiple occasions, such as during the Columbia space shuttle accident. These failures have been linked to NASA's acceptance of escalated risk and reliance on past success to justify future decisions; moreover, there were shortcomings in decision-making, particularly by not following up on a potential danger, and a flawed safety culture in which deadlines were prioritized over safety concerns (Boin & Schulman, 2008; Dunbar & Garud, 2009).

Organizing for reliability: the way forward. Recent studies have identified new characteristics associated with HROs. One such characteristic is continuous knowledge creation, which has been linked to reliable performance (Milosevic et al., 2018). While HROs typically respond to unexpected events using an existing repertoire of knowledge to identify failures before they happen, these organizations also need the ability to generate new knowledge even amidst chaos (Milosevic et al., 2018). Another concept gaining attention is scripted action, which has been identified as a source of reliability (Zohar & Luria, 2003). Scripted action helps people deal with the cognitive challenges caused by complex systems. The term refers to the process by which people reduce a large number of potential actions to a limited number of basic action categories, thus reducing variety to cognitively manageable proportions (Zohar & Luria, 2003).

Conclusion: key tenets of HRO research. To conclude this review of the literature on HROs, we can see that while the NAT introduced by Perrow (1984) initially spurred the Berkeley Group to develop the concept of HROs and instigated the early debate between these two research streams, scholars have more recently shown some interest in settling the debate (Denyer et al., 2008). For example, they have suggested new approaches to unifying these perspectives, such as taking a systems approach to safety (Leveson et al., 2009) or incorporating a temporal dimension (Shrivastava et al., 2009). While I do not aim in my dissertation to settle this longstanding debate, I can conclude that scholars using the NAT have tended to contribute to the management and organization literature by focusing on learning from accidents, whereas scholars studying HROs have emphasized learning from reliability. I position my research in this debate with the understanding that while accidents are bound to happen, they do not necessarily need to lead to disasters.

Moreover, accidents are not always due to technical complexity but rather to social complexity, which is my primary interest. Organizations that allow for small incidents provide scholars with an opportunity to study the sensemaking of these incidents, thereby furthering our understanding of the role of sensemaking in achieving and maintaining reliability.

In the early development of the concept of HROs, scholars who also studied sensemaking played a significant role. However, in recent years, while scholars have always implicitly leaned on sensemaking while studying HROs, sensemaking itself has not been a focus. Both sensemaking and HRO research emerged roughly around the same time, but sensemaking has received more attention. In contrast, the study of HROs, despite major advancements in the concept and theory, has failed to convince the broader management and organization research community partly due to its limited applicability to other organizations and accusations of being overly optimistic.

Whereas the early research on HROs concentrated on organizations operating in highly complex technological environments, with reliability threats thus arising from hazardous technologies, recent scholarly efforts have expanded the scope to include non-technical reliability threats, such as disease outbreaks (Müller-Seitz, 2014). Additionally, there have been calls to extend HRO research into the study of networks of HROs, particularly in the realm of public service delivery (Berthod et al., 2017). In this dissertation, I wish to contribute to the advancement of HRO literature by focusing on a specific type of HRO – one that deals with incidents on a daily basis and relies on swift sensemaking to avoid lapses in reliability.

Weick and Sutcliffe (2015) assert that the ability of HROs to respond to the unexpected at an early stage, when the signals are still weak, distinguishes them from other organizations. This aligns with the first principle *preoccupation with failure:* HROs work hard to detect small and emerging failures (Weick & Sutcliffe, 2015). Managing these weak signals of failure through effective sensemaking is a central focus of this dissertation. In the following section, I will take a closer look at these small cues, which I refer to as ‘critical incidents’, and how they have been conceptualized and discussed in the literature.

2.3.3 Critical incidents: occasions for sensemaking

The term ‘critical incident’ was first coined by Flanagan as part of the critical incident technique (CIT) he developed in 1954. In this context, he defined a critical incident as “any observable human activity that is sufficiently complete in itself to permit inferences and predictions to be made about the person performing the act” (Flanagan, 1954: 327). Flanagan developed the CIT with the aim of identifying and analyzing behaviors that are critical for successful job performance (Flanagan,

1954). The CIT has been used and adapted by the organization and management research community over the years and has moved away from its original purpose of job analysis. However, despite using the concept of critical incidents in this dissertation, I purposefully distance myself from the CIT and its associated literature. While I acknowledge Flanagan's work and how it has served as an inspiration, I distance my work from CIT because of the technique's more practical use. In contrast, the goal of my dissertation is to extend existing theory rather than provide a practical review on specific critical incidents. The concept of critical incidents is also commonly known in relation to so-called 'critical incident reporting systems' (CIRS), a relatively widespread tool specifically in health care (Petschnig & Haslinger-Baumann, 2017). CIRS in health care aim to enhance patient safety through learning from critical incidents, thus serving as experience-based databases (Staender, Davies, Helmreich, Sexton & Kaufmann, 1997). However, I do not focus on a specific healthcare context and therefore CIRS are not a central element of this dissertation.

In the management and organization journals chosen for my literature review, critical incidents have been studied in several empirical contexts, such as firefighting (Bacharach & Bamberger, 2007; Macpherson et al., 2022), hospitals (Blatt et al., 2006; Lindberg & Walter, 2013), public infrastructure organizations (Swärd et al., 2022), and defense forces (Shamir & Lapidot, 2003). These studies have used critical incidents as an occasion to extend knowledge about trust (Shamir & Lapidot, 2003; Swärd et al., 2022), the role of objects in processes of organizing (Lindberg & Walter, 2013), the impact of involvement in work-related critical incidents (Bacharach & Bamberger, 2007), and, of particular relevance to this dissertation, sensemaking and reliability (Blatt et al., 2006). Furthermore, researchers in the management and organization community have borrowed definitions of critical incidents from various disciplines. For example, in the context of mental health, critical incidents have been defined as specific, often unexpected, potentially life-threatening, and time-limited events that present individuals with a loss of, or threats to, personal goals or well-being (Flannery, 1999). In management and organizational research, critical incidents have been defined variously as threats that distort relationships (Swärd et al., 2022), incidents that reduce or destroy trust (Shamir & Lapidot, 2003), unexpected events with a major impact on the survival of a team (Oliver & Roos, 2003), and moments critical for coping with lapses in reliability (Blatt et al., 2006).

These definitions share a focus on unexpected events with potentially negative outcomes. I define a critical incident as a threat to an organization's reliability, where the extent of the reliability threat is uncertain. This distinction is crucial because this dissertation seeks to study the sensemaking process as it unfolds. Moreover, critical incidents are a powerful opportunity to gain

knowledge without actually threatening an organization's reliability. This aligns with Sandberg and Tsoukas's (2015) identification of minor unplanned events as important yet understudied occasions for sensemaking, and with Weick and Sutcliffe's (2007) emphasis on the importance of effective sensemaking of small cues for an organization's reliability. This is why I chose to focus on this specific type of event – critical incidents – in this dissertation.

Occasions for sensemaking: reliability failures

Broadly speaking, sensemaking is triggered by discrepant cues – i.e., events or occurrences that deviate from our prior experiences and thus challenge our existing interpretive repertoire. The studies identified in my review of this third body of literature have examined a broad spectrum of occasions for sensemaking, which can be roughly categorized based on their consequentiality or even fatality. This includes research on crises and disasters, as seen in works by Weick (1990), Nowell and Steelman (2015), Berthod and Müller-Seitz (2018), Kornberger, Leixnering, and Meyer, (2019), Maitlis and Sonenshein (2010), and Gephart (1997). Additionally, there are studies focusing on sensemaking around accidents and errors, including works by Morris and Moore (2000), Cattino and Patriota (2013), Vogus, Sutcliffe, and Weick (2010), Zhao and Olivera (2006), and Roberts (1990). Yet other researchers have investigated sensemaking in response to unexpected events and unusual experiences, including Bechky and Okhuysen (2011), Christianson (2019), Müller-Seitz (2014), Bigley and Roberts (2001), and Garud, Dunbar, and Bartel (2011). While crises, disasters, and fatal incidents represent actual reliability failures, other scenarios such as errors, near-incidents, and critical incidents can be considered reliability threats. In this section, I will first discuss the literature on occasions constituting reliability failures, before moving on to the literature on occasions that pose reliability threats.

Crises and disasters. Crises in this body of literature have been referred to as events that, because they are "large scale, complex, dynamic, [and] uncommon" are situated "beyond the scope of any single organization or agency to address" (Nowell & Steelman, 2015). They have also been described as events that are usually unanticipated, surprising, and ambiguous, and that pose a substantial threat, leaving only a short time for decisions (Kornberger, Leixnering & Meyer, 2019). As Maitlis and Sonenshein (2010) pointed out, sensemaking is "triggered by any interruption to ongoing activity," making crises, which produce a substantial degree of disruption, "particularly powerful occasions for sensemaking". In his seminal studies, Weick used both concepts – crisis and disaster – interchangeably when analyzing the Bhopal (1988), Tenerife air (1990), and Mann

Gulch (1993) disasters. Weick (1988, 1990) conceptualized crises as low probability/high consequence events that threaten the most fundamental goals of an organization. Because of their low probability, these events defy interpretations and impose severe demands on sensemaking. Weick's three seminal studies (1988; 1990; 1993) not only established the concept of sensemaking in organizational studies but also compellingly demonstrated crises and disasters as occasions for sensemaking. The resulting stream of research on 'making sense of and in disasters' is extensive and has advanced the field. However, the incremental steps between normalcy and disaster, and the sensemaking process of these steps, are also a recurring theme in Weick's studies on sensemaking in crises. Thus, the following sections will explore related occasions for sensemaking on that spectrum.

Fatal incidents. Fatal incidents often generate discrepant cues and can encompass a range of situations, such as wildfires (Dunn et al., 2016), spacecraft incidents (Dunbar & Garud, 2009; Boin & Schulman, 2008; Vaughan, 1990), and police shootings (Cornelissen, Mantere & Vaara, 2014).

In her analysis of the NASA Challenger spacecraft launch incident, Vaughan (1990) found that a failure to circulate data about potential technical problems led to NASA missing essential information on the issue that ultimately caused the Challenger to explode after it was launched. Similarly, Boin and Schulman (2008) studied the NASA Columbia spacecraft Accident Investigation Board's report and found that NASA failed to follow up on potential dangers and accepted escalated risk. This resulted in NASA losing the ability to recognize its weaknesses. Despite early warnings from personnel about the potential danger posed by the unexpected shedding of foam, NASA failed to act on these potential accident indicators. In their examination of the NASA Columbia shuttle incident, Dunbar and Garud (2009) characterized the sensemaking process of NASA managers as the "normalization of deviance". According to the authors (Dunbar & Garud, 2009), when the NASA managers faced performance pressure, they failed to categorize the events leading up to the incident as potentially dangerous. Instead, they chose to make sense of the unfolding events based on their own frames of reference, neglecting to obtain all relevant information or engage in informal discussions on how to categorize the incident (Dunbar & Garud, 2009). In this particular case, the managers' frame of reference was that the shedding of foam was a normal part of space shuttle flight. The Columbia and Challenger incidents demonstrate that NASA's failure to recognize smaller, seemingly insignificant events contributed to these catastrophic failures. These studies highlight the importance of early cue detection and management in preventing reliability issues (Boin and Schulman, 2008; Dunbar and Garud, 2009).

Occasions for sensemaking: reliability threats

Errors and near-incidents. Another group of events that trigger sensemaking are errors and near-incidents. These situations are particularly interesting because they represent potential threats to an organization's reliability without resulting in the most severe or consequential outcomes. Morris and Moore (2000) described accidents as unexpected and harmful or negative in their impact on the individual, and as occasions for sensemaking and learning. The authors showed that individuals learn from, and make sense of, imagined experiences; they noted that this is useful in contexts in which an actual accident would almost certainly be fatal, making trial-and-error learning impossible. Morris and Moore's (2000) study demonstrated how individuals in organizations can learn without repeated experience, but from making sense of imagination.

In their study of error reporting, Zhao and Olivera (2006: 1013) defined errors as "individuals' decisions and behaviors that (1) result in an undesirable gap between an expected and a real state and (2) may lead to actual or potential negative consequences for organizational functioning that could have been avoided". They conceptualized error reporting as involving error detection, situation assessment, and reporting behaviors and non-reporting behaviors. They found that it is important for individuals to know their organizational goals in order to detect errors. Individuals also engage in cost-benefit evaluations, weighing both personal and organizational consequences, before deciding whether to report errors (Zhao & Olivera, 2006). Blatt et al. (2006) studied lapses in reliability at a university hospital, defining these as "something gone wrong in the care of a patient regardless of outcome". They found that the sensemaking process and the residents' subsequent decision to voice their concerns or to remain silent were shaped by their identity as residents and the relational environment. Similar to Zhao and Olivera's (2006) observations, Blatt et al. (2006) found that residents considered the potential repercussions of voicing their concerns both for themselves and for others.

In their study of medical errors, Vogus, Sutcliffe, and Weick (2010) focused on processes of enabling, enacting, and elaborating a safety culture in healthcare settings. They found that health care providers are reluctant to report errors due to fear of reprisal. In contrast, when staff feel free to speak up, they report more failures. This aspect is especially important because, as the authors noted, failures in frontline communication have been identified as the cause of 70% of all preventable errors resulting in death or serious injury (Vogus, Sutcliffe & Weick, 2010). Catino and Patriotta (2013) studied errors in the Italian air force and found that these served as an empirical intersection between sensemaking and learning. They observed that pilots' cognitive appraisal of

situations that deviated from the expected influenced their emotional states, which in turn activated information processing. In line with Vogus, Sutcliffe, and Weick (2010), Catino and Patriotta (2013) showed the importance of a safety culture that supports error reporting and encourages the sharing of information and knowledge about experiences related to errors. While I acknowledge that error reporting is a powerful tool for ensuring reliability, it falls outside the primary focus of this dissertation.

Other unexpected events. If we subscribe to Weick's onto-epistemological premise that reality is an ongoing accomplishment resulting from the need for, and efforts to create, some kind of order, then sensemaking is needed to (re-)create order for ourselves when we are faced with truly novel, frame-challenging events and situations. Thus, beyond disasters, fatal incidents, and near-incidents, there are many other unexpected rare events and unusual experiences that have attracted scholarly attention (Christianson, Farkas, Sutcliffe & Weick, 2009; Bechky & Okhuysen, 2011; Christianson, 2019; Müller-Seitz, 2013; Bigley & Roberts, 2001; Garud, Dunbar & Bartel, 2011).

For example, in their study of a fire department, Bigley and Roberts (2001) focused on the unexpected and demanding environmental challenges that organizations face, such as competitive threats, product malfunctions and recalls, supplier collapses, and technology breakdowns – any of which could constitute a challenge to organizational reliability. They defined reliability as the capacity to continuously and effectively manage working conditions, even those that fluctuate widely and are extremely hazardous and unpredictable. They found that the fire department's use of an incident command system enabled the department to remain flexible and reliably make sense of a volatile and often unpredictable task environment.

Christianson et al. (2009) focused on sensemaking and learning in their study of the collapse of the roof of the Baltimore & Ohio Railroad Museum. They defined rare events as those outside everyday experience that trigger learning because they expose weaknesses and reveal unrealized behavioral potential. Their study showed how these events expose the weaknesses and strengths of an organization's response to anything outside the usual state of affairs – and the crucial role of sensemaking in these processes.

Another type of unexpected event was studied by Garud, Dunbar, and Bartel (2011). They explored how individuals make sense of unusual experiences, which they defined as situations that bear little or no resemblance to past experiences. They found that individuals make sense of unusual

experiences by developing a growing set of narratives, and that organizations build a memory and repertoire for dealing with these experiences through the accumulation of such narratives.

In their study of a SWAT team and film crews, Bechky and Okhuysen (2011) defined unexpected events or surprises as breaks in expectations arising from situations that are not anticipated or do not advance as planned. They introduced the concept of "organizational bricolage", a form of sensemaking that involves using combinations of the resources at hand to develop shared knowledge.

Müller-Seitz (2013), in his study of numerous large-scale disease outbreaks in Germany, explored the uncertainty of unexpected and non-calculable events (i.e., situations with inestimable probabilities of occurrence). He found that coping was the primary method of making sense of uncertainty during a disease outbreak: actions during the outbreak were aimed at stopping the outbreak, whereas post-outbreak reflections involved trying to understand the event and formulating measures for future preparedness. This highlights the crucial role of sensemaking in the learning cycle.

Lastly, Christianson (2019) investigated health care teams participating in a standardized, simulated scenario in which they encountered an unexpected event during patient treatment – in this case, a broken piece of equipment. Her study focused on the phenomenon of 'updating' in sensemaking, an iterative process of validating whether earlier sensemaking still makes sense. The effectiveness of this updating appeared to depend on how well the teams balanced this process with their ongoing tasks and their ability to transition between both.

Research gap and research question

In concluding this chapter, it is safe to say Weick remained relatively consistent in his vision of sensemaking. He started out with an emphasis on enactment: when people act, they bring events into existence and set them in motion (Weick, 1988). His analysis revealed that social interaction is another key to understanding the sensemaking process but also by which organizations can be built or dismantled (Weick, 1990). Sensemaking is retrospective, ongoing, and makes situations rationally accountable (Weick, 1993). Rationality, in particular, plays a large role in Weick's early work, not only in the sensemaking process itself (making things rationally accountable), but also in describing the discrepant cue that starts the sensemaking process (e.g., the 'cosmology' episode in which the universe is no longer a rational and orderly system). When put under pressure, people revert to old ways of responding (Weick, 1990; 1993).

Despite crisis being a powerful and thus frequently studied occasion for sensemaking, key in the definition of sensemaking is the discrepant cue. Because the recent sensemaking literature has moved away from solely studying sensemaking triggered by crises and disasters towards the study of the mundane sensemaking happening in everyday organizational life, this has also meant less sensemaking research published in HRO contexts. I try to combine the extensive knowledge available on crisis-related sensemaking with mundane sensemaking in an HRO context. HROs need to make sense of critical incidents on a daily basis, but due to the context, they depend on effective sensemaking to ensure their reliability. Ineffective sensemaking not only poses a threat to their reliability but can even result in a life-or-death situation.

Sensemaking is generally triggered by events in which the outcome is uncertain – i.e., when the discrepancy between expectations and observations is large enough (Maitlis & Christianson, 2014). Critical incidents that can potentially threaten the organization's reliability are insightful occasions for sensemaking because, first, what an organization defines as a discrepant cue is revealing regarding its reliability intentions. Second, HRO research calls for effective management of early cues in order to avoid larger crises or disasters (e.g., Weick & Sutcliffe, 2015). Understanding how to make sense of these early cues effectively can help an organization maintain reliability and thus constitutes a huge incentive for a high-reliability organization to have an optimized sensemaking process. Third, critical incidents are a powerful opportunity to gain knowledge without actually threatening the organization's reliability. Fourth, research on sensemaking in HROs has, in the past, largely focused on extreme events that do not occur on a daily basis. However, HROs deal with early cues on a daily basis, and the (routinized) sensemaking of these cues is crucial to understand their importance for reliability. Brown et al. (2015) called for more research into 'mundane' instead of crisis-led sensemaking. Also, Sandberg and Tsoukas (2015:21) made the following observation:

"It becomes clear that [the sensemaking perspective] has been most commonly applied to study organizational sensemaking in episodes, triggered by either major planned events or major unplanned events. Yet significantly fewer studies have utilized [the sensemaking perspective] to study sensemaking in episodes triggered by minor planned or unplanned events. In one way, this may not be surprising, as major sensemaking episodes are typically seen as highly significant for organizational survival. However, given that the bulk of ongoing organizational accomplishments emerges from sensemaking efforts triggered by smaller disturbances in ongoing routine activities (Feldman, 2000; Turner & Rindova, 2012), this imbalance is somewhat surprising and needs to be redressed in future research."

Although the importance of the human factor in organizing reliably (e.g., Weick & Roberts, 1993; Weick, 1995) and the recognition of sensemaking as a social discursive process (e.g., Maitlis, 2005) have been repeatedly emphasized, the role of the human factor in sensemaking in an HRO context remains under-explored. Specifically, there is a gap in the research on HROs in which the reliability threats stem from human actions, despite previous work emphasizing the importance of relational and interpretative contexts in sensemaking (Balogun, 2015). My perspective is that sense is not made in isolation, but rather highly depends on *the people with whom one is involved in the sensemaking process* and *the people whom the sensemaking is about.* This dissertation seeks to bridge the concepts of reliability and sensemaking through the human factor.

An organization's ability to make sense of complex situations, which encompasses the ability to perceive, process, and act upon cues (Maitlis, 2005), has an impact on its reliability. HROs work hard to detect small, emerging failures (Weick & Sutcliffe, 2015), but what exactly does this hard work look like? I wish to contribute to the sensemaking literature by unpacking the mundane sensemaking process following a critical incident – i.e., a reliability threat within an HRO, leading to the following research question: *How do high-reliability organizations make sense of critical incidents*? The next chapter will give the reader deep insight into the empirical context of this research, outlining the setting in which the study was carried out, the data sources used, and the methodology employed in data analysis.

3 CHAPTER 3: METHODS

3.1 Overview

The previous chapter concluded with the following research question: *How do high-reliability organizations make sense of critical incidents?* I discussed the extensive body of literature on sensemaking, including both the early work, which focused on sensemaking driven by disasters, and the more recent work on the mundane sensemaking, which examines how people make sense of experiences in everyday organizational life. I also discussed developments in the research on HROs and adopted Weick and Roberts' (1993: 357) definition of HROs as organizations that require "nearly error-free operations all the time because otherwise they are capable of experiencing catastrophes". Most organizations operating in extreme contexts regularly face dangerous incidents they can neither prevent nor control (Dwyer et al, 2023), and successful sensemaking can make the difference between life and death. In low-security correctional facilities, for example, unsuccessful sensemaking can lead to a detained person escaping from the facility and harming others. In such settings, sensemaking aiming towards accuracy – and, indeed, getting things right – is critically important (Christianson, 2019).

To investigate my research question, I conducted an *interpretative comparative case study* (Gioia, Corley & Hamilton, 2013; Eisenhardt, 1989; 2021), exploring and analyzing sensemaking processes and practices in a low-security correctional facility. Interpretative research examines how particular meanings become shared, dominant, or contested in situations in which alternative meanings and understandings exists or are possible (Langley, 1999; 2007). While the literature on sensemaking has historically been dominated by single-case studies, Maitlis and Christianson (2014) highlighted the potential to advance the sensemaking research by examining multiple instances of sensemaking. I therefore chose to analyze *multiple cases of sensemaking* in one organization, to compare and contrast the sensemaking processes within and across the cases.

The chosen research site is particularly revelatory owing due to its open setting and goal to rehabilitate detained individuals. This approach, which emphasizes preparation for reintegration into society rather than confinement in a high-security setting, critical incidents cannot be ruled out and thus creates a rich context for studying sensemaking processes. Moreover, the site is advantageous for research due to its diligent documentation practices and the excellent accessibility of the people doing the sensemaking – namely, the staff – through direct observations and interviews. Employing an *embedded case study design*, I identified nine critical incidents

in this one organization, each of which constituted a disruption of an ongoing activity by deviating from the expected or established interpretive repertoires of organizational members. In other words, each critical incident could be classified as a discrepant cue and thus an occasion for sensemaking. To be considered a disruption of ongoing activity in the context of my research site, a critical incident needed to involve discrepant behavior that violated formal or informal norms and risked causing harm to the detained individual himself or to others. Because my objective was to study the *sensemaking* of critical incidents rather than the critical incidents themselves, I analyzed the process of sensemaking following each of the critical incidents – in other words, the hermeneutic, interpretative processes and subsequent actions taken to reestablish sense in each of these nine embedded cases of sensemaking. Since the purpose of my dissertation is to build theory from the data, this embedded multiple case study design was useful because it aims for theoretical generalization (i.e., from case analysis to theory), rather than external generalization (i.e., from sample to population) (Eisenhardt, 1989; Gioia, Corley & Hamilton, 2013).

In their work on pandemic-related sensemaking trajectories, Christianson and Barton (2021) underscored the importance of understanding the factors that shape the unfolding of sensemaking over time. In my dissertation, I also want to place emphasis on the *process* of sensemaking, developing a process model for the sensemaking of reliability threats in HROs, with a focus on reliability threats stemming from human behavior. To achieve this, I employed a triangulated approach, collecting and analyzing data from three sources: documents, interviews, and observations. The first two sources – documents and interviews – were specific to each case, with interviewees selected based on their deep involvement in the sensemaking of the critical incidents due to their roles and responsibilities in risk assessment and decision-making in the facility. Observations, while not tied to specific cases, were crucial for gaining deeper insights into the active sensemaking process. Although an ethnographically informed research design would have provided richer insights into active sensemaking, it was deemed beyond the scope of this dissertation.

The goal of this chapter is to detail, and provide a rationale for, the methodology behind the research conducted. First, I describe the empirical context by mapping the terrain and explaining the research site. Second, I elucidate the process of case definition and data selection. Lastly, I explain the individual steps in my analysis of the data. Altogether, this chapter will give the reader a clear understanding of how I carried out my field analysis, setting the stage for the presentation of my empirical model and research findings in the following chapter.

3.2 Empirical context

Among the specialized public HROs that operate under intense public and political scrutiny, correctional facilities are regarded as environments in which high reliability is especially crucial. Not only are they responsible for ensuring the safety of both the public and the detained persons; they also face the complex challenge of rehabilitating detained persons into society with minimal risk, a task fraught with potential errors. Any errors that do occur elicit little forgiveness from society, media, and politics. The demanding expectations from politics and society typify the scrutiny under which high-reliability organizations operate (LaPorte & Consolini, 1991). Correctional facilities are thus exemplary loci for studying reliability.

As touched upon in the introductory section, however, there are several additional reasons to focus on a low-security correctional facility. First, most studies on HROs have examined reliability threats resulting from technology. While Müller-Seitz (2014) has shed some light on non-technology-related threats, only very few scholars have followed his example. For example, human reliability threats have only very rarely been discussed in the HRO literature. In my research setting, however, the reliability threats predominantly stem from human behavior, specifically the actions of the detained persons. Gaining insights into the process of sensemaking around these reliability threats will thus help fill an important research gap. Second, unlike typical HROs, which invest heavily in preventing critical incidents and do not have the 'luxury' to learn from trial and error, the low-security correctional facility that serves as the research site in this study experiences (minor) critical incidents regularly, viewing them as part of the rehabilitation process. Focusing on this type of HRO thus provides insights into the sensemaking of critical incidents that would be difficult to gain from the study of other HROs. Third, despite these distinctive features, my research site meets the conventional description of an HRO perfectly. The insights gained from this setting are therefore not only beneficial for other HROs but also have broader implications for other types of organizations. This is because most organizations prioritize objectives beyond safety and reliability, such as production or sales, and the most effective strategies for achieving these objectives may not be consistent with operating at the lowest levels of risk (Leveson, 2009). Lastly, research specifically on sensemaking in the correctional or prison system has never been published in a top-tier organization and management journal. Yet, as Sandberg and Tsoukas (2015) argue, increasing the diversity of contexts in which sensemaking is studied will surely enrich our overall knowledge of sensemaking. In summary, empirical context matters and my research site is a particularly revealing context for

studying sensemaking in an HRO and for contributing to the literature on sensemaking, HROs, and reliability.

3.2.1 Development of the research design

The development of the research design was guided by the research question, which itself is a product of the identified research gap. Additionally, the research design was informed by insights I gained from conducting a pilot study and by my insider perspective.

3.2.2 Pilot study

To test and improve the research design, I first conducted a pilot study, which consisted of 12 interviews with experts in the Swiss correctional system (see table 2 for an overview of the interviews). Using a purposive approach, I selected the interviewees based on their extensive experience in the administration, management, or delivery of correctional services. A majority of the interviewees had past frontline experience working with detained persons in a correctional facility. The Swiss prison system is divided into three concordats (more on this later), and at the time of the interviews, two of the 12 experts I interviewed for this study held the position of general secretary of a concordat, who are informally recognized as influential figures in the Swiss correctional system. I also interviewed one director and one deputy director of large correctional facilities, as well as board members of the of the Swiss Center of Expertise in Prison and Probations (SKJV), which is the leading institute for training and research in the Swiss correctional system. Generally, most of my interviewees also held an operational, managerial, or advisory role in this institute.

The interview guide contained questions pertaining to the identification, communication, and influence of culture and hierarchy on the sensemaking of critical incidents, as well as factors related to non-reporting and learning from critical incidents (see appendix B for the complete outline of the interview guide). The insights from these interviews helped me narrow down my analytical focus and craft a better-informed research design. For example, they led me to dismiss initial considerations like organizational learning and non-reporting, which, while interesting, were not relevant to answering my research question about how high-reliability organizations make sense of critical incidents. These interviews also aided in determining the kind of critical incidents that would serve as discrepant cues for the study. Lastly, the experts were also supportive in identifying an organization that would serve as an empirical context in which the process of making sense of critical incidents would be best observable. The expert interviews were conducted in March 2021.

Table 2: Overview of expert interviews.

Position at time of interview	Previous relevant field experience	Duration (minutes)
Deputy Director, high security facility	Head of Division (corrections and rehabilitation services), Cantonal Office of Criminal Justice; SKJV board member	73
Director, high security facility	Guard at medium to high security prison; SKJV board member	50
General Secretary of a concordat, SKJV member board of trustees	Director, Cantonal Office of Criminal Justice	65
General Secretary of a concordat, SKJV member board of trustees	Director, Cantonal Office of Criminal Justice	64
Head of Division (corrections and rehabilitation services), Cantonal Office of Criminal Justice	Lawyer, high security prison	57
Head of Division (corrections and rehabilitation services), Cantonal Office of Criminal Justice	Case manager (corrections and rehabilitation services), Cantonal Office of Criminal Justice; SKJV board member	57
Head of Division (penal and corrections), Swiss Federal Office of Justice	Director, high security prison	45
Legal advisor (penal and corrections), Swiss Federal Office of Justice	Case manager (corrections and rehabilitation services), Cantonal Office of Criminal Justice	61
SKJV senior researcher	Prison inspector, International NGO	59
SKJV board member	Case manager (corrections and rehabilitation services), Cantonal Office of Criminal Justice	55
SKJV board member	Assistant professor	63
SKJV board member	Director, high security prison	61

3.2.3 Insider–outsider perspective

As experts pointed out during the interviews, the Swiss correctional system has an ‘us vs. them culture’ and is not known for welcoming outsiders. Expert # 9 put it this way: “If you are not from the system, we are not going to trust you”. My 10 years of experience working within the correctional system granted me access and provided a basis of pre-established trust. Nevertheless, to mitigate potential biases and navigate the involvement paradox (Langley & Klag, 2013), I collaborated closely throughout the analysis process with academic peers, who served as critical evaluators, challenging and scrutinizing my analysis and interpretations. For this purpose, I presented them on a monthly basis with the different steps of my analysis, as well as my preliminary findings, to ensure an outsider perspective and a continuous fresh viewpoint. Overall, my close proximity to the subject and ability to immerse myself in the data ensured a familiarity with the empirical context that no other researcher could match, significantly enriching this study.

3.2.4 National context: Swiss legislation

In Switzerland, the framework for criminal law is established by national legislation (Schweizerisches Strafgesetzbuch), but the implementation and enforcement of penalties and measures are carried out by the 26 cantons. These cantons are grouped into three concordats (Strafvollzugskonkordat Nordwest- und Innerschweiz, 2008) to facilitate inter-cantonal cooperation. Despite regulations in place at the concordat level, cantonal law takes precedence. When a person is a suspect in a criminal case and is deemed a flight risk, a risk to society or to him- or herself, or as being likely to influence potential witnesses, this person is placed in pre-trial detention (Schweizerisches Strafgesetzbuch). The jails responsible for pre-trial detention prioritize security, with their organizational goal being to protect society from the suspects and to minimize the risk of collusion. Rehabilitation is not a factor in pre-trial detention, and despite the pre-trial detention being in transition in Switzerland, the cells in which the suspects are held are mostly still very basic. Suspects typically cannot work and are allowed out of their cells for only one hour a day. The responsibility for suspects in pre-trial detention lies with the prosecutor's office (SKJVa).

After a court issues a conviction, the individual is transferred to a prison or correctional facility, with responsibility shifting to the cantonal department of criminal justice (e.g., kantonale Justizvollzugsverordnung). Each convicted person is assigned a cantonal case manager from a central office, a role distinct and independent from the prison or correctional facility. The cantonal case manager is responsible for determining the prison or correctional facility in which the convicted person will be placed. Throughout the duration of the sentence or measure, the cantonal case manager oversees the process of preparing the individual for his or her eventual release, in close cooperation with the courts (e.g., kantonale Justizvollzugsverordnung).

3.2.5 Correctional system

In Switzerland, the type of prison facility in which a convicted individual is placed is determined based on the severity and nature of the crime. High-security prisons are typically reserved for more severe offenses, and they operate with stringent security measures. Escapes from these prisons are highly unlikely due to their extensive technological and architectural safeguards. The primary objective of these prisons is to keep the prisoners within the facility until they are released (SKJVb). Nevertheless, within these facilities, prisoners are prepared for reintegration into society, which is rooted in the Swiss legislation (Schweizerisches Strafgesetzbuch, article 75). This preparation includes the involvement of social workers, educational opportunities through internal schooling, and, in some cases, internships offered within the

prison itself. All prisoners are expected to work and to have a daily routine. Additionally, the prisons provide recreational activities, psychological services, and psychiatric care. When prisoners are released, they are either transitioned to a low-security prison or a halfway house, are placed under electronic monitoring, or are placed on parole depending on the sentence and the risk posed by the prisoner in question. These options are designed to facilitate a controlled transition from prison back into society. Lifelong imprisonment is rare in Switzerland, and legislation dictates that most detained persons will be released at some point (Schweizerisches Strafgesetzbuch).

3.2.6 Measures

In Switzerland, when a crime is committed due to a psychiatric disorder or addiction, the court may order a therapeutic measure, leading to the offender's placement in a correctional facility. Such measures can only be ordered based on an extensive report written by a psychiatrist (SKJVc). A typical duration for measures related to psychiatric disorders is five years, but these can be extended if a judge deems that the person in question is still a risk to society. Unlike fixed-term sentences, the length of these therapeutic measures is not predetermined (SKJVc) but must be proportional to the crime committed. Addiction-related measures are usually shorter and extended less frequently. A third category is the 'safekeeping' measure (SKJVc), which is applied in cases of certain (severe) crimes committed due to a psychiatric disorder that cannot be treated with psychotherapy (Schweizerisches Strafgesetzbuch). This measure is designed to keep the public safe and lasts indefinitely but is subject to judicial review every year to assess the person's suitability for therapy and potential transition to a five-year inpatient therapeutic measure.

These measures can be carried out in a range of settings, including forensic psychiatric hospitals, high-security facilities, or low-security facilities (SKJVa). Sometimes, detained persons with severe psychiatric disorders initially receive pharmacological treatment in forensic psychiatric hospitals with the aim of stabilizing them for transfer to a correctional facility, where they will undergo long-term therapy. In cases involving persons who have committed severe crimes, they typically begin their treatment in a special therapy department in a high-security prison and may transition to a low-security facility as they make progress in therapy and are no longer considered a flight risk. Persons who have committed less severe crimes and are not deemed a flight risk or a risk to society may be directly placed in low-security correctional facilities following their court sentencing. In all of these correctional facilities, the detained

persons receive treatment for their psychiatric disorders with the primary goal of reducing the risk of reoffending rather than achieve a cure of the psychiatric disorder (SKJVc).

3.2.7 Facility types and sizes

In Switzerland, the correctional system includes jails, prisons, and correctional facilities designed for adult males, adult females, or male or female juveniles. In international comparison, these facilities are relatively small, with the largest prison accommodating 399 prisoners and the smallest jail only six suspects (SKJVd).

3.2.8 Rationale for selecting the research site

The research site, a medium-sized, low-security correctional facility located in Switzerland, represents a particularly revelatory setting as the facility's primary goal is rehabilitating the detained persons and preparing them for reintegration into society for their release as opposed to confining them in a high-security facility. Additionally, the research site offers access to the processes of sensemaking due to its diligent documentation practices and the accessibility of the people doing the sensemaking (i.e., the staff) through observations and interviews.

Importantly, I granted this organization anonymity. For this reason, I refer to it using the pseudonym *Zelandia* throughout this dissertation. Zelandia accommodates adult males, all of whom are serving a court-ordered measure due to a crime they committed that was directly related to a psychiatric disorder or addiction (Internal document, 2023a). These individuals are either transferred to Zelandia from another facility or are directly admitted following a court order. Unlike high-security correctional facilities, which rely on physical and technological measures such as walls, bars, fences, and advanced security systems, low-security correctional facilities like Zelandia depend on near-perfect risk assessments to maintain reliability. Weick and Sutcliffe (2015) argued that typical HROs are acutely aware of the mistakes they absolutely must avoid. This principle resonates with my empirical context, as articulated by an organizational member of Zelandia during one of my site visits. He emphasized that any lapse in reliability, such as a detained person leaving Zelandia and causing harm to others, would lead to the closure of the facility and, potentially, to negative consequences for similar institutions. This perspective is in line with Roberts' (1990) understanding of HROs as organizations that deliver products or services in hazardous contexts in which errors can lead to the destruction of the organization itself. Consequently, maintaining reliability is non-negotiable for Zelandia, and this goal is achieved through effective sensemaking of critical incidents.

Because Zelandia's mission is to prepare detained persons for release and foster their ability to live in a group, detained persons are granted considerable freedom within and around its premises (Internal document, 2023a). However, the combination of these factors creates an environment in which critical incidents cannot be ruled out. As a result, this research site serves as a particularly revelatory setting to explore sensemaking strategies in response to critical incidents – one in which the process of theoretical interest is more transparent than would be the case in other settings (Eisenhardt, 1989).

3.2.9 Organizational goals and context

I obtained information about organizational goals, key actors, and the rehabilitation process in Zelandia from internal and public documents (Internal document, 2023a; b). To ensure anonymity, I cite these as Internal documents without revealing the specific sources. As mentioned earlier, Zelandia treats detained persons who are sentenced to a measure directly related to their psychiatric disorder or addiction. It does so on behalf of the cantonal office of criminal justice (kantonale Justizvollzugsverordnung). Zelandia's mission is to rehabilitate its detained persons, aiming to reintegrate them back into society (Internal document, 2023b). The overarching goal is to enable the detained persons to live their lives as independently as possible post-release. To facilitate this, a personalized rehabilitation plan is developed for each detained person, designed to support a gradual transition towards release on probation (Internal document, 2023a). The rehabilitation process is governed by legislative frameworks, including Swiss criminal law, cantonal legal regulations, and guidelines from the respective concordat, all of which play an important role in shaping the day-to-day operations in Zelandia.

3.2.10 Key actors in the organization

Zelandia's board of directors is composed of the director, the deputy director, and the heads of the departments of sociotherapy, psychotherapy, work pedagogy, and security (see figure 1). The department of sociotherapy focuses on helping detained persons develop prosocial relationships (Internal document, 2023a). Its staff members accompany the detained persons in their daily routines and leisure activities. Each detained person is assigned a dedicated sociotherapist, who is available to assist him throughout all stages of the rehabilitation process up to his release on parole. These sociotherapists also coordinate the cases of the detained persons both internally and externally. The sociotherapy department is divided into a closed department with technological security measures and an open department with few such measures. The closed department has one residential unit that accommodates up to eight detained persons. The open department has four residential units, each housing up to 20 detained persons. Each of

these units is headed by a manager and a deputy, who form part of Zelandia's middle management. In total, the sociotherapy department employs 30 sociotherapists.

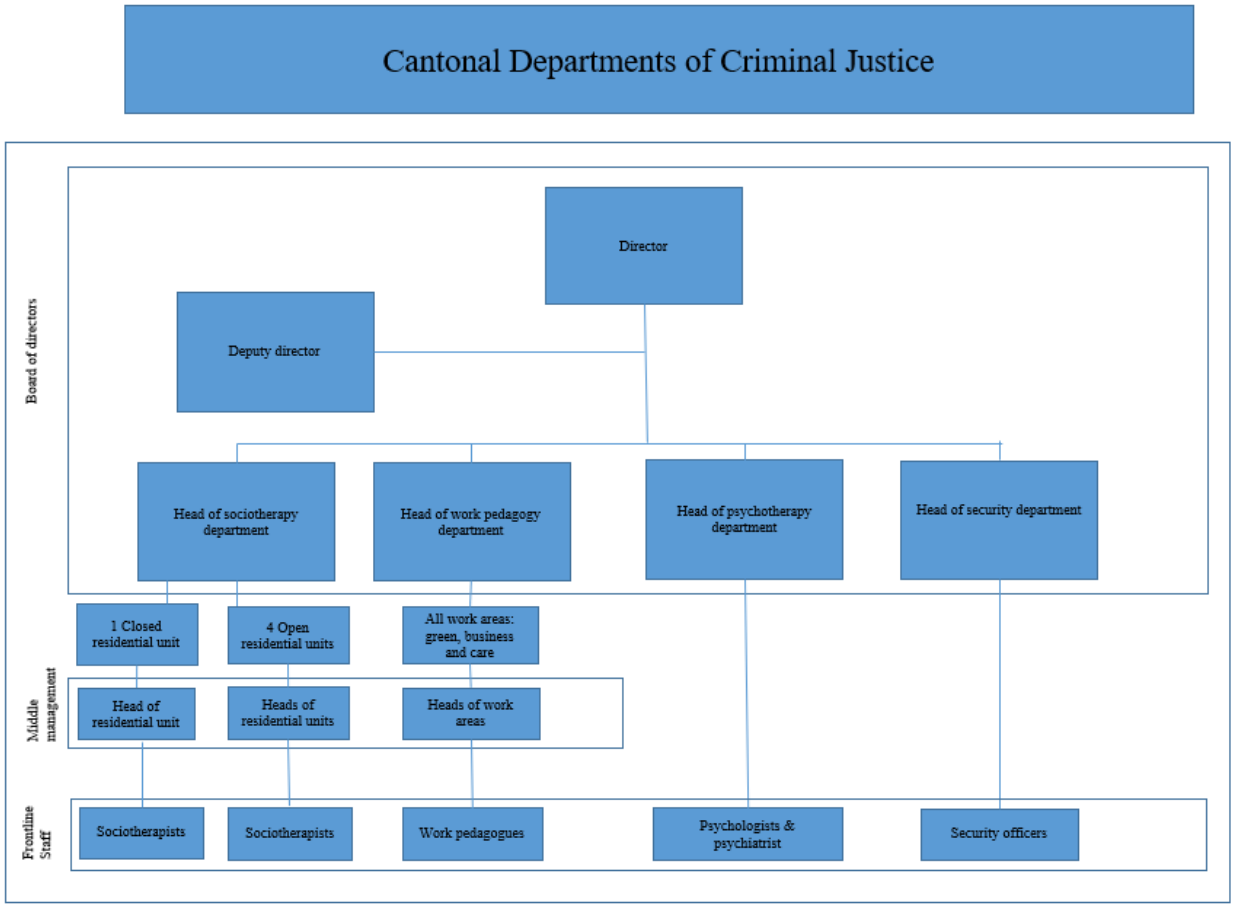


Figure 1: Overview of key actors (from the organization's website, translated and adapted, 23/10/2023).

Swiss legislation provides for therapeutic measures for offenders whose delinquency is directly related to a psychiatric disorder or addiction (Schweizerisches Strafgesetzbuch). For this reason, Zelandia operates its own psychiatric-psychological service, which is part of the psychotherapy department. In order to improve their legal prognosis, detained persons receive psychotherapeutic and, if necessary, pharmacological treatment. The psychotherapy department employs 10 psychotherapists and a psychiatrist responsible for psychotherapy. The psychiatrist is in charge of pharmacological treatment.

The work pedagogy department at Zelandia is dedicated to guiding and accompanying the detained persons in their vocational activities, with the goal of preparing them for a job outside the facility (Internal document, 2023a). The work pedagogues seek to enhance and consolidate the detained persons' individual capabilities, thereby improving their prospects for entering the

free labor market upon release. The work pedagogy department is divided into three work areas: green, business, and care, each overseen by a manager and a deputy, who are considered middle management. Within these areas, there are various workplaces where the detained persons engage in vocational activities, supervised by at least one work pedagogue in each workplace. The department employs a total of 30 work pedagogues.

The security department at Zelandia comprises 15 security officers. While not part of the treatment teams, they provide essential backup support in situations that escalate beyond verbal resolution. Trained to resolve situations preferably without force but equipped with skills to use it if they must, these officers are similar to firefighters, who step in when a situation escalates.

Zelandia also has an administrative department, with its head serving on the board of directors. This department consists of human resources, finances, information technology, and construction and technology units. Staff in the administrative department generally do not interact much with the detained persons and are thus never involved in critical incidents. Therefore, I have not included them in this research.

3.2.11 Rehabilitation process

The detained persons are admitted by the cantonal authorities following a court order (kantonale Justizvollzugsverordnung). Zelandia therefore rehabilitates the detained persons on behalf of the cantonal authorities, as discussed in the section on Swiss legislation. The goal of rehabilitating a detained person is, next to reliability, the main organizational goal (Internal document, 2023b).

Individuals may be admitted to Zelandia either to an open residential unit or the closed residential unit. If there are questions about whether an individual is suited for Zelandia, he spends the first six months in the closed residential unit to test his suitability to live in an open residential unit (Internal document, 2023a). Suitability criteria include the absence of flight risk and the ability to coexist harmoniously in a group setting. The staff-to-detained person ratio is substantially higher in the closed residential unit (2 staff to 8 detained persons) compared to the residential units of the open department (1 or 2 staff to 20 detained persons), facilitating closer observation and control.

The majority of individuals enter Zelandia through the open department, where they are initially observed for two months before gradually being granted more freedom (Internal document, 2023a). This step-by-step process of increasing freedom follows a strict protocol and, depending on the severity of a detained person’s offenses, is decided in close cooperation with the

cantonal authorities. The rehabilitation plan is personalized but always follows the same structure: first, the detained person can occasionally go on leave supervised by a sociotherapist; subsequently, windows of unsupervised time are allowed, progressing to unsupervised leave and eventually to the detained person working outside Zelandia but returning each night. Later stages involve the detained person living outside the facility while still being closely monitored by Zelandia. Finally, upon release, responsibility for the detained person is handed over to probation services, by which time the detained person is already living outside the facility (Internal document, 2023a).

3.2.12 Treatment team

In Zelandia, each detained person is assigned to a treatment team, which plays a crucial role in their rehabilitation process. The team consists of a psychotherapist responsible for the detained person's psychotherapy, a work pedagogue present in his workplace, and a sociotherapist from his residential unit (Internal document, 2023a). These team members are considered frontline staff due to their frequent interactions with the detained persons. Each member of the frontline staff is only actively involved in a limited number of such teams. This is due to the high workload associated with being on a treatment team, especially for the sociotherapists. For instance, a sociotherapist interacts with all detained persons in his or her residential unit but is typically only part of the treatment team for three to four of these individuals. The demanding nature of the sociotherapist's role stems from the responsibilities of coordinating the treatment teams and supervising detained persons' leave, tasks that are both significant and time-consuming.

Each treatment team at Zelandia holds pre-scheduled meetings every six months to evaluate the extent to which the detained person has met the goals that each team member formulated for him. This evaluation process is crucial for assessing the progress of each detained person and whether he can be allowed more freedom. The treatment teams also meet regularly on an ad-hoc basis and, in fact, are encouraged by management to do so whenever they detect even the smallest early cue of discrepant behavior. Each step in the rehabilitation process is discussed within the departments and the treatment teams. These discussions often lead to recommendations for further action, which are then presented to the board of directors for deliberation. This is a long process involving a rigorous exchange of ideas and perspectives, with all parties challenging and scrutinizing each other's positions to ensure the best possible decision for the detained person's rehabilitation. Finally, the board makes a decision, which they then present to the cantonal authorities, who can veto or support the recommendation. Thus, the treatment teams across the departments are in constant exchange with each other.

In summary, Zelandia relies on effective sensemaking of critical incidents (or: early cues) to minimize risk and maintain its organizational reliability. Moreover, sensemaking in this context is highly complex due to the sometimes conflicting organizational goals of reliability and rehabilitation: Zelandia is continually juggling the demands of maintaining organizational reliability and societal expectations regarding risk while striving to rehabilitate its detained persons. Altogether, these characteristics make Zelandia an excellent setting for studying the sensemaking process in great detail.

3.3 Data

3.3.1 Case definition

In accordance with Maitlis and Christianson's (2014) definition of sensemaking, which posits that the sensemaking process is prompted by violated expectations, and thus a discrepant cue, I identified the discrepant cue in my research context as a *critical incident.* I defined a critical incident as *any discrepant behavior by a detained person that violates formal or informal norms and risks causing harm to himself or to others*. Examples of critical incidents include escaping from Zelandia, going against rules and regulations while on leave or within Zelandia, threatening staff, or consistent use of illegal drugs. As outlined in the introduction to this chapter, my objective was to study the *sensemaking* of such critical incidents rather than the incidents themselves. Therefore, I defined a case in this dissertation as the *processes and practices of sensemaking triggered by a specific critical incident.*

3.3.2 Case selection

During a meeting with the board of directors and using this definition of critical incidents, I invited the board to propose critical incidents from the past three years for study. A three-year period was chosen to increase the likelihood that the staff involved in the incidents would still be employed at the facility and thus available for interviews. The meeting took place in January 2022. I entrusted the board with proposing critical incidents for study for several reasons. First, I desired to capture multiple perspectives on each case. Consulting all frontline staff would have been impractical, and engaging only a select few would have restricted the viewpoints acquired. Second, critical incidents selected by the board had already undergone an implicit vetting process, being significant enough to warrant the board's attention, as opposed to minor, unreported occurrences. Third, because I was not interested in the issue of reporting or non-reporting, purposefully studying critical incidents that had not been reported made no sense. Moreover, incidents in which detained persons risked causing harm to themselves or others are very difficult

to hide from the board. This was confirmed during my interviews, in which interviewees indicated that the non-reporting of critical incidents was not an issue.

Of the 21 critical incidents proposed by the board, I selected nine for further study. Reasons for dismissing critical incidents were that they did not comply with the focus of my inquiry, the staff members involved were no longer employed at Zelandia, or they had strong similarities to another incident. This process of dismissing critical incidents took place in cooperation with a manager in the sociotherapy department through two phone calls ranging from 30 to 45 minutes in length. I chose a manager in sociotherapy to facilitate this process because sociotherapists at Zelandia coordinate the treatment teams, and the sociotherapy department serves as the nexus for information on each case. A manager in this department is thus highly informed regarding the rehabilitation process of each detained person.

When incidents were similar, I selected those incidents in which the sensemaking was relatively divergent – i.e., the treatment team or management did not agree instantly on whether the incident was critical, or in their risk assessment. This approach, recommended by Eisenhardt for theory-building from cases, aims to "on one hand, control the extraneous variation, and on the other hand, focus attention on the variation of interest" (Eisenhardt, in Gehman et al., 2018: 288). I studied the cases of sensemaking retrospectively, benefitting from knowing the reliability outcomes, which were highly diverse. From the pre-selection made by the board, I selected polar cases (Eisenhardt, 2021). This means I selected cases based on them having the most variability in reliability outcomes.

3.3.3 Data sources: overview

To study each of my nine included cases of sensemaking, I drew on interviews, documents, and observations. See table 3 for an overview of the number of case-specific interviews, case-specific documents, and observations.

Table 3: Overview of sources of empirical data.

Case	Number of interviews	Number of documents (and pages)
1	4	12 (432)
2	4	15 (80)
3	5	24 (194)
4	5	22 (289)
5	6	14 (47)
6	5	31 (236)
7	4	30 (107)
8	4	64 (550)
9	4	2 (10)
Total	41	214 (1945)
Non-case-specific observations	17 hours	

In-depth, semi-structured interviews were the main source of data. To identify the sensemakers in each case, I studied the documents pertaining to the critical incident and the detained person involved in the incident. These documents were made available to me by Zelandia and allowed me to develop a deeper understanding of the critical incident, the detained person, and, most importantly, the person or people making sense of the critical incident. Once I identified these sensemakers, I went to Zelandia to interview them. Interviewees told me about their sensemaking retrospectively because they had already made sense of the critical incidents, which had taken place in the past. To nevertheless see 'sensemaking in action', I went to Zelandia to observe several meetings in different departments. In these meetings, sense was made of ongoing critical incidents. See tables 4, 5, and 6 for an overview of all data sources.

Interviews

Case-specific interviews took place in July and August 2022. I selected the interviewees based on their deep involvement in a case (i.e., their being the 'sensemakers-in-charge'), their professional diversity on the matter (psychologists, security service, sociotherapists, and work pedagogues), and their different positions in the organization's hierarchy (frontline staff, middle management, and board of directors). For anonymity purposes I omitted all function names in relation to direct quotations. Thus, in relation to direct quotations, all organization members in a leadership position will be referred to as "manager" and all organization members without a

leadership position will be referred to as “therapist”. I conducted three types of case-specific interview: those in which the interviewee was involved in one case, those in which the interviewee was involved in two or three cases, and those in which the interviewees were involved in the decision-making related to all nine cases. I selected four to six interviewees for each case, leading to a total of 41 case-specific interviews with a total of 16 interviewees (due to the involvement of some interviewees in multiple cases). See table 4 for an overview of all case-specific interviews.

The interview guide was in-depth, semi-structured, and based on Weick’s seven properties of sensemaking (1995), which are described in the theory section (see appendix B for the complete interview guideline). Interview questions revolved around the following themes: extracted cues, reliability threats, risk work, ongoing sensemaking, enacted sensemaking (individual and collective), social sensemaking, the plausibility of sensemaking vs. accuracy, retrospective sensemaking, professional identity, and interprofessional collaboration.

In order to enable triangulation, I cross-checked the case-specific interviews with interviews I additionally conducted with members of the board except for the head of the administrative department. I asked them similar questions to those in the case-specific interviews, but they answered these in a general and not case-specific manner. This allowed for insights into the sensemaking process of members of the upper management who had not been involved in specific critical incidents but nevertheless needed to make sense of incidents and were ultimately responsible for the reliability of the organization. The interviews provided rich insights into their sensemaking processes. I carried out a total of seven interviews with board members in September and October 2022, each lasting 30 to 90 minutes. All interviews (expert, case-specific, and board-member interviews) were recorded and transcribed verbatim.

Table 4: Overview of case-specific interviews (anonymized)

Case #	Interviewee involved in 1 case						Interviewee involved in multiple cases								Board members involved in all cases		Total number of interviews
Position	Therapist 1	Therapist 2	Therapist 3	Therapist 4	Therapist 5	Therapist 6	Therapist 7	Therapist 8	Manager 1	Therapist 9	Manager 2	Therapist 10	Therapist 11	Manager 3	Manager 4	Manager 5	Per case
1	X	X													X	X	4
2						X	X								X	X	4
3			X						X		X				X	X	5
4									X		X	X			X	X	5
5				X				X		X			X		X	X	6
6					X								X	X	X	X	5
7							X				X				X	X	4
8												X		X	X	X	4
9								X		X					X	X	4
Total number of cases per interviewee	1	1	1	1	1	1	2	2	2	2	3	2	2	2	9	9	41

Documents

Zelandia granted me access to documents pertaining to each critical incident and the detained person involved. These included internal documents like daily logs, emails, and detention planning documents, as well as external documents such as court records, reports, and risk assessments. The daily log, the most important tool for communication at Zelandia, contains entries from frontline staff detailing everything they deem relevant for all other staff about the detained person. Every staff member can access this log, and board members review it regularly. The daily log proved crucial for analytical purposes because it allowed me to establish a detailed timeline of events and offered initial insights into the sensemaking of the staff who recorded their early accounts of the critical incidents. Additionally, emails related to each incident were part of the dataset, providing a window into the communication surrounding the incident and shedding light on collective sensemaking efforts. Detention planning documents, including personalized rehabilitation plans, were also important for analytical purposes. These documents provided insights into the goals identified by the treatment team for each detained person, as well as the team's expectations, offering valuable insights into the rehabilitation and sensemaking processes. Additionally, reports intended for external use, such as those sent biannually to the cantonal case manager, were included in the dataset. These reports, composed by each member of the treatment team and signed by all department heads and the deputy director, were crucial for understanding how the treatment team, department heads, and deputy director officially communicated and framed the incident towards a third party. Furthermore, external documents like court records and external risk assessments conducted by psychiatrists (based on files or clinical assessments) were also included. These documents were important for two reasons: first, Zelandia's staff referenced them to contextualize the detained persons' behaviors; and, second, they enabled me a deeper understanding of the file-based knowledge that Zelandia's staff rely on for their sensemaking.

In this dissertation, the volume of documentation on each detained person varied considerably, ranging from 10 to 550 pages. This variation was mostly due to the length of time each detained person had spent at Zelandia, as well as in other facilities, which influenced the quantity of internal and external documents, respectively. However, for two detained persons from the French-speaking part of Switzerland, many of the external documents were in French and therefore not included in the analysis. Additionally, some documents were not provided due to the busy schedules of the staff coordinating the detained persons and their documentation. The document analysis served several purposes. First, it was important to understand the context of each detained person involved in a critical incident. By examining court documents, risk assessments, and reports, I gained an

overview of the crimes each detained person committed and his behavior in previous institutions. Moreover, this file-based knowledge mirrors the information used by Zelandia's staff in their daily work and thus not only helped me understand the detained person, but also the framework the staff use for their sensemaking of incidents. Second, the documents, especially the daily logs, were instrumental in constructing a detailed timeline and case narrative for each critical incident and the subsequent events. Lastly, the documents helped identify the main staff members involved in each incident, thereby facilitating the creation of a list of potential interviewees for each case.

Table 5: Overview of documents

Case	**Number of documents (and pages)**	**Type of documents**
1	12 (432)	Daily logs, reports, detention planning, actuarial risk assessment tools, clinical risk assessment, external psychiatric analysis, court records
2	15 (80)	Daily logs, emails, reports, court records
3	24 (194)	Daily logs, emails, reports, detention planning, actuarial risk assessment tools, clinical risk assessment, court records, letters written by detained person, court records
4	22 (289)	Daily logs, emails, reports, detention planning, clinical risk assessment, court records, letters written by detained person
5	14 (47)	Daily logs, emails, reports
6	31 (236)	Daily logs, reports, actuarial risk assessment tools, court records
7	30 (107)	Daily logs, emails, reports, detention planning, letters from detained person, court records
8	64 (550)	Daily logs, reports, detention planning, actuarial risk assessment tools, court records, letters written by detained person
9	2 (10)	Daily logs, report
Total documents	214 (1945)	

Observations

Observations took place over a period of 11 months (January to November 2022), covering most departments and hierarchal levels. Adopting a non-participant observing approach (Kalou & Sad-

ler-Smith, 2015), I assumed the role of 'fly on the wall', observing meetings within different departments. Whereas the documents and interviews were specific to particular cases, the observations were not (even though a few cases were discussed coincidentally in two of the meetings). Case-specific observations were not possible due to the fact that the critical incidents had taken place in the past and were not ongoing. Although an ethnographically informed research design might have offered deeper insights into active sensemaking, it was deemed beyond the scope of this dissertation due to the extensive time commitment required and the low probability of observing a critical incident – the costs of carrying out such an ethnography would thus outweigh the benefits. Beyond these practical considerations, observations were not essential in this research design because the cases in my case study were cases of sensemaking, not of the critical incidents themselves. Instead, I chose to observe meetings in which collective sense was made of certain behaviors of detained persons, including critical incidents. While these incidents differed from those in the included documents and discussed in the interviews, and were thus not case-specific, observing these meetings provided deep insights into real-time, ongoing sensemaking. Moreover, this observation strategy allowed me to witness most of the interviewees as they went about their daily work and thus observe their sensemaking in action and their exchange with peers. The meetings selected for observation ranged across hierarchal levels and departments.

Whereas interviews provided the benefit of hindsight, observations offered insights into ongoing critical incidents and subsequent discussions and actions. These observations were particularly informative about the intricacies of risk assessments and the process of coming to a collective understanding of discrepant cues. The resulting insights were crucial for the development of the process model derived from the case analysis. Observing a board meeting also proved to be relevant for analysis, because it revealed which board members and departments were most involved in the sensemaking process following critical incidents. Insights were also gained from bilateral meetings between managers in the sociotherapy department. These meetings provided a dual perspective: first, I was able to observe the individual sensemaking of the managers in the sociotherapy department, as well as the sensemaking within their teams; second, I was able to witness the collective sensemaking process of the managers as they discussed their understanding of critical incidents. Observing team meetings in the sociotherapy and psychotherapy departments had a similar analytical purpose: to reveal how the teams progressed from an individual sensemaking process to a shared understanding of critical incidents.

Table 6: Overview of observations (anonymized)

Meeting	**Department**	**Staff present**	**Duration in hours**	**Purpose**
Board meeting	All departments	All members of board	1	Board meeting every two weeks to discuss all matters relevant to the board.
Bilateral meeting	Sociotherapy	Two sociotherapy managers	1	Weekly meeting in which two sociotherapy managers update each other on each detained person in a specific residential unit.
Bilateral meeting	Sociotherapy	Two sociotherapy managers	1	Weekly meeting in which two sociotherapy managers update each other on each detained person in a specific residential unit.
Bilateral meeting	Sociotherapy	Two sociotherapy managers	1	Weekly meeting in which two sociotherapy managers update each other on each detained person in a specific residential unit.
Bilateral meeting	Sociotherapy	Two sociotherapy managers	1	Weekly meeting in which two sociotherapy managers update each other on each detained person in a specific residential unit.
Bilateral meeting	Sociotherapy	Two sociotherapy managers	1	Weekly meeting in which two sociotherapy managers update each other on each detained person in a specific residential unit.
Team meeting	Sociotherapy: residential unit	One manager, five therapists	3	Monthly meeting in which team discusses each detained person in this unit.
Case presentation	Psychotherapy	Seven therapists	1	Monthly meeting. One therapist presents a complicated case, and other therapists give feedback.
Team meeting	Psychotherapy	Two managers, eight therapists	1	Monthly meeting in which therapists leading group therapies report back to other therapists on behavior of detained persons attending group therapy.
Team meeting	Sociotherapy: residential unit	One manager, five therapists	6	Monthly meeting in which team discusses each detained person in this unit.
Total duration of observations in hours			17	

Board

Lastly, I conducted non-case-specific interviews with all members of the board, except the head of the administrative department, who is typically not directly involved in sensemaking regarding critical incidents. These six interviews took place in September and October 2022, with each lasting between 30 and 90 minutes. The primary goal of these interviews was to deepen my understanding of the board members' perspectives on the extracted cues, reliability threats, risk work, ongoing sensemaking, enacted sensemaking (individual and collective), social sensemaking, the plausibility of sensemaking vs. accuracy, retrospective sensemaking, professional identity, and interprofessional collaboration. I also shared and discussed the results of my field analysis with the board in a 90-minute meeting in November 2023. The purpose of this meeting was mainly to give back to the organization, as well as to discuss practical implications.

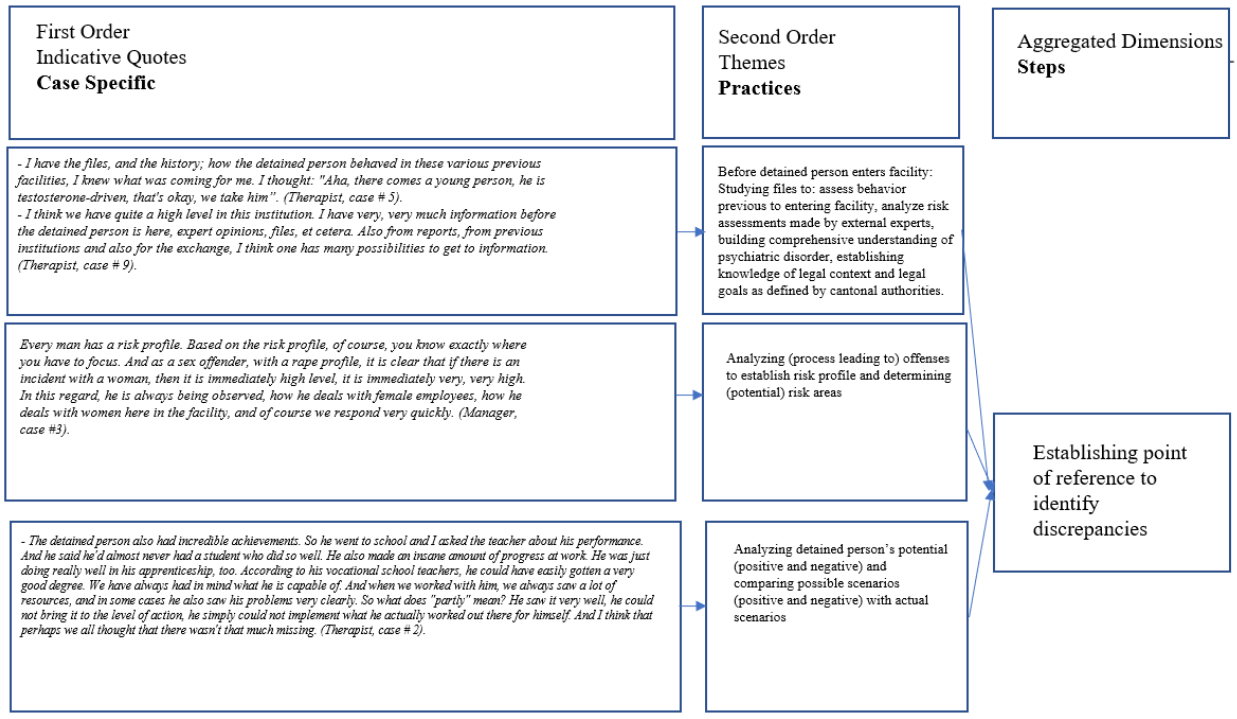
3.4 Data analysis

Data analysis took place from March 2022 to July 2023. I used a theory-building approach, including a combination of interpretative coding techniques (Gioia et al, 2013) and the tactics of a comparative case analysis (Eisenhardt, 1989). The overarching goal of the analysis was to inductively build theory from the data (Ketokivi & Mantere, 2010). The analysis process was characterized by many iterations, moving from a more descriptive and empirical approach to an empirical model and a conceptual model. These models were developed through reading and coding the materials, and going back and forth between the data and the literature (Miles & Huberman, 1994; Saldaña, 2014). The five steps of the analysis were as follows:

Step 1: Establishing a case narrative and timeline. I began the analysis by establishing a timeline and narrative of each case based on a thorough review of the documents. These analytical artifacts describe in detail the background of the detained person, the staff involved, events leading up to the critical incident, the critical incident itself, staff and management's written reflections on the incident, and the measures taken following the incident. This allowed for deep acquaintance with each case and served as a prelude for the within-case analysis. The documents also played a crucial role in identifying the key staff members involved in the case, who were then recruited for interviews.

Step 2: Within-case analysis. Interviews were coded in MaxQDA using a thematic coding approach (Braun & Clarke, 2006). The coding aimed at developing a process model and therefore was focused on detecting similarities rather than differences. First order quotes were identified and

aggregated into more abstract second order practices, which were subsequently aggregated into more theory-informed dimensions (Gioia, Corley & Hamilton, 2013; Langley & Abdallah, 2015) (see Figure 2 for an example. See Appendix B for an overview of aggregated dimensions of each step.) After three iterations, these codes remained stable. During coding, I specifically looked for how interviewees described their initial assessment of an incident, determined whether an incident was critical, assessed the risk, and made decisions. I also paid special attention to the practices and routines in place that actively shaped and guided the sensemaking process. Moreover, as coding progressed from open to axial, I started to explore the relationships between the codes. Based on these three iterations of coding, I first conducted a within-case analysis, focusing on how the criticality of the incident was assessed, whether sensemaking was a collective or individual process, whether the sensemaking process was structured or improvised, who assessed the risk and how it was assessed, and whether there was consensus regarding the sensemaking process. Through this analysis, I was able the describe the sensemaking process for each case. During the open coding, I noticed that sensemaking was based on repetitive and routinized actions, a finding that informed a focus on routinized sensemaking in my subsequent analysis and served as the starting point for



the development of an empirical model.

Figure 2: Example of first order, second order, and aggregated dimensions.

Step 3: Cross-case analysis. I subsequently conducted a cross-case analysis by comparing and contrasting findings from the within-case analyses. This step allowed me to identify recurring

themes in the sensemaking process across all cases. By comparing and contrasting each step of the sensemaking process and its associated reliability outcomes, I was able to discern patterns indicating how specific steps affected certain reliability outcomes and how these patterns interlinked across and within cases. During this step, analyzing the reliability outcomes across cases also clarified which factors contributed to breakdowns in both sensemaking and reliability. Because I studied the cases of sensemaking retrospectively, I was able to evaluate the associated reliability outcomes and group the cases according to a high, medium, or low reliability outcome. Grouping the cases by reliability outcome was insightful, revealing how differences in the sensemaking process led to a variability in reliability outcomes. The observed patterns also served as a prelude to the development of an empirical model, as they illuminated the specific practices employed in the sensemaking process.

Step 4: Establishing an empirical model. Based on the within- and cross-case analyses, I then focused on structuring the analysis along the first order categories. This approach culminated in the development of an empirical model comprising the observed steps and practices in the sensemaking process. During the cross-case analysis, it became evident that the sensemaking process in all nine cases not only shared recurring themes but was also similarly structured, following three central themes: criticality assessment, risk assessment, and decision-making. To test its empirical validity, I subsequently applied the model abductively to the nine cases (and thus the interviews), focusing on identifying the recurring practices that underpinned the steps of the model. During this process, I went back and forth not only between theory and data, but specifically between the empirical model and the data until the model became stable. In the empirical model, for each step in the sensemaking process, I defined practices that I observed across cases. These practices were both those that were defined by the organization and those that emerged informally to come to an understanding of a critical incident. This empirical model serves as an answer to the question regarding how *this specific* organization makes sense of critical incidents. In the next step, I developed a conceptual model to answer my research question regarding *how high-reliability organizations in general make sense of critical incidents*.

Step 5: Establishing a conceptual model. Building upon the empirical model, I developed a conceptual model that distinguishes among four types of sensemaking. This model aims to extend beyond the specific context of Zelandia, offering a more general framework applicable to a broader range of HROs – especially those in which the risks stem from human reliability threats and sensemaking is used to ensure reliability. Developing the conceptual model thus required another iteration between theory and data as I sought to move it beyond the specifics of the empirical model to

achieve broader theoretical applicability. In the conceptual model, I describe the steps in the sensemaking process rather than the practices because the practices are applicable only to Zelandia and not to HROs in general. Drawing upon both the conceptual and the empirical models, I was able to identify which steps led to high reliability outcomes and how these steps served as a source of reliability. As mentioned above, I also distinguished among four types of sensemaking. Despite the structured nature of the sensemaking process, the different types of sensemaking can lead to different types of breakdowns in sensemaking and reliability. These four types of sensemaking are able to explain the variance in the sensemaking practices observed and how these different practices affect reliability outcomes. In the next chapter, I will present the data and describe the process of developing the empirical model.

4 CHAPTER 4: FIELD ANALYSIS

4.1 Overview

In the previous chapter, I detailed the methodology of my study, including the empirical context and rationale for selecting the research site, demonstrating why it is a revelatory setting for this research. I also provided the case definition, detailed the data sources I used, and described the six analytical steps that guided my research process.

In the present chapter, I begin by presenting my empirical model of the sensemaking process, which I developed through cross-case analysis. To do so, I explain the themes, steps, and practices that constitute the sensemaking process. Subsequently, I apply the model to describe and analyze the sensemaking process in four polar cases (Eisenhardt, 2021) based on within-case analysis.

4.2 Cross-case analysis: themes, steps, and practices in the sensemaking process

The cross-case analysis facilitated the identification of recurring themes in the sensemaking process across all cases. By comparing and contrasting each case, focusing on the various steps of the sensemaking process and their corresponding reliability outcomes, I was able to identify distinct patterns. These patterns not only revealed the impact of each step on a particular reliability outcome but also how these patterns interconnected within and across cases. An important aspect of this analysis involved analyzing the reliability outcomes across all cases to identify factors that contributed to breakdowns in both sensemaking and organizational reliability. The cross-case analysis culminated in the development of an empirical model, which is detailed in Figure 3.

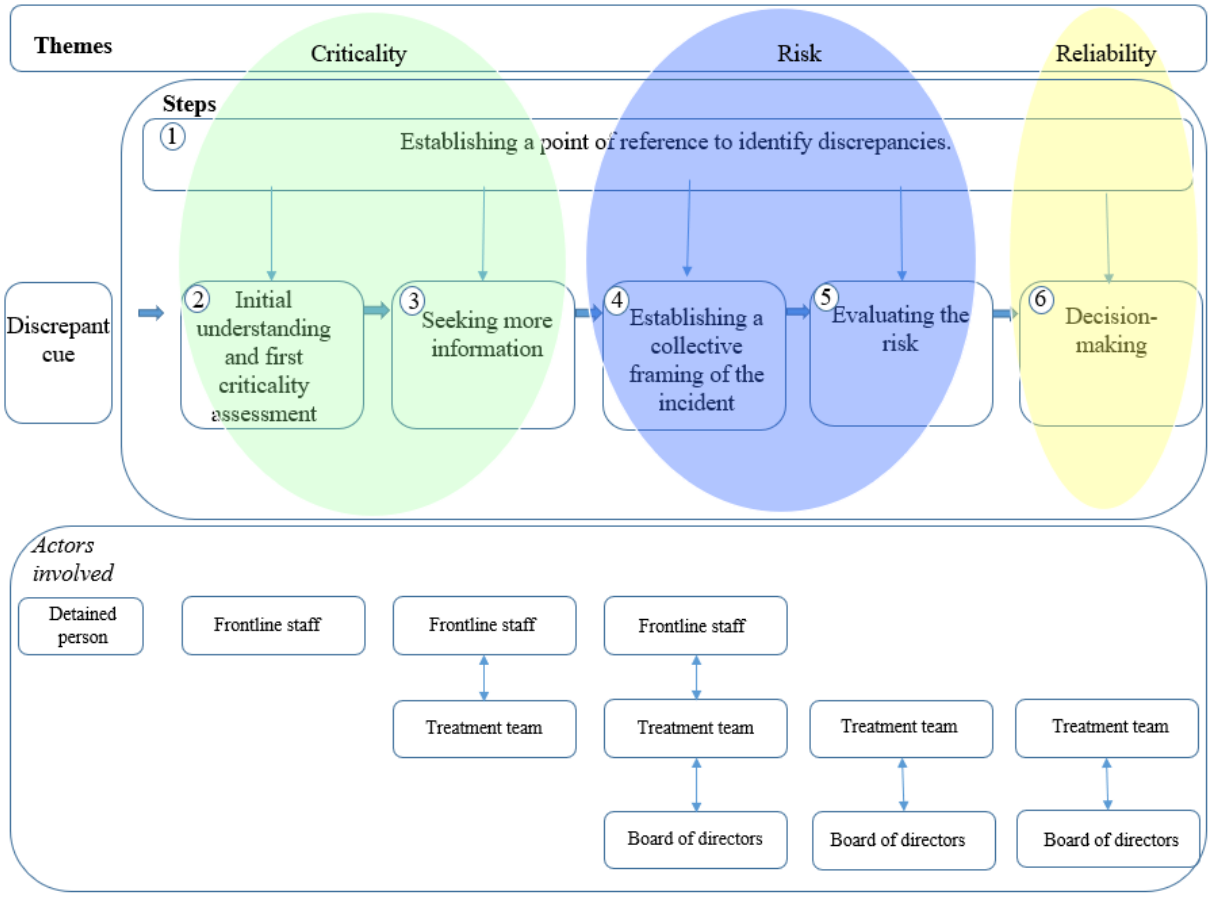


Figure 3: Empirical model of the sensemaking process

The sensemaking process in Zelandia is triggered when frontline staff members encounter a discrepant cue, which in this context is a critical incident posing a *threat to the organization's reliability.* As noted in previous chapters, I define a critical incident as a discrepant behavior that violates formal or informal norms and carries the risk of causing harm to oneself or others. Because frontline staff in Zelandia encounter numerous cues in their daily interactions, identifying a cue as discrepant is both a crucial and challenging task. For example, during a meeting I attended between the managers in the sociotherapy department, one of the managers mentioned how a social therapist had noted a detained person's unusually long fingernails. Upon inquiry, the detained person told the social therapist that he was now identifying as queer, which raised potential risks related to his sexual identity given his background as a sex offender. This interaction exemplifies the sophisticated sensemaking required to identify and interpret potential reliability threats, no matter how small or meaningless they might seem. In this case, the sociotherapist's attention to an ostensibly minor detail (the long fingernails) led to him take action (asking the detained person) and

identify it as a cue for a potential risk. This insight was subsequently shared with the team. The team then had all of the information needed to further assess and manage the potential risk. Therefore, making sense of the background and context of the detained person involved is essential in determining whether a behavior constitutes a discrepant cue and thus a potential threat to reliability.

My empirical model is structured around three themes, each of which guides specific steps in the sensemaking process. These themes are criticality, risk, and reliability. Initially, when an incident takes place, frontline staff are tasked with assessing its criticality. They must answer the question: How critical is this incident? If the incident is deemed critical, the next step involves a risk assessment. Here, the treatment team and board of directors must answer the question: Given the criticality of the incident, what risk does it pose? Once the risk has been assessed, the focus shifts to ensuring reliability. At this juncture, the treatment team and board of directors must answer the question: Given that this incident is sufficiently risky, what actions are needed to ensure organizational reliability?

4.3 Empirical model

In all cases of sensemaking analyzed in this dissertation, I observed that each step in the sensemaking process was informed by a point of reference. This point of reference was established (step 1: establishing a point of reference to identify discrepancies) before an incident took place and often even before the detained person entered Zelandia. It was regularly updated with new information. After the incident occurred, the process of initial understanding by frontline staff took place (step 2: initial understanding and first criticality assessment). Subsequently, both the frontline staff and the treatment team of the detained person sought more information (step 3: seeking more information), leading to a shared understanding among frontline staff, treatment team, and board of directors (step 4: establishing a collective framing of the incident). Based on this shared framing, the treatment team and board of directors assessed the risk (step 5: evaluating the risk) and subsequently made a decision (step 6: decision-making). Each of these steps in the sensemaking process can be broken down into specific practices. In this chapter, I will use exemplar quotes to illustrate how Zelandia implements these practices, and will explain the intended contribution of each step to the organization’s reliability.

4.3.1 Setting the stage for sensemaking

Step 1: Establishing a point of reference to identify discrepancies

In each case of sensemaking, a point of reference was established before the incident occurred and often even before the detained person entered Zelandia. The point of reference was constantly updated with new information, shaping each step of the sensemaking process and thus cutting across all three themes (criticality, risk, and reliability) in my empirical model. There are two phases in establishing this point of reference – one before the detained person enters Zelandia and one after he enters Zelandia – each involving two practices.

Before a detained person's arrival, the board of directors and treatment team prepare themselves for his arrival by studying his files. This review focuses on understanding the individual's past behaviors and comprehensively assessing his psychiatric disorder. Additionally, the board of directors and treatment team analyze risk assessments conducted by external experts to create a risk profile, identifying risk areas. Subsequently, they familiarize themselves with the legal context and objective set by the cantonal authorities. After a detained person's arrival, staff members continue to refine their point of reference by monitoring and assessing his behavior, especially his transparency and cooperation with the treatment team. This phase also involves assessing the potential of the detained person, including both positive aspects, such as enrollment in an apprenticeship program, and negative aspects, such as aggressive behavior.

Practice 1a: Studying the detained person's files to assess his behavior before he enters Zelandia. The initial understanding of a detained person begins with the board of directors and treatment team studying his files before his arrival. These files typically contain extensive information from court documents, evaluations by external psychiatrists, risk assessments by cantonal authorities, and reports from any previous institutions, providing a comprehensive view of the individual's history, behavior, psychiatric disorder and experiences in other, usually high-security facilities. The risk assessments are particularly important because they offer guidance on the risks and strengths of the detained persons, thus aligning with the expectation of the cantonal authorities that Zelandia will work to mitigate the risks and bolster the strengths. Based on this comprehensive documentation, the board of directors decides whether the individual is a good fit for Zelandia.

The board of directors expects the treatment team to study the file thoroughly and benefit from all the information available. However, this abundance of information can lead to potential biases. For instance, negative expectations about a detained person based on his behavior in previous

facilities can predispose staff to interpret his behavior and cues through a lens more attuned to reliability concerns than to rehabilitation needs. This bias can be observed in a vignette from case #5, involving a young detained person known for many incidents in previous facilities, including assaults on staff:

> *"I had the files and the history – how the detained person behaved in these various previous facilities. I knew what was headed my way. I thought, 'Aha, here comes a young, testosterone-driven person – but that's okay, we'll take him in'" (Therapist 9, case #5).*

Practice 1b: Creating a risk profile. The goal of studying a detained person's file before he enters Zelandia is not only to get to know him, but to create a risk profile. This risk profile, created by the treatment team and board of directors, helps frontline staff in their daily interactions in Zelandia to classify behaviors. By knowing each person's risk profile, staff can discern when heightened vigilance is required and when it is appropriate to let minor issues pass. Certain behaviors are considered critical for every detained person, such as violating Zelandia's rules or breaking the law. However, as most interviewees emphasize, a 'one size fits all' approach is not feasible: a behavior that might be considered highly critical for one detained person due to his psychiatric disorder or previous offenses might be considered minor for another, meriting only a mild reprimand. With incidents happening on a daily basis, frontline staff need to make a large number of criticality assessments. This underscores the importance of the risk profile as a point of reference that steers their focus and guides their on-the-spot decision-making. The risk profile is informed by the detained person's original offense and by the assessments of external experts, such as psychiatrists and cantonal authorities.

The following vignette from case #3 illustrates this point. In case #3, a detained person is in Zelandia due to sexual offenses. Being a sexual offender, his behavior around women is of special interest, and any incident related to this is quickly considered critical by frontline staff, the treatment team, and board of directors:

> *"All of the men have a risk profile. Based on this, you of course know exactly where you have to focus. If he's a sex offender with a rape profile, it's clear that an incident with a woman is immediately very, very high level. So in this respect, he is always being observed*

– how he deals with female employees here in Zelandia, and of course we respond very quickly" (Manager 5, case #3).

Practice 1c: Analyzing the detained person's potential. During the initial phase of interaction between the treatment team and detained person, the team begins to analyze the detained person's potential, encompassing both positive and negative aspects, contrasting potential outcomes with actual developments. Interviewees frequently talked about a detained person's potential. Negative potential was sometimes inferred based on information from a detained person's file, such as from past violent offenses, and other times from observed behaviors within Zelandia, such as aggressive behavior. Positive potential was recognized in instances where a detained person was noted, for instance, for his intelligence or for performing well in his job or in vocational training. This assessment of potential, considering both positive and negative aspects, serves as the foundation for subsequent steps in the sensemaking process, particularly risk assessment.

A therapist in Case #2 shared insights about a detained person who displayed great potential:

"The detained person also had incredible achievements. He was going to vocational training, and I asked the teacher about his performance. The teacher told me he was one of the best students he'd ever had. He also made an insane amount of progress at work, and he was doing really well in his apprenticeship, too. His vocational schoolteachers believed he could have easily earned a very good degree. We were always aware of this potential, and when we worked with him, we always saw a lot of it. He also understood his own problems very clearly, but he struggled to translate [his insights] into action […]. It seemed to us that there was very little he lacked for a successful rehabilitation" (Therapist 6, case #2).

Intended contribution to reliability

This point of reference informs the subsequent steps in the sensemaking process. It provides frontline staff with a baseline to judge whether an event represents a discrepancy, enabling them to assess the criticality of an incident. Furthermore, it is crucial for understanding a detained person's risk profile, shaping their risk assessment and thus their decision-making process.

4.3.2 Theme: criticality

When an incident occurs, frontline staff seek to answer the question *How critical is this incident?* through the two steps described below.

Step 2: Initial understanding and first criticality assessment

This step begins with the discrepant cue identified by frontline staff. Although the treatment team has the most extensive knowledge about the detained person and board of directors ultimately makes decisions based on their recommendations, they are not always the people who witness incidents firsthand. In fact, in Zelandia's daily operations, it is the work pedagogues and sociotherapists who spend the most time with the detained persons and are therefore more likely to observe incidents first – also, when they are not necessarily on the treatment team of the detained person involved in the incident. When they do, they must make a rapid first assessment of criticality. This process consists of several practices. To begin, the individual staff members establish an initial understanding of the criticality of the incident by evaluating it in light of the detained person's risk profile and prior offenses. They then reflect on their initial understanding both individually and in consultation with their peers (i.e., other frontline staff) to verify their initial understanding.

Practice 2a: Assessing the criticality of the incident in light of the point of reference. After observing an incident, frontline staff assess its criticality against the point of reference established for the detained person. This assessment depends on frontline staff being informed by the treatment team about the point of reference. Information sharing is facilitated through daily shift handovers in the two departments that work in shifts (sociotherapy and security services) and monthly meetings in which treatment team members update their peers within their respective departments on their assigned detained persons. This enables frontline staff to juxtapose an incident with the point of reference. Frontline staff repeatedly mentioned during interviews that this process improved their ability to assess the criticality of an incident. However, not all frontline staff are equally well informed about a detained person's risk profile, highlighting the importance of ensuring that those with the most comprehensive knowledge of the detained person's background are the ones making the initial criticality assessment.

In the following vignette from case #3, a phone call concerning a detained person named Daniel was initially directed to a sociotherapist in the wrong department. The caller, a former detained person, provided detailed information about an incident involving Daniel outside Zelandia, which shared striking similarities with Daniel's original offense. This new information pointed to a highly

critical incident that no one had knowledge of yet and required a quick response. However, the likelihood of a sociotherapist from another department recognizing the significance of this information was low given her unfamiliarity with the details of Daniel's risk profile. Fortunately, she redirected the caller through to Claudia, Daniel's assigned sociotherapist, who immediately recognized the criticality of the incident. Despite it being at night, Claudia promptly involved the members of the board who were on call, highlighting the critical role of having the right information in the hands of those best equipped to understand and act upon it:

> *"In theory, the phone call could have been received anywhere. And it did [in fact go] to a different department, where they could have just made an entry in the daily log: 'According to feedback from Mr. X, concerning Daniel,' and that's all we would have seen, and not much more would have happened. Another thing that could have happened is that the caller might have lost patience and hung up, or the importance of the call might have been overlooked if the receiver hadn't been aware of Daniel's offense. It could have unfolded [differently] even in our department if I hadn't been the one to take the forwarded call – if it had been someone with less knowledge of his file. Daniel is someone who's been here for a long time, and while we're familiar with the offenses of most detained persons, the nuances sometimes escape us. […] So it also depended very much on the person that things turned out well" (Manager 1, case # 3).*

Practice 2b: Reflecting on one's own observations of the incident. When developing an initial understanding of an incident and as a part of the criticality assessment, frontline staff openly reflect on their initial understanding, questioning their interpretations to ensure unbiased sensemaking. Involving their peers is part of this process and entails not only actively seeking advice but often openly reflecting on their sensemaking, both during formal meetings (impromptu or planned), and in causal meetings or conversations in which frontline staff seek the advice of other frontline staff to verify the soundness of their initial understanding. A team meeting I observed among sociotherapists in one of the open residential units illustrated this practice:

> *"He (the detained person) has reported in sick a lot lately. I'm not sure what to make of it. Maybe he does have physical problems due to years of drug use – but honestly I think he just doesn't want to work. Then again, part of me thinks I'm making the wrong assumptions about his behavior. I need more time to reflect on my thinking"*

Another sociotherapist, in the same meeting, about another detained person:

> *"I think he (the detained person) is becoming more delusional, and it's showing in the way he's handling his finances. He's become obsessed with money and is harassing staff, pressuring them to buy cigarettes. But maybe it's not about him being psychotic – maybe it's something else. I need to reflect on what I'm seeing to figure it out"*

In the vignettes above, frontline staff shared their thought process without explicitly seeking advice. Their colleagues had to opportunity to respond, and while they agreed with the statements made, these meetings also provided a platform for staff to challenge and refine each other's initial understanding.

Intended contribution to reliability

During this step of the sensemaking process, frontline staff reach an initial understanding in order to make a rapid first assessment of criticality. This determines the necessity of gathering further information. In this role, frontline staff thus act as gatekeepers, initiating the treatment team's sensemaking process in cases deemed potentially critical.

Step 3: Seeking more information

Once frontline staff identify the incident as potentially critical, the treatment team proceeds to gather additional information. To fully understand what happened and finalize their criticality assessment, the treatment team relies on the detained person to provide further details. Additionally, they consider the incident within the broader context of the detained person's past behavior, drawing on the point of reference.

Practice 3a: Seeking conversations with the detained person. Members of the treatment team, particularly the psychotherapist and sociotherapist, repeatedly seek conversations with the detained person about the critical incident, especially regarding his intentions. This process requires the detained person's openness and cooperation, which is not always forthcoming. Although the treatment teams are accustomed to a lack of transparency from the detained persons, they nevertheless endeavor to obtain information. For instance, in the following vignette from case #3, a phone call was received regarding a critical incident about which the team was previously unaware. This led them to question the detained person about his potential involvement:

> *"I remember that we asked in a relatively open way at first, [saying] that we received information that something had happened and whether he had any idea what it might be about. And he wriggled with it for a while, but over time thing became a little more, you could probably say, suggestive. Afterwards, at some point he said, 'Yes, I was there at the station and I saw a woman, and I just wanted to try out whether this scam still works.' It took us a relatively long time, and again, we also let some of our information flow into the conversation, and then he admitted to it" (Therapist 3, case # 3).*

A detained person's statements about his intentions are invaluable for the criticality assessment. However, the refusal to disclose information or cooperate strongly influences the criticality assessment. Instances where it proves difficult to obtain information from the detained person are regarded as critical. In the following vignette from case #4, a sexual offender exhibited suspicious behavior towards female frontline staff but refused to talk about the incidents:

> *"He never opened up in therapy. So we were dealing with someone known for a serious sexual offense, plus an expert assessment indicating a predisposition towards rape. That, in itself, is serious. But he wouldn't comment on it at all. You couldn't talk to him about the rape. That already was very difficult with him, putting up with him in Zelandia at all, especially for the women [staff]" (Manager 2, case # 4)*

Practice 3b: Contextualizing the incident. Independent of the detained person's willingness to be transparent, the treatment team can draw upon multiple resources to gain a thorough understanding of each critical incident. This includes reviewing journal log entries up to the time of the incident to identify any early cues or potential triggers. Additionally, the treatment team analyzes the incident within the context of the detained person's historical behavior and offenses, using their point of reference. Identifying patterns in behavior is key; if the detained person has exhibited similar critical behavior in the past, this strengthens the likelihood that the current incident will be assessed as critical.

In the following vignette from case # 5, a detained person showed aggressive behavior, mirroring what had occurred in previous facilities. The earlier aggressive behavior had been well documented, allowing the treatment team to identify a consistent pattern. The recognition of this pattern led to the assessment of the most recent behavior as critical.

> *"I can see the risk from his file. He really has a long history of aggressive behavior, including threats and physical attacks. So from the whole file [there was this] situation and also always this tension and latent aggressive behavior with us" (Therapist 11, case # 5)*

Intended contribution to reliability

To complete the criticality assessment, the treatment team incorporates information from the initial understanding developed by frontline staff. This involves engaging in conversations with the detained person and interpreting the incident in light of the point of reference. During this step, incidents can be dismissed as non-critical and thus as posing no threat to organizational reliability. However, when the treatment team assesses the incident as critical, it becomes imperative to involve the board of directors in the next step and to establish a shared understanding, based on which a comprehensive risk assessment can be made.

4.3.3 Theme: risk

Once an incident has been identified as critical, assessing the potential risk becomes necessary. Together, the treatment team and board of directors seek to answer the question: Given the *criticality of the incident, what risk does it pose?* This assessment takes place in the two steps described in the following section.

Step 4: Establishing a collective framing of the incident

To accurately assess potential risks, the treatment team triangulates their perspectives, establishing a collective framing of the incident. This collective understanding then informs their risk assessment recommendations to the board of directors. The board of directors, in turn, engages in its own sensemaking, drawing from the sensemaking of the treatment team and that of the frontline staff. Discrepancies between these two types of sensemaking may arise, prompting the board of directors to either question or accept the treatment team's recommendations. Ultimately, the goal is to reconcile any differences and reach a consensus.

Practice 4a: Establishing a shared understanding by triangulating individual perspectives. At this juncture, the individual members of the treatment team, along with any involved frontline staff, have formed their individual perspectives based on their own observations, conversations with the detained person, and the point of reference. They have reflected on their perspectives with their peers and are prepared to share – and thus triangulate – these with the broader

treatment team. This process of triangulation occurs through various treatment team meetings, some of which are scheduled and take place on a regular basis, and others of which are impromptu and convened in response to an incident. During these meetings, frontline staff compare their observations and individual understanding of the detained person and the incident until they reach saturation and achieved a shared understanding of the incident.

In the following vignette from case #1, which involved a detained person falling in love with a work pedagogue, another member of the treatment team describes the process through which they triangulated their perspectives:

> *"After the detained person had attended a few meetings with the psychotherapist, the work pedagogue, and me, we sat down with the treatment team. Then we had another look at how the work pedagogue feels about him. Has the whole thing already calmed down a bit? That was the moment when she could have said that she no longer wanted to deal with it – that should didn't know what was going on in his head and would need to change her work assignment. But that didn't happen. [Instead,] she increasingly sought distance from him and later approached him again, but in a professional way that clarified the boundaries once again. So based on this, one could say that it was perhaps not so bad that the whole thing happened. Maybe it was a learning opportunity for him, as documented in our treatment team reports" (Therapist 1, case # 1).*

Another vignette, from case #5, highlights the variability in treatment team members' access to the detained persons. In this context, the sharing of perspectives enriches the collective understanding:

> *"So we met again with the treatment team. Since I see clients for just one hour a week, I'm very, very dependent on observations from everyday life, from sociotherapy and from [the detained person's] work and so on. That's why I exchange ideas with them, in order to gain a closer look, yes. Were there perhaps critical things in their everyday life that I can use for my assessment?" (Therapist 11, case # 5)*

Practice 4b: Formulating a collective framework of the incident. At this juncture, the treatment team has reached a shared assessment of the criticality of the incident through the triangulation of individual perspectives. This helps them understand and interpret the incident but, more importantly, sets the stage for assessing its potential risks in collaboration with the board of directors. While the criticality of the incident is recognized, the focus shifts to evaluating its risk implications. Through collecting framing, the team can develop an initial risk assessment and propose recommendations to the board of directors.

As detailed in the following vignette from case #2, a detained person failed to return to Zelandia at the agreed time multiple times. Despite this being regarded as a critical incident, the treatment team decided to accept this failure to return, due to the low risk of harming others.

> *"At the very beginning, we hadn't expected a failure to return. Eventually, we came to accept it, yes. In the beginning, there was quite a long time between [the failures to return], but then it became more frequent, and we chose to tolerate it" (Therapist 6, case # 2).*

The rationale behind this decision was explained by the psychotherapist:

> *"We decided, based on his openness – or, perhaps, supposed openness, one should say – and the capacities he brought with him, alongside the fact that it went well many times, that we wanted to continue supporting him and strengthening his self-efficacy. Because we saw that strengthening him in his self-efficacy experiences and helping him stick to the positive goals, we'd formulated with him had more benefits than taking the opposite approach*" *(Therapist 6, case # 2).*

Practice 4c: Escalating the collective framing. With a collective framework of the incident in place, the treatment team presents their recommendations for a risk assessment to the board of directors, using meetings or emails for communication. The board of directors, in turn, engages in its own sensemaking based on that of the treatment team and other frontline staff. Discrepancies may arise due to the first-hand perspective of staff and the more distant perspective of the board of directors. In such instances, the board of directors either questions or endorses the treatment team's recommendation as both parties strive for consensus.

In the following vignette from case #2, a manager describes how the treatment team can convince her with good arguments:

> *"Being somewhat removed from the case, I might have said earlier, 'Enough is enough. There's no use.' However, if the staff who are directly involved and who work with the detained person say, 'No, we want to continue', then they have to cite good reasons, [explaining] the opportunities they see and the potential for still working with him" (Manager 4, case # 2).*

Practice 4d: Factualizing emotions. While the board of directors encourages frontline staff to share information with them to achieve a shared understanding, they recognize that some emotions triggered by daily interactions with the detained persons are hard to classify. The emotional responses of frontline staff, such as emotional discomfort, are legitimate and insightful, but require translation into information that the board of directors can use to establish a better understanding of the incident. The board of directors therefore asks frontline staff to factualize their emotions, converting subjective experiences into more objective data that can inform the board of directors' understanding and actions. This approach is exemplified by the following vignette from case #4.

> *"It's of course difficult to determine the facts, and there's a point where I'm confronted with [the question], 'What's the basis for making a decision?' If an employee says, 'I'm afraid', you can't argue against fear, can you? You can't say, 'No, no – you don't have to be afraid.' It's a fact: she's afraid. But what's the trigger of the fear? Is it really an external threat? Or is it her internal perception? Or both? It's quite difficult" (Manager 4, case #4)*

Intended consequences for reliability

This step marks the point at which the board of directors becomes actively involved in the sense-making process. Although frontline staff and the treatment team have a gatekeeping function in terms of information, the board of directors expects them to bring the incident to the table in order to achieve a shared understanding, even if the possibility of an incident being critical is only slight. This proactive stance on potential risks is illustrated in the following vignette from case #1, where

a manager speaks about the therapist who immediately reported the incident in which the detained person expressed his feelings for her:

> *"The way this colleague handled [the situation], having the risk awareness and the right reaction […] Because she could have kept it to herself and slept on it ten more times […] But, no, she didn't do that. She took it seriously and made the right move. That's the way it has to be" (Manager 5, case #1)*

Establishing a shared understanding of a critical incident is a crucial step in the sensemaking process because it serves as the foundation for the risk assessment and subsequent decision-making.

Step 5: Evaluating the risk

The process of risk evaluation begins with contextualizing the potential risks in relation to the point of reference. The treatment team and board of directors weigh the protective factors against the risk factors. Protective factors are those that are beneficial for rehabilitation, such as a detained person being successful in vocational training. Risk factors are those that can harm the organizational goal of reliability, such as a detained person engaging in substance abuse. However, while these practices are driven by internal considerations, a risk assessment is only complete when it has taken account of the external legal context.

Practice 5a: Reconsidering the risk profile. The initial risk profile, formulated during the early stage of understanding, must now be updated with the new information about the critical incident. The treatment team and board of directors revisit and recontextualize the incident against the backdrop of the initial risk profile. While referring back to the point of reference is a continuous part of the sensemaking process, at this juncture, the focus shifts towards assessing the risk. This is distinct from earlier steps, during which the focus was on assessing the criticality of the incident. The similarity between the critical incident and a previous offense prompts the treatment team and board of directors to recognize an elevated risk, especially if the previous resulted in victim harm. This historical context also informs their assessment of possible future risks, including the probability of its occurrence and the potential for victim harm. The willingness of staff to accept risk diminishes significantly when past offenses involved severe harm or the death of victims because the risk for producing further victims is much higher.

In the following vignette from case #2, the detained person was involved in a critical incident that was similar to his previous offenses. While on unsupervised leave, he attempted to lure away a

drug-addicted woman, mirroring his prior criminal behavior where he committed rape under similar circumstances. In this instance, the woman walked away, escaping unharmed. Despite years of therapy, this detained person's actions indicated an unchanged pattern of behavior, which staff interpreted as posing a high risk for society were he to be granted unsupervised leave in the future. The incident not only reaffirmed the high risk initially associated with this individual, but also intensified concerns about his potential to reoffend.

> *"There you see, for example, all the years he was here, the successes and so on – they very clearly faded into the background in light of such a critical incident. It's a matter of life and limb, where you just have to react. Despite the therapy, the risk is still there, and he still doesn't grasp it. The moment he's outside, the risk that there will be victims is so real" (Manager 5, case #2).*

Practice 5b: Assessing protective factors and risk factors. The treatment team and board of directors assess the protective factors and the risk factors. Examples of protective factors are a detained person holding a job outside Zelandia or attending vocational training, both of which are only possible in a very advanced stage of rehabilitation. Risk factors include a lack of transparency, non-cooperation in therapy, or critical incidents mirroring past offenses. In the risk assessment, the treatment team and board of directors anticipate that the protective factors will reduce the risk of re-offending and are therefore cautious about reversing progress in advanced stages of rehabilitation.

In the following vignette from case #2, the detained person repeatedly failed to return to Zelandia at the agreed time. Despite these incidents, the consensus among the board of directors and treatment team was that continuing the rehabilitation process, particularly allowing the detained person to maintain his job outside Zelandia, was more beneficial. They assessed the risk of further failures to return to Zelandia at the agreed time as acceptable because they valued the main protective factor (detained person being successful in external job) over confining him to Zelandia. This risk of harming others was also assumed to be low. They believed the positive engagement in work would keep him on his successful path of rehabilitation, thus preventing future offenses:

> *"Clearly we have assessed the risk of another failure to return to Zelandia at the agreed time. What is the alternative? The alternative is to lock him up. Is that an alternative that*

will help him move forward? No, because his therapy will end at some point. In other words, what else can we give him? And the risk if he fails to return to Zelandia at the agreed time is that he'll do drugs. That's the risk. Are we willing to take that? Yes, we are. The other thing is, of course, that we see a huge potential in this guy. It's worthwhile to continue working on it. There's no point in locking him up now – things would just go downhill" (Manager 5, case #2).

Practice 5c: Taking the legal context into consideration. Lastly, before any action can be undertaken, the treatment team and board of directors take the legal context into consideration. This context is determined by the article of law under which the person is detained in Zelandia. Most detained persons are held under articles of law that allow for potential renewal every three to five years, depending on the legal context and the detained person's behavior and accomplishments in therapy and rehabilitation. Some detained persons, however, are held under an article of law that sets a maximum duration for their stay in a correctional facility, pressing the board of directors and treatment team to move forward with rehabilitation due to the limited time available. The specific legal provisions (e.g., regarding transfer to the next facility or a release date) are determined by the article of law and the cantonal authorities, guiding the assessment of allowable margins of error and the degree of risk the team is willing to accept with a detained person, as becomes clear in the following vignette from case #6:

"For me, it's mainly the legal context. Since he's going to be released anyway, we equip him as much as possible to prevent relapse and, above all, safeguard society, ensuring that he can pursue his apprenticeship as something to fall back on" (Manager 4, case # 6).

Intended contribution to reliability

The entire decision-making process, especially regarding how to respond to a critical incident, hinges on the risk assessment. This assessment lays the groundwork for actions aimed at ensuring the reliability of the organization while facilitating the rehabilitation of detained persons.

4.3.4 Theme: reliability

Once a risk assessment has been concluded, action needs to be taken to ensure reliability. The treatment team and board of directors consider the following question: Given that this incident is sufficiently risky, what actions are needed to ensure organizational reliability? This involves the step described in the following section.

Step 6: Decision-making

After the risk assessment, the treatment team and board of directors decide which actions are needed to maintain organizational reliability while maximizing the rehabilitation of the detained persons. This decision-making process encompasses four practices: identifying who is at risk and when; determining how to proceed with rehabilitation without jeopardizing organizational reliability; and defining potential red flags for situations in which the decision is made not to take action. Ultimately, every incident that is deemed critical and risky presents an opportunity for the board of directors and treatment team to consider whether the detained person can remain in Zelandia.

The decision-making process is based on a highly nuanced risk assessment: Zelandia aims to minimize risk for society while maximizing the detained person's rehabilitation. Decisions are strongly informed by the potential danger to society, staff, and the detained persons themselves. As part of this process, staff define boundaries and potential red flags. Ultimately, the decision is made whether a detained person remains suitable for the relative level of freedom that Zelandia offers, leading to a formal recommendation to the cantonal authorities.

Practice 6a: Establishing a baseline for deciding acceptable risk levels for different stakeholders. Rehabilitating a detained person inherently involves navigating risks. Following a risk assessment, the board of directors must decide the level of risk that is acceptable. This involves distinguishing who might be at risk should a similar incident recur: society, frontline staff in Zelandia, or the detained person himself. For society, the board of directors tolerates only a small amount of risk, such as the risk associated with a detained person doing drugs. However, with frontline staff, the board of directors is prepared to accept a greater degree of risk because of the security measures within Zelandia, including the presence of security guards and all staff wearing alarm buttons.

Regarding risks to frontline staff, the board of directors may perceive these risks differently. Finding common ground between frontline staff and the board of directors is thus part of the decision-

making process. Regarding this practice, the board of directors has voiced concerns that staff may sometimes be overly cautious in assessing risks, potentially hindering the organizational goal of rehabilitation. They argue that if risk aversion were the sole focus, this would be counterproductive in reaching the organizational goal of rehabilitation. Regarding the detained persons posing a risk to themselves, such as through drug use or attempts at self-harm, the board of directors emphasizes the importance of balancing the care of the detained person with the goal of rehabilitation.

The decision-making process is thus guided by estimating acceptable risks for each involved party. In the following vignette from case #2, the board of directors describes how they consider petty crimes to be an acceptable risk:

> *"Very often there is already a difference when we are talking about drug delinquents. Petty crime and so on. It's unpleasant, of course. But there's a margin of error" (Manager 4, case # 2).*

Practice 6b: Juxtaposing short- and long-term risk factors. In step 4, the treatment team and board of directors assessed which factors were protective and which were associated with risk as part of their overall risk assessment. When it comes to making decisions and taking action based on the risk assessment, the short- and long-term impacts of these factors come into play. For example, interviewees mentioned that decisions depend on whether the benefits of certain freedoms, like attending an external vocational training, outweigh their immediate risks, such as a lack of supervision. In other words, while these freedoms pose short-term risks, they might serve as long-term protective factors by contributing to the detained person's successful rehabilitation, for instance through attaining a degree or other educational qualifications. This aligns with the overarching goal of rehabilitation, where the highest form of reliability is reached when a detained person can reintegrate into society without posing any risk – i.e., minimizing the risk of re-offending.

In short, part of the decision-making process involves balancing these immediate risks against future benefits. In a few cases, I observed how the cantonal authorities focused more on the short-term risks, whereas the treatment team and board of directors advocated for rehabilitation, even if it meant accepting these risks. An example of this can be seen in the following vignette from case

#6, where the cantonal authorities wanted a detained person who had relapsed to quit his apprenticeship, but the treatment team and board of directors were convinced that the benefits of continuing the apprenticeship outweighed the risks:

> *"I know, yes – as the authorities said, he has relapsed. We were aware that there had been relapses. But then we worked with him. We didn't take it lightly, of course not, because relapse is also related to his offense. His offense was a massive violent crime – it was not peanuts. We took it seriously, but we also saw his progress. We've seen what the vocational training has sparked in him. He's doing an apprenticeship – it's not a prison job. He worked with adults" (Manager 5, case # 6).*

This practice ultimately boils down to the two conflicting organizational goals of rehabilitation and reliability. The board of directors strives to minimize risk for society, staff, and the detained persons while maximizing the detained person's chances of successful rehabilitation. Navigating this very fine line is a crucial aspect of the decision-making process. Accepting relapses and risks as part of the rehabilitation journey, Zelandia engages in continuous negotiations with cantonal authorities, whose focus is typically on reliability. Interviewees spoke about the outsider and insider perspectives and how these perspectives can sometimes clash. Interviewees also mentioned that they spend a lot of time with the detained persons, giving them a better understanding of the potential risks and their implications for decision-making. They pointed out, however, that this firsthand knowledge can be challenging to convey to those outside the organization, as illustrated in the following vignettes from cases #2 and #7:

> *"It's very difficult to understand for outsiders. It's hard to explain to them that the detained person failed to return to Zelandia at the agreed time four times but is still here [in Zelandia]. The thing is: it's a low-security facility, not a prison. […] A misstep is part of the process. With minor offenses, you simply have to be able to assess the risk – it can't result in victims or damage. (Manager 5, case # 2).*

> *"Of course, the authorities focus on minimizing risk for the population and for society. But I have the feeling that this sometimes clashes with the idea of rehabilitation. There is no such thing as zero risk – that's not possible because otherwise you'd have to keep people locked up forever. The focus in this facility is just a little bit different than theirs.*

It's not that we overlook the risk […], but we continue to do things that have a positive impact [on the detained person]" (Therapist 7, case # 7).

Practice 6c: Implementing measures to maintain reliability and, if possible, rehabilitation. A decision may be made that no immediate action is needed. However, measures are typically instituted to maintain reliability. If the decision is that the detained person can remain in Zelandia without being transferred to a more secure facility, the treatment team defines boundaries and potential red flags. The board of directors is very clear about boundaries and red flags, understanding that any incident resulting in a victim would be a breach of reliability and spell the end for Zelandia. The detained person must adhere to the bespoke rules established by the treatment team to avoid transfer to a more restrictive facility.

In the following vignette from case #4, the detained person showed inappropriate behavior towards female staff but was allowed to stay in Zelandia under strict behavioral guidelines tailored by the treatment team:

"We drew up a special agreement with him on how he has to behave in sociotherapy, including what he's no longer allowed to do. I think we specifically mentioned that he must avoid lingering in dark areas and must maintain enough distance to ensure propriety" (Manager 2, case #4).

Practice 6d: Considering whether the detained person can remain in Zelandia. Each incident that is deemed critical and associated with risk prompts the board of directors and the treatment team at Zelandia to reassess whether the detained person can continue to stay in the facility. Given Zelandia's low-security environment, detained persons enjoy a degree of freedom as part of their rehabilitation process. Such incidents serve as occasions to examine the detained persons' compatibility with Zelandia's level of freedom (e.g., whether they are a flight risk) and to assess their rehabilitation potential versus the need for a setting with a greater number of technical security measures.

In the following vignette from case #9, the detained person had a schizophrenic disorder. Because he could not handle the day-to-day responsibilities usually handed to the detained persons, it became clear he was not suitable for the facility. The situation underscored a crucial decision point: if a detained person is deemed unsuitable for Zelandia's rehabilitative approach due to an inability

to adapt or for other reasons, the board of directors must consider transferring the individual to a more suitable facility to uphold its commitment to reliability and safety.

> *"With him, of course, it was clear: he had the whole back story. But, hey, we were intent on giving it [rehabilitation] a try. Very quickly, however, we realized, and probably he personally did too, that it probably wasn't going to work here. This isn't the right place for him" (Therapist 9, case # 9).*

Intended contribution reliability

This step is focused on maintaining reliability while acknowledging that this does not equate to adopting a zero-risk policy. The approach after a critical incident does not default to confinement, particularly not in the maximum-security section of the facility. Instead, the board of directors and treatment team prioritize successful rehabilitation as the ultimate objective, recognizing it as the most effective strategy for ensuring long-term reliability.

Importantly, the decision-making process eschews a 'one size fits all' approach, focusing instead on achieving long-term rehabilitation goals. This involves managing short-term risks in a manner deemed acceptable for society, frontline staff, and the detained persons themselves.

4.4 Within-case analysis and consequences for reliability

In this section, I present my within-case analysis, focusing on the sensemaking process in four cases to answer the research question *How do high-reliability organizations make sense of critical incidents*? These four cases are so-called polar cases (Eisenhardt, 2021), whereby two cases have a high reliability outcome and two a low reliability outcome. I selected these cases due to their revelatory and indicative nature. For each case, I present the context and the overarching point of reference, followed by a case narrative that traverses the six steps of the sensemaking process. For each step, I place the observed practices in boldface type. Furthermore, I assessed reliability in three different ways: first, through staff reflections: interviewees retrospectively considered their actions, knowing the outcomes, and were asked if they would have done things differently. Second, I assessed reliability by examining the decisions made by the cantonal authorities, who bear political responsibility for the detained persons. These decisions often prioritized reliability. This sometimes led to interventions that overruled Zelandia's decisions, such as instances where authorities mandated the transfer of a detained person from an open residential unit to the closed residential

unit, against Zelandia's judgment. As was mentioned during interviews or in documents, instances like these were regarded by the cantonal authorities as signs of (potential) reliability breaches. Lastly, I assessed the consequences of the critical incidents, the subsequent sensemaking, and, ultimately, decision-making or organizational reliability based on Zelandia's ability to manage risk for the organization, society, frontline staff, and the detained persons. This analysis was enabled by the fact that the critical incidents in question occurred one to three years prior to data collection, allowing for an assessment of the long-term impact of decisions on reliability. This comprehensive understanding of context and outcomes facilitated an informed judgment on reliability.

4.4.1 High reliability cases

Hi1: Detained person discloses to have feelings for a female work pedagogue (case #1)

Context. Peter, a detained person convicted of sexual offenses who has been imprisoned for almost 10 years is undergoing court-ordered inpatient therapy. Peter is five months into his stay at Zelandia when the critical incident happens. He lived in the facility's open department and works in a workplace in the facility under the supervision of the female work pedagogue Carla, who has just started working at Zelandia and is new to the criminal justice system. Peter and Carla are roughly the same age and have maintained a functioning professional relationship up to this point.

*Critical incident***.** Peter requests a meeting with Carla. During the meeting, he discloses that he has developed feelings for her.

*Point of reference***.** Based on an **intensive review of Peter's file**, the treatment team has already established a **risk profile** for him. Peter is a sex offender who, according to his file, committed rape out of feelings of disappointment, rejection, and being unsatisfied within his relationship. For this reason, the treatment team and board of directors closely monitor his behavior around women. Rather than isolating Peter from women, however, the team views such interactions as both a rehabilitative step and an opportunity to observe and assess his behavior around women.

> *"When a man is detained here, he has a risk profile. Of course, situations will arise, and we stay on the lookout for them. We've taken calculated risks with individuals and then spoken with them afterwards: 'What were you feeling? How did you manage with it? Was it stressful for you?' This detained person is going to be dealing with women all his life, whether they are colleagues, customers, or neighbors" (Manager 5, case # 1).*

The **treatment team observed** that Peter is generally rather quiet and has adjusted well to life in a correctional facility.

Theme: criticality

Initial understanding. During her conversation with Peter, Carla does not feel threatened, attributing this to his non-threatening body language. Nonetheless, she promptly reports the interaction to a member of the board, recognizing the potential significance of Peter's admission:

> *"I was speaking with him, and he was transparent and revealed he had feelings for me. I didn't feel threatened because he just slumped in on himself and sat there in front of me like a heap of misery. But I knew I had to report it. Afterwards, I calmly told him that I had informed my superior about this. I also wasn't afraid to tell him this because, as I said, I didn't have the feeling that I was being physically threatened" (Therapist 2, case#1)*

The responsible sociotherapist is also quickly informed about the situation. He immediately assesses the incident as critical because feelings like these have no place in a professional relationship: falling in love with staff is a red flag. In fact, given Peter's **risk profile** as a sex offender, this situation is regarded as especially critical:

> *"With Peter, with his biography, it's something to keep track of. If he had been someone with a history of addiction, for whom relationships and sexuality were not a problem, we would have looked at it, too, but probably would have been able to resolve it more quickly. But in this case, it was more complicated because with him there was this history behind it" (Therapist 1, case # 1).*

Carla **reflects on her own emotions** by spending time alone, but also by talking about her thoughts and emotions with other female staff members.

> *"Yes, when I noticed I was feeling uncertain, having the feeling that perhaps personal aspects might be playing a role, I approached Helena [a female sociotherapist] because she is also a woman. Our supervisor is a man, and Helena offered a woman-to-woman conversation. That [approach] felt distinct and was quite important to me. Whenever I had*

> *the feeling that I was no longer being professional, when I felt insecure about it, I sought someone as a mirror" (Therapist 2, case #1).*

Seeking further information. To gauge whether there is an immediate risk to Carla, the treatment team **engages in conversations with Peter**, asking him if he feels jealousy, claims ownership of Carla, or wants a sexual relationship with her. The treatment team reports that Peter is calm and collected and aware of the consequences of the situation. He is also transparent about his emotions. To **contextualize the incident**, further inquiries with female staff are made, revealing no similar incidents and thus indicating no established pattern of such behavior from Peter.

Theme: risk

Shared understanding. After individual conversations with Peter, the members of the treatment team discuss and **triangulate their findings**. Through the discussions, held over multiple meetings, they reach a consensus that Peter's disclosures are genuine and consistent with their own observations of his conduct. His candidness in expressing his feelings is viewed as a good sign, leading them to **collectively frame the incident** as a sign of transparency:

> *"We gave Peter a lot of credit for making things transparent, and he did this precisely because it's relevant to his offense. He was genuine – he came across as genuine with all members of the treatment team. He also told all of us the same things, which allowed us to compare where he stands. From the beginning, he told each of us that I hadn't motivated him in any way – he made it very clear that he didn't believe I had given him a sign and that this really came from him. We gave him a lot of credit for his transparent disclosure. Also, he was aware that there might be consequences" (Therapist 2, case # 1).*

Risk assessment. The board of directors and treatment team conclude that there is no immediate danger, highlighting several **protective factors**: the availability of a security team within the facility, the high level of social control in Zelandia, Peter's transparency and cooperation in therapy regarding the incident, and his understanding that he will likely be imprisoned for life if he assaults a staff member. These protective factors, especially the cooperation and transparency, are deemed to outweigh the risk factors (i.e., Peter being a sex offender who has disclosed being in love with a female staff member). Consequently, what initially appeared to be a risk factor transforms into a protective factor by being interpreted as a testament to his progress:

> *"In this particular case, what stood out was that Peter voluntarily disclosed [his feelings]. That, of course, is a huge step forward for him, indicating that he's learned something. He was careful and showed respect. Thus, the danger for [Carla] is not as great as if he had not disclosed it – that is clear. It seems to me that [Peter] has made considerable therapeutic progress" (Manager 5, case # 1).*

Theme: reliability

Decision-making. Carla leads the decision-making process regarding the situation with Peter. However, the board of directors draws a line: Carla is prohibited from taking Peter on supervised work leave, which **the board of directors sees as an unacceptable risk for her**. Carla, on her part, feels there is no danger and she is confident that she can continue a professional relationship with Peter.

> *"We reached a consensus in the treatment team. The head of the work pedagogues assured me that I had the support of the board of directors, and that if I felt unable to maintain my professional role due to the situation, I would have the option to state that it wasn't feasible for me to continue working with Peter" (Therapist 2, case # 1).*

Ultimately, it was decided that Peter could continue working under Carla's supervision. Two **security measures** were established: they were prohibited from leaving Zelandia together on leave, and Carla was assured that should she ever feel uncomfortable while working with Peter, he would be reassigned to a different internal workplace.

Consequences for reliability. Carla's recent review of Peter's file equipped her with an up-to-date risk profile, enabling her to quickly and accurately assess the criticality of the situation. Peter's candidness about his feelings for Carla ensured that all three members of the treatment team had equal access to crucial information about his state of mind. This transparency facilitated an effective triangulation process, leading to a thorough risk assessment. The board of directors took Carla's emotions very seriously and factored these into the risk assessment and decision-making process without needing her to factualize her feelings. This approach led to a swift consensus between Carla and the board of directors, with Carla feeling supported by the board of

directors throughout the process. The cantonal authorities did not see a need to intervene, indicating their trust in Zelandia's handling of the situation. As of the time of writing, Carla and Peter continue to work together in a professional and effective manner, a dynamic observed by the author, with organizational reliability remaining high.

Hi2: During unsupervised leave, the detained person tries to lure away a woman (case #3).

Context. Daniel, a detained person convicted of sexual offenses and kidnapping, has been imprisoned for over a decade. He is undergoing court-ordered inpatient therapy and has been at Zelandia for seven years when the critical incident happens. Daniel is staying in the open department and is allowed to go occasionally on unsupervised leave.

Critical incident. A phone call comes in from a former detained person who wants to speak with Daniel. Daniel's sociotherapist, Claudia, takes the call and insists on the caller providing her with more information. The caller describes how Daniel tried to lure away his girlfriend by telling her he had drugs.

Point of reference. Because Daniel has spent a long time imprisoned, including time in facilities before entering Zelandia, there is a **large file base**. Moreover, because Daniel has already spent a relatively long time in Zelandia, the treatment team has had ample opportunity **observe his behavior** firsthand. Nevertheless, Daniel's persistent lack of transparency poses challenges: the treatment team reports that they never know what is really going on with Daniel and whether they can trust him, thus placing him firmly 'on the radar' for close monitoring.

> *"Daniel was always high on the radar, because of his personality and the cognitive skills he has, especially his rare talents. […] He has a huge amount of knowledge in certain areas, and also the ability to play detective – paying close attention, picking up scraps of words, reading facial impressions, sneaking around, and then using this to build his own picture and his own truth out of these scraps. And very often, he's right. That makes him very… yes, it makes him a little scary. The combination of his limitations, on the one hand, and his abilities on the other. Then there's the way he behaves with other detained persons and staff in Zelandia. It's borderline special behavior, and I can't really think of a comparison to anyone right now. Not even remotely. Sure, if you see the person and know his crime and know what the default is, you have to ask, 'How can anyone fall for that? How can you let someone approach you like that?' He tells you some story about the police and a bag of money and who knows what else. How does he manage that? He has a talent. Of*

> *course he knows that it's precisely this that makes him so dangerous – he knows exactly who it works and doesn't work with. That just makes him very, very, very, very, very special. This has always been difficult for me" (Manager 5, case # 3).*

Because of his previous offenses, which involved rather cruel sexual offenses, the treatment team, board of directors, and cantonal authorities are aware of Daniel's **negative potential** and the harm that would be done if he were to re-offend.

Theme: criticality

Initial understanding. Upon receiving the call, Claudia interprets the situation in **light of the point of reference** and immediately assesses the situation as critical, recognizing the similarities between the caller's story and Daniel's past offenses. She promptly informs the board of directors and the rest of the treatment team, who share her initial understanding due to the details of the accusations matching Daniel's previous patterns of behavior. The treatment team accepts the caller's story without skepticism given its detailed nature and the unlikelihood of the caller having such specific knowledge of Daniel's crimes otherwise. The treatment team is convinced that Daniel has not disclosed this many details about his offenses to other detained persons.

Seeking more information. Claudia attempts to obtain as much information as possible from the caller during their phone conversation. To rule out a personal vendetta between the caller and Daniel, the treatment team **contextualizes the incident** and reviews past records for any conflicts between the caller and Daniel but finds none. Three staff members, consisting of one therapist and two managers, then **approach Daniel for a conversation**.

They ask him questions without providing too much information to avoid coercing a confession and to allow him to volunteer information. Initially, Daniel admits to the actions described by the caller but later retracts his admission. Despite his retraction, staff remain skeptical because of his body language during the conversation and subsequent admission to the accusations during a phone call to his family, when he remarked, "I just wanted to try if this still works."

Theme: risk

Shared understanding. The treatment team, after consulting with all involved frontline staff and **triangulating their perspectives** along with Daniel's responses and demeanor during the conversation, swiftly concludes that the allegations made by the caller are credible and warrant serious attention. The treatment team **frames the incident** as premeditated, noting Daniel's awareness of

the possible consequences of this behavior, which in his case could be lifelong imprisonment. Moreover, given his years in therapy, the treatment team expects better judgment and behavior from Daniel, leading them to view the incident with concern for his future therapeutic progress.

> *"What Daniel did – it's such a red line for me that he crossed. I believe he could commit to never engaging with people from the drug scene again, as he leads a life separate from drugs. So I didn't really need any justification or explanation from him. The only [acceptable] thing would have been if she had initiated contact, perhaps asking for directions or money. And in that case, he would have had to employ his [coping] strategies – either walking away or aborting the interaction, whatever. He could have then returned to Zelandia and informed me, 'This woman asked me something'. But not the active part he pursued. It doesn't really matter what the reason is, his actions were unacceptable" (Manager 1, case # 3).*

Risk assessment. Because of the nature of Daniel's previous offenses, the treatment team and board of directors **assess the risk in light of his risk profile** as very high, especially given his awareness from years of therapy about the prohibition against engaging with addicted women.

> *"Daniel was clearly instructed not to approach people. He shouldn't approach women, but that's exactly what he did here. So of course all of our warning lights suddenly lit up" (Manager 5, case # 3).*

Even if only parts of the accusations are true, these are already considered highly critical by the treatment team and board of directors. Daniel's actions, in contradiction to clear instructions, are deemed a major **risk factor**. Additionally, the manner in which Zelandia was informed about the incident – through a call from a former detained person – casts doubt on Daniel's transparency, adding another layer of risk.

Theme: reliability

Decision making. The consensus among the board of directors and treatment teams is that **the risks for potential victims** (women in society) are unacceptably high.

> *"This was massively relevant to the crime [he had committed previously], so you have to intervene very quickly, because there could be a danger for women outside Zelandia" (Manager 2, case #3).*

The treatment team and board of directors are **unable to identify any protective factors**, leading to the conclusion that the only way to minimize risk is to transfer Daniel to a high security facility. He **is not deemed suitable** for Zelandia because he has still not been able to put the skills he has learned during many years of therapy into practice during unsupervised leave. Moreover, the incident makes it clear to the treatment team and board of directors how close Daniel is to offending again. As a result, the board of directors immediately places Daniel in Zelandia's maximum-security detention and requests his transfer to another high-security facility. The request is promptly granted by the cantonal case administration.

Consequences for reliability. The treatment team's deep familiarity with Daniel and his file enables immediate recognition of the criticality of the accusatory call that Claudia receives. A less informed staff member might not have responded as swiftly, according to interviewees, because the situation could have been misinterpreted as a quarrel between two detained persons. Claudia's informed response ensures a rapid series of actions towards maintaining organizational reliability: the questioning of Daniel, the triangulation of findings, and his confinement to the maximum-security department – all aimed at maintaining reliability for the organization and for society, leaving no room for further rehabilitation efforts, at least over the medium term and in Zelandia.

The critical incident highlights the real threat that Daniel poses to society, leading to decisive action from the treatment team and board of directors. The swift agreement from the cantonal authorities underscores the shared understanding of the risk assessment made by the treatment team and board of directors. The main reliability breach in this case of sensemaking is the critical incident itself, prompting reflection on the monitoring processes in place. Despite this, the treatment team expressed that, faced with similar circumstances, they would not have acted differently. The question remains: Does this incident represent a residual risk, or could it have been prevented? Three years later, Daniel is transferred back to Zelandia. According to several interviewees, he does not seem to have made any progress and still denies the incident happened, also in a conversation with me.

Conclusion high-reliability cases

In assessing risk, Zelandia differentiates between potential risks for society and those internal to the organization, such as risks for staff. Each risk is carefully considered, with decisions based on whether accepting a risk now will lead to more reliability in the future. Thus, Zelandia does not adhere to a zero-risk policy, despite social expectations. However, Zelandia draws a very clear line when it comes to the possibility that members of the public might be hurt by a detained person, as stated by a manager:

> *It's a lot easier to lock someone up. And if someone actually got hurt, it would be the end for our kind of facility. Society would simply not accept it. We are conscious of this, and we have a huge responsibility. This is not to be underestimated. The absolute disaster can't be allowed to happen"*

This risk assessment and trust are only possible if staff can genuinely come to understand the detained person, which in turn requires a degree of transparency from him. Zelandia prides itself on its humane treatment of detained persons, believing this approach improves reliability. Recognizing a detained person as a human being beyond his crimes and potential risks is crucial for this understanding. The risk assessment process at Zelandia is thus quite sophisticated, reflecting a consensus among interviewees that a 'one size fits all' approach is ineffective. Each incident is evaluated through the lens of everything the staff knows about the detained person in question. The sensemaking process therefore starts long before a critical incident happens, even before the detained person enters Zelandia. Indeed, the quality of sensemaking after a critical incident depends on the point of reference.

Achieving reliability is closely tied to the successful rehabilitation of the detained persons, which is anticipated in the form of an assessment of suitability for Zelandia. When a detained person is deemed unsuitable for Zelandia, this is typically because it is not possible to rehabilitate him due to factors such as psychiatric disorders, the legal context, or an inability to deal with the relative freedom of the facility. While the board of directors is committed to transferring those deemed unsuitable to more appropriate facilities, there are instances in which such detained persons remain in Zelandia, causing conflicts between staff and organizational goals, and thus leading to breakdowns in reliability.

4.4.2 Low reliability cases

Lo1: Detained person failed to return to Zelandia at the agreed time on multiple occasions (case #2)

Context. Mark has been detained in Zelandia for two years due to petty crimes, including theft, and is undergoing court-ordered therapy. Plans are underway for him to be extradited soon to his home country. Mark resides in the open department, but also partly lives outside Zelandia and attends an external vocational training. Over the past two years, Mark has failed to return to Zelandia at the agreed time twice.

Critical incident. Mark failed to return to the facility for the third time after attending his external vocational training.

Point of reference. Mark presents a complex case for the staff due to his highly traumatized childhood and exacerbated post-traumatic stress disorder (PTSD) due to addiction. Despite **his file showing difficulties** in the past, the treatment team reports a positive and transparent relationship with Mark. **Based on their own observations**, they describe him as intelligent, likable, and charming; the team wants him to succeed. His teachers commend his performance in vocational training and they praise his qualities in vocational training and work, but also his intelligence in general. The treatment team sees a huge **positive potential**. Because of Mark's upcoming extradition, the treatment team wants him to finish his vocational training to give him the best start in his home country. Thus, the highest priority for staff is for him to finish his education:

> *"If he could have finished the apprenticeship, he would have passed with flying colors. So at least he would have had an apprenticeship before being deported to his home country. That for me was really the highest goal" (Therapist 7, case # 2).*

Theme: criticality

Initial understanding. The treatment team's initial understanding of Mark's actions is limited because he only shares openly in psychotherapy sessions. **Given the nature of Mark's original offenses**, the psychotherapist does not immediately view the incident as critical:

> *"Due to his offenses over the past years, which involved a property offense, we estimated the danger to others to be rather lower. And the offenses in connection with aggression*

> *were somewhat further back. We didn't see it that way anymore. But of course you can also say that he committed road traffic offenses in the context of these property offenses and thus also endangered other people. For example, one involved driving under the influence of various substances and without a driver's license to escape the police" (Therapist 6, case #2).*

The sociotherapist notices the criticalness of the incident relatively late because there is no comprehensive information available for her to establish an individual understanding, despite regular discussions with the psychotherapist. The sociotherapist relies heavily on the psychotherapist's insights into Mark and his situation. In therapy, the psychotherapist explores Mark's challenges extensively, and she is aware that Mark has struggled in the past in less structured environments. Although she feels that living externally part of the time and visiting an external vocational training might be too demanding for him, the psychotherapist, reflecting on her initial understanding, chooses to remain hopeful about his progress:

> *"But, yes, I think it's helpful and beneficial in our work if we believe in the possibility of success, especially when we have such a complex, difficult file in front of us. If I had believed from the start that it wouldn't work, we wouldn't have put so much effort into trying" (Therapist 6, case #2).*

Seeking more information. By agreement with the treatment team, Mark is permitted to discuss his problems solely with the psychotherapist, as per his wish. The conversations cover his failures to return to Zelandia at the agreed time and his addiction, examining his behavior leading to these incidents. The treatment team feels that they have enough information because of the extensive file and information sharing among the team. However, there is a collective oversight in fully establishing an initial understanding and **contextualizing the incident**. This oversight appears to be due to the team's focus on Mark finishing his education, which inadvertently hinders their ability to make an adequate criticality assessment:

> *"Mark has said to me from the beginning that he doesn't want to talk about certain things in sociotherapy. He only does that with the psychotherapist during therapy. And he said the same thing to his work pedagogue. That's why I always had the feeling that I was not always fully informed, a least with hindsight. I just realized a little bit late that it could be*

critical. He told the psychotherapist that he had pressure from his addiction, but when he was with me, he always talked about different issues. And maybe I didn't ask enough with regard to the addiction pressure. We really wanted him to move on quickly with his education because we knew that he would be extradited. And we really wanted him to be able to finish his apprenticeship. That's why we, perhaps… Yes, he may have been a bit overwhelmed with his education and living externally" (Therapist 7, case #2).

Theme: risk

Shared understanding. The psychotherapist shares her interpretation of her therapy conversations with Mark with the treatment team. Because she is the only staff member with firsthand information, the team's shared understanding is predominantly based on her individual understanding, so a **triangulation of individual perspectives is not possible**. The treatment team is aware of their hopeful and optimistic stance, but they do not critically examine it. Instead, they deliberately **choose their framing of the incident** to be hopeful because it also gives them motivation to work hard and invest in their work with Mark. Mark is described as a person who has two sides: charming, but also elusive. He shuts the team out, making it hard for them to reach a comprehensive understanding of his behavior. According to the psychotherapist, Mark seems to know in theory how to live a good life, as evidenced by his ability to be reflective in therapy, but he has difficulties applying this in practice. Nevertheless, Mark's ability to reflect on this situation convinces the team.

The treatment team **recommends to the board of directors** that Mark should be given another chance, despite it being his third failure to return to Zelandia at the agreed time. In an interview, a member of the board of directors tells me that they would have given up on Mark earlier, but the team has convinced them to continue. The board of directors discusses whether the team's proximity to Mark, especially the sociotherapist's close relationship, is a problem. Members of the board exchange their viewpoints, but also with the sociotherapist:

"I exchanged ideas with [a board member], asking if the team is too close. And especially the [therapist], I asked her from time to time, and the [board member], 'Does she still have enough distance?' But again and again there was the confirmation that, no, it's really about Mark, with his mental disorder, and the future he has in front of him" (Manager 4, case #2).

Risk assessment. Mark's **risk profile** is dominated by the fact that he committed 'only' petty crimes, suggesting to the board of directors and treatment team that if he were to re-offend during a failure to return to Zelandia at the agreed time, this would again involve petty crimes:

> *"Very often there is already a difference when we are talking about drug delinquents. Petty crime and so on. It's unpleasant, of course. But there's a margin of error." (Manager 4, case # 2).*

The treatment team views Mark's education, particularly completing his degree, as a major **protective factor**, believing it will give him a head start in his home country. His network of friends is also regarded as a protective factor. While acknowledging the **risk** of another failure to return to Zelandia at the agreed time, the team considers the endeavor worthwhile and the risk-benefit ratio to be acceptable given that the main risk they see after a failure to return to Zelandia at the agreed time is the potential for drug use. The goal therefore is to reduce the risk of recidivism by focusing on Mark's strengths, primarily his success in vocational training. Their risk assessment is strongly influenced by the **legal context**, namely Mark's upcoming extradition.

Theme: reliability

Decision-making. The treatment team assesses the **risk to society** associated with Mark's potential failure to return to Zelandia at the agreed time as minimal because Mark does not have a history of harming others. They perceive the only danger to be the danger to himself, particularly through drug use. Given that his history involves only petty crimes, the team acknowledges a margin of error – a risk they are willing to accept, which they would not consider for individuals with more severe offenses, such as violent or sexual crimes. With their assessment that the risk to society is low and their placing high value on Mark completing his education, the treatment team deems the **protective factor** of his continued vocational training to **outweighs the risks**:

> *"Clearly we have assessed the risk of another failure to return to Zelandia at the agreed time. What is the alternative? The alternative is to lock him up. Is that an alternative that will help him move forward? No, because his therapy will end at some point. In other words, what else can we give him? And the risk if he fails to return to Zelandia at the agreed time is that he'll do drugs. That's the risk. Are we willing to take that? Yes, we are.*

> *The other thing is, of course, that we see a huge potential in this guy. It's worthwhile to continue working on it. There's no point in locking him up now – things would just go downhill. Then it will get even worse. That means we work with a maximum of trust. If we show him that [trust], something [positive] will be reciprocated. And indeed a lot was reciprocated. Yes, he failed to return to Zelandia at the agreed time four times, but he never posed a danger to society. The real risk was to himself because of the drugs" (Manager 5, case # 2).*

Because the perceived risk is solely to Mark himself (through drug use) and not towards others, the decision is made to allow him to return to the external vocational training.

Consequences for reliability. This case of sensemaking illustrates a failure to update the risk profile established as an initial point of reference. Because of this, the multiple failures to return to Zelandia at the agreed time do not alter the treatment team's approach to assessing risk. Mark has generally lacked transparency, but this issue intensifies after him not returning from the external vocational training for the third time. This is only recognized by the treatment team in retrospect, however, leading to erroneous triangulation. At the time, the treatment team considers Mark to be sufficiently open, believing they have adequate information. This perception could be viewed as strategic behavior by Mark to appear just transparent enough to convey a sense of transparency; such strategic behavior, if recognized, would be considered a risk factor.

Despite the psychotherapist's efforts to share her individual perspective with the rest of the team, the lack of different individual perspectives among the other treatment team members hinders effective triangulation, making effective criticality and risk assessments nearly impossible. The sociotherapist acknowledges in retrospect that she had underestimated the extent of Mark's struggle with addiction, which precipitated his failures to return to Zelandia at the agreed time.

After the third failure to return to Zelandia at the agreed time, the team acknowledges the possibility of further failures to return to Zelandia at the agreed time but chooses to remain hopeful and not question their optimism, valuing Mark's potential over the risk. The urgency to see Mark complete his education before extradition influences their risk assessment, leading them to accept the possibility of further failures to return to Zelandia at the agreed time and petty crimes, compromising reliability. Indeed, organizational reliability already appears compromised when Mark fails to return to Zelandia at the agreed time multiple times, yet the cantonal authorities, who tend to act conservatively in their risk management, support Zelandia in giving Mark another opportunity.

In the end, however, Mark fails to return to Zelandia at the agreed time for the fourth time. The board of directors concludes that Mark can no longer stay in Zelandia as his presence risks undermining the facility's credibility with other detained persons and the cantonal authorities.

Ultimately, the strength of Zelandia's sensemaking process – exchanging and triangulating individual perspectives to form a shared understanding – was not achieved in this case, resulting in a breach of reliability. He was pushed to finish his education despite not being ready, as was noted by the sociotherapist during her interview on this case.

Lo2: Detained person taking hard drugs for several weeks (case #6)

Context. Ivan has been in Zelandia for two years, first in the closed and then in the open department. He is working an external job. Ivan is undergoing court-ordered inpatient addiction treatment of limited duration. Whereas detained persons undergoing addiction treatment are usually those who have committed petty crimes, Ivan's background included serious assault, including against law enforcement, as well as a history of substance abuse and previous escapes from the facility.

*Critical incident***.** Ivan experiences a major relapse, resorting to the same hard drugs involved in his initial offenses over a period of many weeks.

*Point of reference***.** The **legal context** plays an important role in his file, with Ivan undergoing time-limited, court-ordered inpatient addiction treatment. Unlike most other detained persons with court-ordered therapy, Ivan will be released within the next few years. The goal is therefore rapid rehabilitation, focusing on external employment opportunities. Despite a proposal from cantonal case management to apply to the court to extend his therapy indefinitely, the treatment team and board of directors presume that the courts will not approve such a change.

Because the treatment team's **observations** diverge from the **risk profile** established by the authorities, the treatment team believes that Ivan poses no imminent risk of violence:

> *"He committed a violent crime, a serious one, but I never noticed this kind of behavior. Violence against people was never an issue" (Therapist 5, case #6).*

Frontline staff and the treatment team perceive Ivan as likable and open, excelling at his job, well-integrated into his team at work, and showing no aggression. This paints a positive picture for the team without any apparent danger signals.

Theme: criticality

Initial understanding. The treatment team estimates a high probability of relapse, considering it a natural part of recovery rather than an automatic risk. According to their **point of reference**, they do not view Ivan as a violence risk when he is under the influence of drugs.

> *"In his case, we never internally viewed him as an acute danger to others. Of course, we recognized that the risk definitely increases with mixed substance use – that the inhibition threshold decreases, certainly carrying a certain risk. But […] in the assessment, we have never found him to be aggressive or to engage in any form of physical violence, even under the influence of substances. Yes, we viewed his relapses as 'normal' consumption, but we did not perceive any massive danger to others." (Therapist 11, case # 6).*

Seeking more information. **The treatment team engages Ivan in discussions** about his thoughts and situation after the critical incident. His relative openness and the insights gained from therapy provided a clear picture of his mental state. Despite not being able to predict each relapse, the treatment teams can recognize early signs when Ivan is not doing well. Ivan's transparency is considered a positive sign and turns the relapse incidents into less critical events for the team:

> *"When Ivan becomes unstable, it usually manifests in his conversations. With him things can tip over very quickly. That doesn't always mean that a critical incident like a drug relapse is imminent. But with him, you can see relatively clearly how he's doing at any moment and if he's entering a critical phase because his emotional state can change very, very rapidly. Suddenly he'll think everything and everyone is stupid, and he'll feel like nothing works. And just as quickly, this can reverse, but there are [always] a few clues about where he's at right now and how stable he is right now" (Therapist 11, case # 6).*

The treatment team sees the relapses **in the context** of Ivan's addiction. Ivan being clean is not a prerequisite according to the treatment team; rather, they believe that relapses and rehabilitation (i.e., working an external job) can go hand in hand:

> *"It all happened in such a way that he was overwhelmed and afterwards he ended up using [drugs] again, which is actually something that is normal for someone who is so severely addicted. So you have to include relapses in your plan" (Therapist 5, case #6).*

Theme: risk

Shared understanding. **The treatment team triangulates their individual perspectives** through regular meetings, informing each other when they notice early cues of a possible relapse and discussing next steps. The treatment team and board of directors estimate the probability of relapses as high, and their **collective frame** is that relapses are to be expected and addiction treatment is not possible with excessive restrictions. Therapy is seen as the avenue for treating Ivan's addiction, with his external job acting as a rehabilitative tool alongside addressing relapses.

> *"We knew that there had been relapses, and when he had a relapse, we worked on that – we worked with him. We didn't take it lightly, of course, because doing drugs is also related to his offense" (Manager 5, case #6).*

Risk assessment. In line with their **shared understanding and point of reference**, the treatment team and board of directors are aware that Ivan committed his original offense under the influence of drugs, but they frame relapses as part of the recovery process. They consider the relapses both as **risk factors** and as areas for improvement, prioritizing Ivan's external job, which they consider a **protective factor**.

> *"A stable and satisfying work situation, the new acquaintances he's made and built up with normal people from outside, the learning process he's undergone along with young people in vocational training – these are all additional protective factors that have emerged. His personal situation has improved massively. He's not where he was before, where he took drugs and then it went bang. He also takes drugs now, but ultimately he's in a completely different place" (Manager 5, case #6).*

This focus is partly influenced by the **legal context**: Ivan will be released soon and thus the treatment team wants to move through the rehabilitation process quickly. They also feel that Ivan needs

the reward of being able to pursue a job for all of his hard work in therapy. They fear that a lack of incentives could lead to frustration and demotivation. Thus, maintaining his external job is seen as essential to keeping him engaged and motivated in his rehabilitation journey.

> *"Because the external job was actually where his soul was anyway, and we didn't know if we'd be able to motivate him to continue with this therapy without it or [if he would have] to stop [therapy] and simply serve the sentence. It would take a lot of motivational work. I also wondered, 'Is he doing something to himself? Is he giving himself up completely?" (Therapist 5, case # 6).*

Theme: reliability

Decision-making. The board of directors and treatment team conclude that the **risk to society** posed by Ivan's potential relapse is acceptable, terming it "residual risk". They believe that being overly restrictive with Ivan could pose a much greater long-term risk to society than the immediate concerns associated with his external employment and possible relapse. They view Ivan's success in his job and his socializing with colleagues from work (who are considered pro-social peers) as a **major protective factor**.

Being too restrictive could mean demotivating Ivan, potentially leading him to abandon therapy and his apprenticeship, which is seen as a risk. Given the timeframe for Ivan's release, this legal context strongly informs their decision-making. Despite his regular drug use, the treatment team considers Ivan to be doing well and thus **suitable for staying** in Zelandia as opposed to a more restrictive facility, noting his non-aggressive behavior even while using substances. This assessment suggests to them that drug use does not worsen his aggression, thus not heightening the risk of violent behavior during relapses.

However, cantonal case management express a desire to be more restrictive, emphasizing the severity of Ivan's offenses. The treatment team contends that neither Ivan nor the treatment team will benefit from such restrictions, arguing that Ivan's real-world experiences and occasional relapses provide valuable learning opportunities for him, more so than if here were 'locked up' in a higher security area or facility.

> *"'Because he's too dangerous,' the cantonal authorities said. 'The detained person and the drugs should not be allowed together – it doesn't work that way.' But we saw things*

> *differently. We knew that we had to be careful, that there was a potential for addiction, but we believed that over time we could really accomplish something with him" (Manager 5, case # 6).*

Ultimately, the board of directors and treatment team decide that Ivan can continue working in his external job.

Consequences for reliability. This case is an example of where Zelandia places more emphasis on protective factors, in contrast to the cantonal authorities, who focused more on the risks. Discrepancies arise between the treatment team and board of directors, on the one side, and cantonal authorities, on the other, regarding the evaluation of criticality and risk. The decisions are also strongly influenced by the legal context of the impending release date, with the treatment team eager to advance the rehabilitation process rather than regress due to relapses. In contrast, the cantonal authorities are skeptical of the court's decision for Ivan's forthcoming release, fearing he might pose a risk to society given his severe offenses, leading them to appeal the decision.

The treatment team and board of directors recognize Ivan's risk profile yet did not view relapse as a risk but rather as part of his recovery from addiction. Anticipating relapses, no member of the treatment team critically evaluates his risk of re-offending in relation to drugs. This collective bias towards rehabilitation at the expense of risk awareness compromises the organization's reliability. In their risk assessment, the treatment team and board of directors over-emphasize the protective factors (job and education) while underestimating the risk factors (drug-related offenses).

The cantonal authorities view Ivan's relapse as a major risk to society, especially since Ivan was under the influence of the same drugs during his original, highly violent offenses. Seeking advice from an advisory board, which concurred with their assessment, the cantonal authorities take the unusual step of intervening directly, mandating Ivan's transfer to Zelandia's closed department within Zelandia – a decision that the board of directors and treatment team view as potentially jeopardizing long-term reliability due to the risk of Ivan losing therapy motivation and self-drive.

A few months later, reflecting on the situation, some interviewees acknowledge that the intervention of the cantonal authorities was prudent. Ivan understood the consequences of his actions and maintained his motivation. Additionally, some interviewees questioned the pressure they had placed on Ivan to follow through with his external job, recognizing that he might not have been ready for such responsibility.

This case underscores the impact of time constraints on sensemaking, particularly due to the legal context surrounding Ivan's release. The quality of sensemaking, especially in risk assessment, diminishes under time pressure. Absent the constraint of an impending release, a more thorough risk assessment might have occurred, allowing more time for addressing Ivan's relapse without fast-tracking the rehabilitation process.

Conclusion low-reliability cases

The legal context can lead to discrepancies in the point of reference. When a detained person's release is imminent, Zelandia prioritizes a focus on rehabilitation. This focus can compromise the goal of reliability as the organization opts to accept greater short-term risks. The presence of an upcoming release date tends to overshadow short-term risks, with long-term benefits deemed more significant than the advantages of short-term reliability. Risk assessments are still conducted, and risks are assessed in a differentiated manner, but the threshold for accepting these risks is lowered.

When a detained person demonstrates significant strengths and capabilities, this can foster a collective framing of actionable hope among staff. The anticipation of a promising future and a potentially highly successful rehabilitation can shift the staff's focus more towards rehabilitation and away from reliability. Staff deliberately choose to focus on the detained person's strengths and capabilities, using them as a foundation for societal reintegration. This hopeful perspective predominates during the formation of a shared understanding.

While individual understanding may vary, the collective understanding that emerges during the sensemaking process can be strongly influenced by the potential for positive rehabilitation seen in the detained person's strengths and capabilities. The collective perspective can then shift away from the organizational goal of reliability. Furthermore, while having many skills may seem advantageous, it can become detrimental for a detained person if the treatment team pushes him too far because of these, potentially threatening organizational reliability. The optimism for a positive outcome can make it difficult for staff to critically evaluate the situation as they encounter cues of relapse or escape. Instead, they opt for an approach grounded in trust, hope, and optimism, driven by the promise of a successful rehabilitation. This focus on the potential for success might lead staff to overlook or dismiss warning signs, emphasizing the belief in the detained person's capacity for improvement.

In interviews, several staff members pointed out that highly skilled detained persons are outliers in an environment where daily successes are rare. This can lead staff to become overly enthusiastic

about the prospects of success. The board of directors' preference for swiftly moving from individual understandings to the triangulation process aims to ensure that all relevant information is shared promptly, considering unshared information a potential risk to reliability. While this approach is crucial for gathering rapid insights on the detained person, a rush to converge perspectives can sometimes hinders the exploration of diverse viewpoints.

During critical incidents, there appears to have been hardly any disagreements among staff. However, interviews reveal that staff members do hold differing views, particularly concerning fears associated with detained persons. The emphasis on rapidly converging or unifying the different perspectives into a single course of action may inadvertently suppress alternative views, posing a risk to the organization's reliability by neglecting valuable insights that deviate from the majority opinion.

Zelandia's focus on leveraging detained persons' strengths and capabilities can sometimes lead to conflicts not only between its dual goals of rehabilitation and reliability, but also with cantonal authorities. These authorities bear the ultimate responsibility and act as intermediaries to politicians and the broader society, which expects a very high level of reliability. Despite Zelandia's intentions towards reliability, their definition and approach to managing it do not always overlap with societal expectations. This misalignment is evident in their willingness to accept certain incidents and risks – a stance that the cantonal authorities are not always willing to endorse. Zelandia acknowledges the limits of the reliability it is able to offer, but this is a message that can be challenging to convey to the public, as noted by a board member of Zelandia in the following interview:

> *"But this is also a problem of responsibility. Zelandia offers a freedom of responsibility, with detained persons having to take responsibility for their actions. I don't think you can totally assume responsibility for other people. But how are you supposed to communicate that?"*

5 CHAPTER 5: THEORIZING

5.1 Overview

In the preceding chapter, which reported the results of my field analysis, I examined how a particular HRO made sense of critical incidents and explored the impact of sensemaking practices on its reliability. In the present chapter, I draw upon the results of my field analysis to answer the following research question: *How do high-reliability organizations make sense of critical incidents?* In doing so, I explore how the practices I observed might be applicable to other HROs. My aim is to develop theory inductively, providing a second-order abstraction from the first-order field analysis to answer the research question (Ketokivi & Mantere, 2010). This answer consists of two parts: First, it presents a conceptual model that details the routine sensemaking practices in response to critical incidents and can explain breakdowns in sensemaking. Second, it introduces a typology of four sensemaking approaches, which is based on the relational aspects of sensemaking and explains breakdowns in sensemaking as well.

At this point, it is helpful to recall some of the most important definitions I use in the empirical context of this dissertation. I have defined critical incidents as discrepant behavior that violates formal or informal norms and carries the risk of causing harm to oneself or others. In turn, I have defined sensemaking as the process through which people work to understand issues or events that are novel, ambiguous, confusing, or in some way violate expectations (Maitlis & Christianson, 2014). Furthermore, my research setting is an HRO, specifically a correctional facility, which I describe as a 'human-centered HRO'. I define a human-centered HRO as an HRO in which risks arise primarily from human interaction and the organization cannot solely rely on technical measures to ensure reliability. HRO theory suggests that reliability can also be achieved through human processes and relationships (e.g., Bigley & Roberts, 2001), an observation that would appear to pertain in particular to human-centered HROs, in which people and their relationships are indeed central to reliability. Unlike many HROs, which seek to avoid risks and incidents at all costs, human-centered HROs will occasionally accept risks in order to advance towards organizational goals other than reliability, such as the rehabilitation of detained persons. This approach can come at the cost of short-term organizational reliability. Examples of human-centered HROs are hospitals, asylums, and prisons or other correctional facilities.

All HROs strive to avoid disasters by managing risk in real-time (Hardy & Maguire, 2016). The manner in which an organization responds to potential risks highly influences its reliability. The

process of making sense of potential risks therefore provides valuable information on how an organization maintains reliability. In this section, I will elucidate how the process of sensemaking can contribute to reliable outcomes, especially for human-centered HROs.

5.2 Routinized sensemaking as a source of reliability

In Zelandia, reliability is achieved through routines and relationships. My analysis advances prior research on sensemaking in HROs by exploring the differences between ad-hoc and routinized sensemaking and demonstrating how relational dynamics can be a source of reliability. This section explores the paradox of routinized sensemaking: the ability to respond to unexpected events through routines. There are profound differences between the routinization of sensemaking and the routinization of critical incidents. While Zelandia expects critical incidents to occur, it neither normalizes them nor attempts to predict every one of them. Instead, Zelandia has developed routines to facilitate and structure the sensemaking process following a critical incident. This approach to routinizing sensemaking is a source of reliability because the routinization in question is a process dimension, not a routinization of the individual case. This routinization of the sensemaking process comprises the following elements: bounded reliability, preparedness, routines, and a lack of sensegiving. I will explain each of these below.

Bounded reliability. Zelandia acknowledges the boundaries of the reliability it can provide. This acknowledgement is no easy feat given political and societal expectations for HROs to operate without failures (LaPorte & Consolini, 1991). At the same time, being aware of the limits of its knowledge and abilities is in line with Weick and Sutcliffe's (2015) first principle of reliable organizing: preoccupation with failure. Accepting the boundaries of reliability that are inherent to achieving security through relationships (as opposed to solely relying on technical measures) helps Zelandia prepare for critical incidents. Indeed, this acknowledgment enables the practice of prospective sensemaking, improving reliability by allowing routines to be prepared before incidents happen, thereby increasing the likelihood that frontline sensemakers will detect early cues. Establishing a baseline and assessing potential outcomes, both negative and positive, exemplifies this prospective approach to sensemaking. Zelandia incorporates possible future scenarios and their consequences into its decision-making. A key characteristic of HROs is that they are very clear about which mistakes they do not want to make (Weick & Sutcliffe, 2015). In human-centered HROs, these would consist of decisions that would lead to someone being physically harmed. Human-centered HROs therefore actively consider the impact of their decisions on public safety.

Preparedness. Recognizing the inevitability of critical incidents while pursuing organizational goals can improve an organization's preparedness through the identification of blind spots. Despite thorough preparation, red lines are put in place, such as a zero-tolerance approach to societal risk, alongside efforts to minimize self-harm and harm to others within the organization. Preparedness fosters reliability by facilitating proactive conversations before incidents occur, establishing routines to respond when incidents happen, and enabling the assessment of criticality, risk, and subsequent action.

Routines. Although Weick (1993) and others (Bigley & Roberts, 2001; Bechky & Okhuysen, 2011) emphasize the importance of improvising or even bricolage, this can produce negative outcomes (Stockwell Shooting: Cornelissen et al, 2014). Zelandia, in contrast, relies heavily on routinized sensemaking in established forums, in which initial, individual perspectives on discrepant cues are triangulated in order to achieve a shared understanding. This type of routinized sensemaking contributes to reliability because it encourages perspectives to be challenged; moreover, through the triangulation process, a collective understanding is calibrated until saturation is achieved and a collective framing and risk assessment are established. Even when an incident comes as a surprise, the routines provide a framework for managing the risks with minimal dependence on individual creativity and improvisation and maximized reliance on established processes. However, the emphasis is on the highly routinized process of reaching a shared understanding among a team or teams of individuals in an organization rather than on the act of sensemaking by individuals themselves. Sensemaking involves professional judgment, but the process of triangulation and thus the deliberate omission of sensegiving in Zelandia set limits that prevent overreliance on any single member of the organization. Through triangulation, multiple professional insights are gathered and integrated into the decision-making process.

Lack of sensegiving. The swift transition from an initial to a shared understanding of the critical incident, encompassing all levels of hierarchy and involving many informed sensemakers, prevents any single 'sensemaker in chief' from monopolizing the interpretation of the incident. Triangulation ensures that all perspectives are taken into account. This approach improves reliability because it shifts the focus from the individual attributes of sensemakers to the ability of the collective to give meaning to and frame the incident.

5.3 Conceptual model

Having established that routinizing the sensemaking process is beneficial for maintaining organizational reliability, it is important to delineate what this process entails. Before doing so, however, I would like to emphasize that the conceptual model presented in this section is a product of my analysis and not an explicitly articulated process within Zelandia. Staff members at Zelandia might not explicitly recognize or articulate their sensemaking activities in the same terms described here. Instead, these sensemaking activities have naturally evolved in the organization over time, shaped by established policies and practices and culminating in a structured approach that facilitates rapid assessment and response to critical incidents.

In this model, sensemaking is guided by three themes: criticality, risk, and reliability. The sensemaking process starts with a discrepant cue and consists of five steps: initial understanding, contextualizing, triangulating, evaluating the risk, and decision-making. The first two steps comprise a criticality assessment to establish whether the discrepant cue represents a critical incident. If an incident is deemed critical, the third and fourth steps aim to assess the risks associated with it. The final step is a decision-making step whose aim is to maintain reliability.

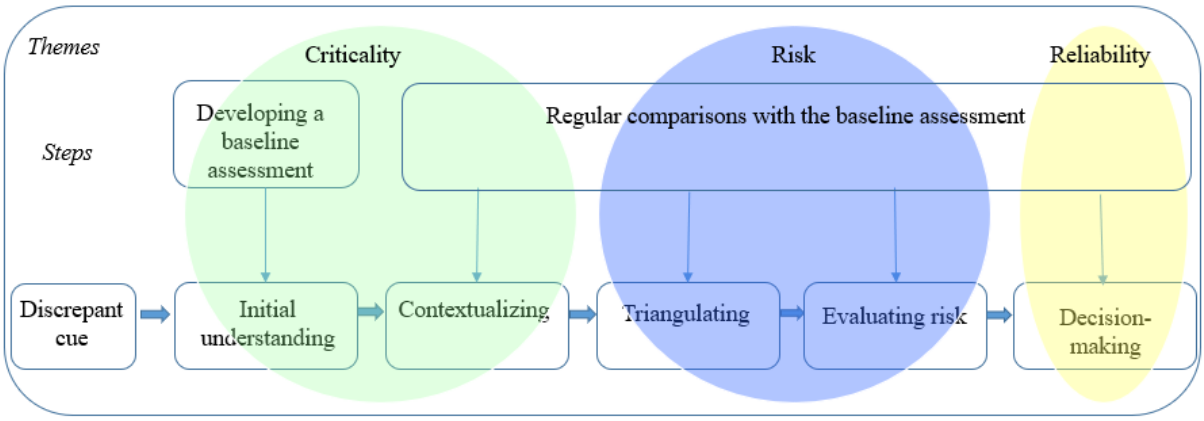


Figure 4: Conceptual model of the sensemaking process

A discrepant cue is a deviation from what is expected and often constitutes a violation of formal or informal norms. While most HROs have formal guidelines that define critical incidents, the dynamic and unpredictable nature of human behavior in a human-centered HRO such as a correctional facility makes it impossible to predict all potential critical incidents. As a result, the criticality of a situation typically depends on the specifics of the individual involved, necessitating a personalized baseline assessment for discerning discrepant cues.

The process of conducting and regularly referring back to this baseline assessment is crucial in this model. *Conducting a baseline assessment* requires integrating theoretical knowledge, file information, and direct experience with the individual involved. This creates a personalized framework of expectations, enabling organizational members to accurately interpret cues within the context of formal or informal organizational norms while considering the individual's unique background. Such a baseline ensures that cues are evaluated not just against generic standards, but also through a lens tailored to the individual involved. An accurate and detailed baseline assessment is thus instrumental in preventing the organization from chasing 'false positives' – situations that might trigger concern if they had been caused by others but are non-critical for the person in question – or in avoiding 'false negatives', where genuine critical incidents might be overlooked or inadequately addressed due to a mismatch with the individual's baseline assessment.

This step in the sensemaking process is both retrospective and prospective. Retrospectively, it involves reviewing existing information to identify potential risks. Prospectively, it involves examining and comparing possible scenarios based on the identified potential risks. Therefore, the organization's ability to recognize critical incidents as they unfold relies heavily on having a baseline assessment. This baseline informs every step of the sensemaking process, starting with the *initial understanding* that arises upon noticing a discrepant cue. This initial understanding is an initial attempt to grasp what is happening and is refined over time by examining the cue against the baseline assessment through observations and reflecting on one's initial understanding. The initial understanding is an individual process but is not limited to the person who noticed the discrepant cue. First, the organizational member who notices the cue forms his or her own understanding. Then, however, other members who were not present during the incident, and were thus unable to observe the cue directly, also develop an initial understanding based on the firsthand observer's insights. I refer to the latter as 'secondary sensemaking', where organizational members make sense of an incident based on others' sensemaking. The assessment of the criticality of a discrepant cue is informed by the baseline assessment, as part of which potential risks were identified. If there are similarities between the cue and the baseline assessment, the cue is more likely to be identified as critical, prompting the organizational member to seek additional information to complete the criticality assessment.

This additional information is gathered by *contextualizing* the incident with the aim of explaining and expanding the initial understanding. This elaboration of the initial understanding is highly influenced by the baseline assessment, which enables the incident to be viewed against the backdrop of any previous incidents associated with the individual. Seeking additional information may

involve questioning the person involved but may also require reviewing existing information, such as theoretical concepts or file data to consider the incident in the context of an individual's history. The transparency of the involved person is crucial for the criticality assessment; a lack of transparency raises the perceived criticality of the incident because it constitutes a gap in the sensemaking process. This is particularly true in a human-centered HRO, where the main source of information is the person involved in the critical incident. The process of contextualizing also marks the end of the individual aspect of sensemaking, transitioning the process to a purely social phase through the merging of individual perspectives.

Once the discrepant cue has been confirmed as a critical incident, organizational members share their initial understandings in a *triangulation* process. This process involves exchanging individual understandings in meetings to negotiate a shared understanding of the incident. These meetings vary from ad-hoc and informal to structured and routinized. Participants share and calibrate their understandings until they reach a shared understanding of the incident. Triangulation can be a long process of back and forth between several professional perspectives and hierarchies, and it takes a systematic approach to merging these different perspectives. It introduces a redundancy in human-centered HROs, a key characteristic of HRO according to Roberts (1990), by accumulating multiple processes of initial understanding. During triangulation, outliers are identified for potential exclusion or further investigation. Through this exchange of information, a collective framing of the critical incident is developed. Frontline sensemakers – those directly involved in the incidents – and decision-makers, who rely on the sensemaking of others for their own sensemaking, merge their perspectives. An initial risk assessment is then made, based on the shared understanding of the critical incident.

Before decision-making, organizational members conduct an *evaluation of the risk* based on their shared understanding of the critical incident. During this step, the severity of the incident is again evaluated against the backdrop of the baseline assessment. This means that risks that were identified in the baseline assessment and are related to the critical incident will significantly influence the risk assessment. Moreover, the baseline assessment, which is essentially an initial assessment of risk, must also be reconsidered in light of the new data presented by the incident. This step also involves weighing protective factors against risk factors. Protective factors can diminish the focus on risk factors or even compensate for them. A focus solely on reliability may diminish the consideration of how the protective factors mitigate risk factors. Moreover, the legal context, including the potential consequences for the organization of the assessed risks, its members, or beyond, is also considered as part of the risk assessment and highly informs the decision-making process.

As part of the *decision-making process***,** risk is assessed in a differentiated manner, aiming to balance organizational goals with varying levels of acceptable risk for different stakeholders. The process involves distinguishing between the risks to organizational members, the organization itself, society, and the non-organizational members who are in the care of the HROs. Decisions are informed by estimating the potential risk to each party involved, considering both short-term and long-term consequences. In other words, this approach incorporates the temporal dimension, distinguishing human-centered HROs from traditional ones by occasionally accepting short-term risks to mitigate longer-term risks.

5.3.1 Breakdowns in sensemaking

My model can explain breakdowns in sensemaking at a thematical level (criticality, risk, and reliability) and a process level (the steps in the model). At the thematical level, incorrect assessment of criticality can result in an organization failing to follow up on minor disruptions, leading these to escalate into more significant problems. Similarly, inaccurately accessing risk hampers the ability to see the consequences of actions taken, leading to flawed decision-making that can harm the organization, its members, and potentially others. I will now elaborate on the process level and illustrate sensemaking breakdowns with examples.

The theme of *criticality* comprises three steps: conducting a baseline assessment, reaching an initial understanding, and contextualizing the critical incident. The baseline assessment requires both theoretical (file-based) and practical (observational) knowledge. In human-centered HROs, individuals can be described as black boxes, with limited accessible information about their past behaviors and experiences prior to their interaction with the organization. Sometimes, direct observations are also scarce due to the person's lack of transparency or unwillingness to cooperate.

Initial understanding can be compromised by fear if organizational members fear personal repercussions from a critical incident, hindering the formation of a comprehensive initial understanding. Another breakdown could be the intentional dismissal of a cue as critical despite it fitting the baseline assessment, often due to other organizational priorities overshadowing the need to address the criticality of the cue. The *contextualizing* of a critical incident can be impaired when there is insufficient transparency from the involved person, leading to incomplete information for a comprehensive understanding. Documenting events can help mitigate this breakdown in the sensemaking process.

The *risk* theme involves the steps ‘triangulation’ and ‘risk assessment’, as well as regular references back to the baseline assessment. Bias may emerge if too few perspectives are available for triangulation, potentially leading to an incorrect perspective becoming the foundation for risk assessment and decision-making. A breakdown in the triangulation process can also arise from an inadequate initial understanding among organizational members. Without an initial understanding from all involved organizational members, triangulation cannot take place because it requires individual perspectives as a foundation. Moreover, triangulation may fail when organizational members cannot find common ground but insist on their own point of view instead. This issue usually arises from infrequent and unstructured triangulation efforts that depend too heavily on individual initiative. Another reason for not finding common ground may be the different lived experiences and emotions of frontline staff and management. The risk assessment step is particularly prone to breakdowns in sensemaking, chiefly through the overestimation of protective factors. While protective factors can sometimes offset risk factors, finding the right balance is challenging. An overfocus on protective factors can introduce bias, leading organizational members to underestimate the importance of risk factors. The presence of clear protective factors often leads organizational members to prioritize these over risk factors. Though a powerful source of day-to-day motivation, this optimism can ultimately cloud judgment and hinder a comprehensive evaluation of the risk situation.

The *reliability* theme comprises the decision-making step, as well as regular references back to the baseline assessment. A possible breakdown in sensemaking occurs when the risk is assessed correctly, but the consequences for the organization, its staff, or broader society are underestimated. The reliability of a human-centered HRO depends on a highly differentiated risk assessment. It becomes compromised when decisions made based on this assessment overlook the broader consequences of the risks they are willing to take. Although human-centered HROs are open to accepting some level of residual risk, they must exercise caution regarding their margin of error. These organizations aim for the long-term goal of contributing to a reliable society, but they sometimes do so at the expense of overlooking short-term risks. This breakdown can occur because human-centered HROs, rather than trying to avoid critical incidents at any cost, engage in short-term ‘reliability tests’ to avoid major incidents. These short-term tests have their own risks, however. If these risks are too large, reliability can be compromised. This underscores the key role played by the baseline assessment when estimating the margin of error. Decisions are more likely to improve reliability when they carefully consider the results of the baseline assessment.

5.3.2 Temporal aspects and reliability fluctuations

In their literature review, Sandberg and Tsoukas (2015: 22) note that "a large majority of sensemaking studies seem to have mainly investigated the interpretation process in sensemaking, rather than focusing on all three distinct sensemaking processes (creation, interpretation, and enactment) stipulated by [sensemaking]. There is therefore a need for sensemaking studies that focus more specifically on the creation process as well as the enactment process, but perhaps more importantly, studies that take into account all of the three processes when studying organizational sensemaking." My model addresses this research gap by covering all three processes: prospective (risk assessment and decision-making), interpretive (initial understanding, contextualizing, and triangulation), and retrospective (established baseline). Traditionally, sensemaking is viewed as retrospective (Weick, 1993), and while my model acknowledges this, it captures a forward-looking risk assessment that considers both short-term and long-term outcomes. This entails the organization making sense of what is happening now to establish a risk assessment of what could possibly happen in the future. This, in turn, is accomplished by analyzing current events in the context of past behaviors, thus integrating past, present, and future considerations into its sensemaking.

In the case of Zelandia, this process is crucial to meeting the goal of successful rehabilitation without societal risk: given a critical incident and the past experiences with the person involved, what can we say about the person's future behavior? Zelandia engages in daily assessments to inform decision-making, employing a future-oriented sensemaking strategy that reinterprets past events to construct a coherent vision of the future (Gephart et al., 2010). Critical incidents prompt organizational members to ask forward-looking questions, such as, "If this incident were to recur, what would the associated risk be?" and "Given that this critical incident has happened, what could happen in the future?" In a human-centered HRO, expectations serve as a baseline for prospective sensemaking, drawing on past behaviors to predict future actions.

My conceptual model takes prospective sensemaking into account: the baseline assessment draws upon information about past behavior, and the criticality assessment and the risk assessment inform decisions that include forecasts of future behavior. Incorporating possible future scenarios – and evaluating their consequences – into decision-making is essential, because these scenarios will significantly affect organizational reliability. My analysis temporally deconstructs the decision-making process, enriching our understanding of 'action' in the sensemaking process by elucidating the decision-making elements within it and detailing the decision-making steps integral to the sensemaking process.

Zelandia navigates the temporal dimension by conducting a highly differentiated risk assessment and sometimes allowing minor reliability deviations in the short term to improve reliability over the long term. This strategy allows for an overall improvement in reliability by making temporary concessions, thereby gaining insights into the behavior of individuals in the HRO through very careful exploratory risk-taking. This is in line with the findings of Roe et al. (2005) that a process need not be reliable at all times and, in fact, might need to fluctuate in order to produce a more reliable outcome. Nonetheless, the expectations placed on HROs are substantial, with both political and societal pressures demanding not only reliable outcomes but also reliable processes throughout.

In the process of accepting certain risks, the individual context and organizational goals are essential for estimating the acceptable margin of error. The individual context is established in the baseline assessment and guides decisions on the consequences of risks. When a decision is made to take a risk, security measures are implemented to maintain reliability. This process fosters an environment in which the organization and its members can pursue their goals, recognizing which risks are acceptable and which are not. Leadership in HROs typically prioritizes reliability, but achieving other organizational goals can sometimes require balancing risk minimization with these objectives. Thus, the most successful HROs are those that achieve all organizational goals, including reliability, through a highly differentiated risk assessment and decision-making process.

In Zelandia, reliability is not the only goal. Indeed, management and staff are not only preoccupied with avoiding failure but rather with managing critical incidents in order to increase their reliability goals. Often, non-reliability goals are best achieved in ways that are not consistent with operating to ensure the lowest level of risk at all times (Leveson, 2009). Reliability in this empirical context is thus a byproduct of reaching other organizational goals. In a human-centered HRO, employing more technology to achieve reliability is not possible because the other organizational goals can only be reached by allowing certain freedoms. Critical incidents are not planned, but they are recognized as a part of the process of avoiding larger future reliability breaches, as long as they cause no harm to others or persons in the care of the organization.

This approach mirrors the findings of Roe et al. (2005) in their study of an organization involved in large-scale water supply and power generation. This organization could only operate reliably by allowing and managing fluctuations (and thus also variation in reliability) within pre-specified bandwidths (Roe et al, 2005). This is in line with my findings that the rehabilitation process does not need to be reliable at all times to produce a reliable outcome. However, given the political and

societal scrutiny faced by HROs (LaPorte & Consolini, 1991), advocating for a correctional facility that incorporates reliability fluctuations as part of the rehabilitation process presents challenges. Governing bodies and external parties may not always agree with such an approach, leading to external interventions.

Early research on HROs focused on failure-free operations in hazardous contexts (e.g., Roberts, 1990; Weick & Roberts, 1993), and most studies since then have explored how to prevent disruptions rather than create them (Weick & Sutcliffe, 2015). However, more recent scholarship has shifted the focus towards organizations that, despite being expected to operate reliably, frequently encounter incidents (e.g., Müller-Seitz, 2014). These organizations manage uncertainty differently than those concerned with disaster prevention, representing an under-researched area in the HRO literature. In contrast to the original research on HROs, which defined reliability as stability and the presence of mechanisms designed to reduce variance, more recent scholarship argues that reliability requires continuous awareness and proactive work (Milosevic, 2018).

This approach to uncertainty, or 'reliability paradox' requires a different perspective on reliability that goes beyond the expectation of constant, failure-free operations. My analysis indicates that human-centered HROs facing frequent incidents adopt a differentiated approach by permitting short-term reliability fluctuations to improve both the organization's knowledge about the individuals in their care and the capabilities and development of these individuals. This strategy fosters tolerance and resilience towards incidents, thereby improving long-term reliability. These insights may not only apply to organizations traditionally considered HROs but may also benefit organizations outside this category, particularly those that have to deal with unexpected events (Waller & Roberts, 2003). By fostering purposeful relationships and allowing fluctuations in reliability, the sensemaking process in this particular type of organization may offer broader lessons for achieving organizational reliability.

5.3.3 Relational aspect of sensemaking

In human-centered HROs, critical incidents are sometimes part of the process. While reliability is crucial, it is not the only goal of such organizations. Often, goals unrelated to reliability are best achieved in ways that are not consistent with operating at the lowest level of risk (Leveson, 2009). In the empirical context of this dissertation, achieving reliability emerges as a byproduct of striving to meet another major organizational goal: rehabilitation. These organizations see themselves as rehabilitation institutions with extremely high reliability expectations.

This goal highly influences the process of sensemaking. Generally, disruptions in the expected flow of operations, when expectations and perceptions of the world diverge, prompt individuals to engage in sensemaking (Weick, Sutcliffe & Obstfeld, 2005). The aim of sensemaking in such cases is to understand the causes of the disruption and identify ways to resume the interrupted activity. If a critical incident interrupts the process aimed at reaching organizational goals, it represents a disruption that necessitates sensemaking focused on resuming and continuing the pursuit of these goals. In the empirical context of this dissertation, the sensemaking process is thus deeply influenced by the organizational goal of rehabilitation.

Routines and relationships can be a source of reliability but at the same time a source of reliability threats. Such threats can lead to breakdowns in sensemaking and, consequently, in organizational reliability. This duality highlights how delicate the sensemaking process is in human-centered HROs.

Relationships as a source of reliability. In human-centered HROs, risks stem from human interactions rather than technical failures. Due to the intentional lack of technological reliability measures, reliability is ensured through purposeful interpersonal relationships. In the case of Zelandia, the organization prides itself in its commitment to treating the persons within its care as human beings worthy of respect and considers these relationships a major piece of the reliability puzzle. Such an approach is instrumental for the organizational goal of rehabilitation, mirroring broader society, in which it is most likely personal relationships rather than technological interventions that will keep people from re-offending, whether these relationships be with family members, friends, or co-workers. The process of forming purposeful relationships consists of the following elements:

Caring; the human factor. Organizational members care about the people who are in their care. They view each of them not only as a source of risk but as another human being. This perspective fosters trust and establishes a foundation for relationships that, while asymmetrical and strictly professional, are imbued with a sense of equality rooted in shared humanity, regardless of a person's history or potential risk. This approach contributes to the organization's reliability by enabling a closeness and understanding that would be unattainable in the absence of the human factor and through a purely transactional approach.

Closeness to the people in the organization's care. Closeness allows organizational members to gain a more fundamental and comprehensive understanding of an individual's situation beyond

what could be gleaned from files or theoretical knowledge. This closeness allows for a more differentiated grasp of each case and facilitates recognition of even the most minor cues, enabling timely intervention to preempt more serious incidents.

Gathering information. Establishing purposeful relationships is fundamental for gaining access to individuals' emotions and thoughts, which are predictors of future critical incidents and valuable sources of information. A relationship needs to be built to foster transparency, without which the outcomes will be less reliable. Information from such relationships leads to reliability because it enables a more accurate risk assessment following critical incidents. The most important source of information is the individuals themselves, and their transparency requires a relationship.

Attentiveness. Closely observing the people in an organization's care and paying attention to their behavior is essential for identifying potentially discrepant behavior and detecting early cues. The ability to detect discrepant cues and make criticality assessments through knowledge of individuals increases with the quality of the relationships. This attentiveness leads to reliability because the detection of early cues is crucial in maintaining reliability. Detecting early or discrepant cues is highly person-specific: what can be a discrepant cue in one case can be harmless in another. Picking up on early cues requires both deep knowledge of each case and attentiveness.

5.4 Four types of sensemaking

My conceptual model indicates a consistent pattern in sensemaking following a critical incident, but the data also highlight variations. These variations are not necessarily dependent on the sensemaker; interviewees discussing different cases exhibited very different types of sensemaking depending on the case in question. Relational aspects, particularly the level of trust and expectations held towards the interviewees in the facility's care, provide insight into these different types of sensemaking. Trust is gauged by the belief in an individual's likelihood to exhibit compliant behavior, which is fostered through transparency. Openness about one's thoughts and feelings builds trust. Expectations refer to the degree to which a successful outcome is expected. This, in turn, depends on the perceived potential of the individuals, including factors like performance in school or a job. Table 7 shows the four different types of sensemaking.

Table 7: Four types of sensemaking and reliability.

Relationship \ Bias	*Low expectations*	*High expectations*
High trust	***Trusting*** **Characteristics** Trust and closeness as protective factor. **Reliability outcomes** Reliability depending on trust, failing when blind spots occur. Reliability through trust.	***Actionable hope*** **Characteristics** Focus on rehabilitation narrative, as well as on relationship and protective factors instead of risk factors. **Reliability outcomes** Critical incidents normalized as part of rehabilitation process. Unwillingness to reverse rehabilitation. Reliability through rehabilitation.
Low trust	***Detached*** **Characteristics** General focus on reliability, through control mechanisms. **Reliability outcomes** Incidents are more likely to be assessed as critical due to existing doubts, especially when rehabilitation seems hopeless (i.e. no potential). Reliability through control	***Single lane*** **Characteristics** Due to lack of 'sensemakers', depending on a single account of sensemaking in order to focus on rehabilitation. **Reliability outcomes** Less reliable outcome due to lack of triangulation. Reliability through perseverance and commitment to rehabilitation.

Expectations play a particularly large role in the four types of sensemaking. Sometimes the interruption of flow is used as an occasion to focus on the other organizational goal: reliability. When a person exhibits significant potential, critical incidents are often framed as 'learning opportunities' and 'part of the process'. This kind of sensemaking facilitates the continuation of the rehabilitation process. However, when a person shows very little potential, making a successful outcome appear unattainable, critical incidents are more likely to be framed as high-risk situations and sense is made in favor of the organizational goal of reliability. This bias in the sensemaking process towards either rehabilitation or reliability can be attributed to a difference in expectations. Sensemaking is triggered when the expected world and the perceived world are not the same (Weick, Sutcliffe & Obstfeld, 2005), underscoring that expectations not only initiate the sensemaking process but also continue to drive it as sense is being made.

Developing an initial, individual understanding of a critical incident is an integral part of sensemaking. Individuals often prefer narratives about rehabilitation, also because this is what motivates them to do their job. These expectations can be contagious, or as Weick, Sutcliffe, and Obstfeld point out, 'Situations are talked into being' (2005). As shown in my conceptual model, triangulation – reaching a shared understanding – is an important step in the sensemaking process.

In this step, a single persuasive narrative, especially one that invokes hope and presents a compelling path forward, can talk a situation into being. Voices that promote movement towards rehabilitation are likely to be heard. However, an overreliance on hope is a challenge for reliability. Unchecked optimism can lead to arrogance (Schulman, 1993) and provide a rationale for dismissing 'problematic' cues (Weick & Sutcliffe, 2003). Therefore, hope needs to be accompanied by skepticism, although this is a delicate balance to strike.

Divergent voices that highlight concerns about reliability, often using words like 'fear', are less likely to be heard because they do not facilitate progress. Indeed, a commitment to a particular course of action, followed by rationalizations for this commitment, can lead to the dismissal of dissonant cues (Weick & Sutcliffe, 2003). An overly strong or uncritical commitment to rehabilitation may thus overshadow or obscure cues relevant to reliability; such cues are interpreted through a rehabilitation lens rather than a reliability-focused rationale. The adopted frame substantially influences which aspects of a situation are noticed, affecting the processing and interpretation of information (Hahn et al, 2014), and thus the sensemaking process.

This commitment to a framework is solidified through episodes of collective sensemaking, namely communicative interactions (Cornelissen et al, 2014). My findings echo this previous work but also reveal a distinction: whereas Weick (1988) argues that expectations create blind spots, my findings indicate that expectations can lead to reliability issues rather than blind spots. Despite recognizing the latent risks surfaced by critical incidents, organizational members were driven by their rehabilitation-focused expectations, willing to accept these risks, and fully aware of their decision. This kind of sensemaking and its impact are highly dependent on the relational context: Who were they making sense of? In Zelandia, organizational members consciously chose their perspective, questioned it, and reflected on it with their peers and people outside of the organization. Nevertheless, they ultimately acknowledged the risk but sometimes chose to proceed, believing the potential benefits outweighed the dangers. Therefore, rather than producing blind spots, expectations led to reliability consequences because they painted a promising picture of successful rehabilitation and thus long-term reliability.

In *trustful sensemaking*, the process is characterized by a person's high transparency, which is considered a protective factor, yet is coupled with moderate or even low expectations due to a baseline assessment that highlights existing doubts. Nevertheless, the person's transparency allows organizational members to move forward with the rehabilitation process, relying on trust that the

person will act as promised. However, this approach can result in a reliability breakdown the moment the person deviates from their stated path. The absence of redundancy or verification measures creates vulnerabilities, potentially leading to blind spots.

Actionable hope is a type of sensemaking that occurs when both the expectations of a person the level of transparency from that person are high. Under this type of sensemaking, critical incidents are integrated into the rehabilitation process and thus normalized, with organizational members leaning towards giving individuals the benefit of the doubt. This prioritization of relationships over a constant focus on reliability aims to foster a positive outcome, helping the person advance in their rehabilitation journey. As a result, some risk factors might be consciously disregarded to highlight and further pursue protective factors. This approach posits that critical incidents are valuable learning opportunities and give the organizational members 'something to work with'. However, this type of sensemaking shows the influence of the baseline assessment on all steps of the sensemaking process and can cause bias. An overreliance on pre-existing knowledge and expectations can cloud judgment, potentially leading to reliability breakdowns. To describe this phenomenon using a metaphor: Organizational members put on 'glasses', viewing every situation through the lens of the baseline assessment, and fail to take them off until a third party steps in or the situation has gone too far. These 'glasses' can function both ways, amplifying efforts when a person shows a lot of potential, but leading to potentially excessive vigilance for evidence of unsuitability when a person shows very little potential.

The latter is a characteristic of *detached sensemaking*, which often prevails when there is minimal hope for successful rehabilitation and a relationship with the individual involved is lacking. This type of sensemaking predominantly focuses on reliability due to the apparent scarcity of protective factors. Low transparency increases perceived risks, with incidents more likely to be interpreted as critical, prompting a reassessment of a person's suitability to continue to be in the care of a given facility. This sensemaking leans towards documenting incidents as evidence of reliability risks, underscoring an approach that prioritizes reliability over rehabilitation.

Single-lane sensemaking is characterized by the dominance of a 'chief sensemaker', especially if he or she is optimistic about rehabilitation (i.e., reaching one of the two main organizational goals). In such cases, a strong relationship with just one organizational member can shift the focus of the organization towards rehabilitation. While outliers and dissenting voices may be acknowledged, they are not heeded to the extent they would be if the situation were reversed and they were calling for rehabilitation rather than reliability. Reliability relies heavily on the triangulation of individual

sensemaking perspectives, but when only one perspective is heard, the organization loses its ability for redundancy. Because different people see different things (Weick & Sutcliffe, 2015), reliance on a single perspective undermines this process, limiting the organization's ability to fully take advantage of its collective expertise and insight.

In all four types of sensemaking, expectations play an important role and shape the sensemaking process. In the case of Zelandia, expectations are based on the baseline assessment. The role of expectations has been extensively discussed in sensemaking research (e.g., Weick, Sutcliffe & Obstfeld, 2005). Unmet expectations often trigger the sensemaking process. Individuals seek information that will explain such discrepancies and enable them to resume the interrupted activity and maintain flow (Weick, Sutcliffe & Obstfeld, 2005). In this context, expectations are a 'mixed blessing', enabling the categorization and simplification of daily experience to provide a sense of control (Weick & Sutcliffe, 2015) while also setting the stage for potential blind spots in sensemaking due to oversimplification (Weick & Sutcliffe, 2015). When organizational members tend to prioritize expectations over accuracy in their sensemaking, this could potentially lead to lapses in reliability. Organizational members may adhere to narratives that align with their expectations and require no adjustment, leading them to interpret events accordingly.

In organizations in which critical incidents are often regarded as part of the process, reliability is especially endangered when expectations are high. Cornelissen et al. (2014: 728) showed how such framing "may escalate from being a provisional interpretation to a collectively held belief". When organizational members collectively frame a critical incident as not threatening to reliability, their perceptions of discrepant cues shift from being anchored in reality to being predominantly shaped by expectations. Maitlis and Sonenshein (2010: 564) caution that "expectations are sticky and this is where the danger lies". In everyday life in a correctional facility, where numerous incidents occur, expectations help organizational members deal with information overflow. However, striking a balance between interpreting incidents through expectancy frameworks and not overlooking critical cues is difficult. This difficulty is compounded in traditional HROs because trial-and-error learning is not feasible, leaving minimal feedback on sensemaking effectiveness.

When organizational members respond to a critical incident by imposing many restrictions, the focus is on reliability and no risks are taken. In contrast, when they focus on the rehabilitation process, the outcomes are sometimes positive and sometimes negative. The outcome in any particular case is further blurred by the influence of the person involved in the incident, leaving it ambiguous whether the reliability outcome is due to sensemaking or the attributes of the person

himself or herself. Although learning occurs at the case level after a critical incident, translating these insights to the organizational level are not always standard. Interviewees repeatedly noted the need to assess each case individually, avoiding a ‘one size fits all’ approach. While this makes them experts in case-based learning, it means that they potentially miss out on an opportunity for learning at the organizational level.

Expectations extend beyond the baseline assessment to include prospective sensemaking: What will this person be capable of in the future – successful rehabilitation, finishing education, or securing employment? This prospective sensemaking is thus highly influenced by the relational context – that is, the specifics of the individual about whom sense is being made. Sensemaking rarely happens in a vacuum (Balogun, 2015), underscoring the importance of the relational context, or contextual relationality, even in organizations not primarily focused on human-centered operations. Thus, threats to reliability can also stem from social dynamics, where the very processes intended to ensure organizational reliability can become multidimensional, capable of both mitigating risk and posing threats to reliability at the same time.

6 CHAPTER 6: DISCUSSION

The early scholarship on HROs focused on organizations operating in highly complex technological environments, and thus also on the reliability threats posed by hazardous technologies. More recent scholarship has broadened the scope of inquiry to include the study of non-technical reliability threats, such as disease outbreaks (Müller-Seitz, 2014), or the management of natural disasters by networks of HROs in public service delivery (Berthod et al, 2017). The connection between the concepts of reliability and sensemaking through the human factor, however, has remained under-researched. To help address this gap in the literature, I conducted an interpretative comparative case study (Gioia et al., 2013; Eisenhardt, 1989; 2021) to analyze sensemaking processes and practices at a low-security correctional facility, which has the dual goals of reliability and rehabilitation. Using an embedded case study design, I identified nine critical incidents in this organization, each of which was an exemplary and revelatory occasion for sensemaking.

As my fieldwork has demonstrated, this is a very specific type of HRO that is experienced in dealing with incidents. It relies on swift sensemaking to avoid short-term lapses in reliability but also to further its goal of rehabilitating the individuals within its care, and thus to ensure reliability for society over the long term. These dual goals create interesting and instructive tensions at the macro (societal), meso (organizational), and micro (staff/detained persons) levels, the study of which provides new insights into the research question: *How do HROs make sense of critical incidents*? In particular, the findings of my dissertation contribute to the literature by demonstrating that, in this human-centered HRO (and presumably in others similar to it), sense is not made in isolation, but rather highly depends on the people *with whom* one is involved in the sensemaking process and the people the sensemaking is *about*. Moreover, by unpacking the mundane sensemaking process following critical incidents in my within- and cross-case analysis, I developed an empirical model that shows how the sensemaking process follows the three themes of criticality assessment, risk assessment, and decision-making. In the model, I identified the steps for each theme and described practices for each step. In doing so, I identified not only a range of theoretical implications (the main focus of my dissertation) but also specific points of vulnerability in the process that might also have practical implications for human-centered HROs and other organizations seeking to improve their current practices.

In the following sections of this chapter, I will elaborate upon the theoretical and practical implications of my research in greater detail. I will discuss the theoretical implications of my findings first in light of the literature on sensemaking of critical incidents in HROs, and then focus on the

implications of my typology of sensemaking for the sensemaking literature more broadly and subsequently for the HRO literature. After this, I will discuss the main practical implications of my research. Lastly, I will conclude with some reflections on future research opportunities.

6.1 Sensemaking of critical incidents in HROs: theoretical implications

The conceptual model introduced in the preceding chapter forms the first part of my response to the research question: *How do HROs make sense of critical incidents*? This model delineates a routinized approach to sensemaking after such incidents. It illustrates how a discrepant cue is detected through a perceived discrepancy between established expectations (based on a predefined point of reference, such as a baseline assessment) and actual observations. Initially, the process involves determining the criticality of the discrepant cue. If it is deemed sufficiently critical, thus constituting a critical incident, an assessment of the associated risks is undertaken. Subsequently, a plan of action is formulated that, ideally, balances the organizational goal of reliability with other organizational goals, such as rehabilitation of the individuals in the organization's care.

A crucial step in the sensemaking process, as identified in my fieldwork, is the development of a range of initial and individual understandings of a critical incident, cultivated through self-reflection and joint reflection with peers. I observed, however, that individuals tend to articulate narratives that motivate them in their work, particularly those aligned with positive organizational goals, such as rehabilitation in this case. This bias towards favorable narratives of hope and progress, possibly serving as coping strategies, may stem from the knowledge that, in human-centered HROs, sense will need to be made on a daily basis, perhaps over the space of many years, of events that are novel, ambiguous, confusing, or in some other way violate expectations (Maitlis & Christianson, 2014: 57). I also observed that expectations related to these narratives can lead to a form of contagion, with situations being 'talked into being' (Weick, Sutcliffe & Obstfeld, 2005). This phenomenon underscores the importance of the triangulation step in my model, where, ideally, a broad range of individual understandings contribute to managing temptations to simplify (Weick & Sutcliffe, 2015: 17), leading to a shared understanding that balances conflicting organizational goals. Yet, in human-centered HROs, this step appears to be particularly susceptible to such contagion, with situations arising in which just one voice can dominate, especially if the situation being talked into being emphasizes concepts like hope and progress. However, the literature on the sensemaking of critical incidents shows that an overreliance on hope can undermine organizational reliability. Indeed, unchecked hope has been shown to lead potentially to arrogance (Schulman, 1993) and provide a rationale for dismissing problematic cues (Weick & Sutcliffe, 2015).

Therefore, my research highlights the need in human-centered HROs for coupling hope with skepticism, even if this is a delicate balance to strike.

In my fieldwork, I also found evidence of the flipside of the contagion phenomenon: divergent voices expressing concerns about reliability, often using words or concepts related to 'fear', were less likely to be acknowledged. This appears primarily to be due to such perspectives not aligning with the collective desire or organizational goal for progress. In my fieldwork, a pronounced emphasis on rehabilitation occasionally led to the dismissal of cues pertinent to reliability; these cues were interpreted through the lens of rehabilitation rather than reliability. This finding is consistent with Weick and Sutcliffe's (2015) observation that an overly strong commitment to a specific course of action and subsequent rationalizations for this commitment can lead to discrepant cues being ignored (Weick & Sutcliffe, 2015). The lens or interpretive framework adopted by individuals shapes their perceptions, leading to variations in the processing of information and interpretation of cues (Hahn et al, 2014), thus affecting the overall sensemaking process. This commitment to a framework is often reached through episodes of collective sensemaking, i.e., communicative interactions (Cornelissen et al, 2014), such as the triangulation step in my model. However, my research adds depth to existing theories by demonstrating that these frameworks and related expectations do not just create blind spots (Weick, 1998), but can also lead to broader organizational reliability issues.

6.2 A typology of sensemaking: implications

My typology of sensemaking forms the second part of my response to the research question: *How do HROs make sense of critical incidents*? Despite the routinized nature of sensemaking, my analysis identified four distinct types, each shaped by different relational dynamics related to varying levels of trust and expectations. Trust is fostered through transparency, whereas expectations pertain to the degree to which a successful outcome is expected. Trust is a prerequisite in sensemaking: in order to be able to make sense of someone's behavior and interpret cues derived from this behavior, a certain level of trust (achieved, for example, through transparency) needs to be established. However, trust is not only about transparency; it is about expectations as well. It is about trusting that another person will act as expected, which in this empirical context is a condition to move forward with the rehabilitation process. Human relations and human behavior are thus the key to reliability in human-centered HROs, but they are also a source of critical incidents. This makes social (rather than cognitive) sensemaking even more necessary.

My findings contribute to the sensemaking literature by illustrating how prior knowledge and experiences shape the process of sensemaking through expectations. In Zelandia, critical incidents involving detained persons with perceived high potential were often viewed as 'learning opportunities', facilitating the continuation of the rehabilitation process. However, when detained persons were perceived as having little potential, particularly when the prospects for rehabilitation appeared bleak, staff and management were more likely to interpret these incidents as high-risk situations, with their further sensemaking and decisions skewed towards the organizational goal of reliability. Thus, another dynamic alongside the general tendency to favor rehabilitation due to its motivational aspects is that of expectations. Indeed, my data suggest that expectations not only trigger the sensemaking process, as posited in much of the literature (e.g., Weick, Sutcliffe & Obstfeld, 2005) but also substantially guide its trajectory.

Expectations in sensemaking are intrinsically related to emotions, as noted by Weick, Sutcliffe, and Obstfeld (2005: 418): "Expectations hold people hostage to their relationships in the sense that each expectancy can be violated, and generates a discrepancy, an emotion, and a valanced interpretation". These dynamics have an impact on reliability in human-centered HROs because staff can have a tendency to make sense of situations more through the lens of their expectations than based on actual events. High expectations of a detained person can create a substantial gap between expected and observed outcomes during a critical incident, eliciting strong emotional responses, as interviewees indicated with phrases like 'feeling betrayed' and 'being disappointed'. To mitigate this discrepancy and manage negative emotions, staff may construct narratives centered on rehabilitation and focus on positive outcomes, even when these outcomes are uncertain. The concept of rehabilitation serves as a rationalization for critical incidents and a means to downplay threats to reliability, maintaining operational momentum. This approach is intertwined with expectations, emotions, work motivation, and organizational goals. Weick et al. (2005) have shown that our perceptions of our roles within an organization influence our actions and interpretations. My research extends these insights by demonstrating how expectations mediate the impact of organizational identity, including organizational goals, on the sensemaking process and, consequently, on reliability outcomes. The salience of a particular identity, whether it leans more towards rehabilitation or reliability, depends on these expectations and dictates the framework activated to make sense of critical incidents. Zelandia balances its two identities of rehabilitation and reliability by integrating them; the presence of one supports the essence of the other: *rehabilitation*

is reliability. This finding is in line with previous research on how HROs manage multiple identities (e.g., Pratt & Foreman, 2000; Vaz et al, 2023), suggesting that organizational members adapt their identities to specific contexts and situations (Vaz et al, 2023).

In human-centered HROs, people are working with people, which means that the process of sensemaking in these settings depends crucially on the expectations and perceptions individuals hold of one another. My findings suggest that the salience of organizations and, indeed, individual identities in these organizations is dynamic, adjusting according to the specific individuals involved in the interaction. For instance, engaging with one detained person might activate a rehabilitation-oriented framework, whereas engaging with another might activate a reliability framework. These results thus confirm and extend earlier work emphasizing the relational and interpretative contexts in which sensemaking takes place (Balogun, 2015).

6.3 Literature on High-reliability Organizations: implications

I add nuance to the HRO literature by focusing on a specific type of HRO – a human-centered HRO – in which reliability depends crucially on interactions with the people who can cause reliability breakdowns. Early research on reliability in HROs already established that technology failures are usually not the culprit when organizations fail to reach their reliability commitments (Vaughan, 1990). Yet, the response to technological failures often involves implementing more technology to enhance reliability rather than focusing on relational aspects. In their work on heedful performance, Weick and Roberts (1993) argued that the tight coupling in HROs is a social and not a technological matter; in these environments, social competencies are indispensable. More recent scholarship has focused on the interplay between organizational members and its impact on sensemaking and reliability (Blatt et al, 2006; Balogun, 2015).

My study extends these discussions by examining the dynamics between organizational members and the people in the care of the organization, who represent a distinct source of reliability threats. This angle is rarely discussed in the HRO literature, which has traditionally concentrated on threats stemming from hazardous technologies and environments rather than threats stemming solely from human actions. My findings underscore the importance of relationships in achieving organizational goals and thus their key role in effective sensemaking, as they can, ideally, ensure that early cues do not go unnoticed, thus leading to improved reliability. While high-security correctional facilities depend on technical measures such as advanced security systems to maintain reliability, low-security facilities depend on near-perfect risk assessment. The reliability goal is reached through

purposeful relationships. In the case of Zelandia, the organization prides itself on the relationships it builds with the detained persons and considers these to be a cornerstone of its reliability strategy, operating under the principle that social connections rather than technological measures are key to preventing re-offending. This also holds for the social connections the detained persons build with people outside the facility and after release, such as co-workers and family. The organization's culture fosters a sense of responsibility towards the people who are in its care, encouraging staff to look beyond their specific duties and consider the broader implications of their work. This approach is in line with Weick and Sutcliffe's (2015) concept of mindful and reliable organizing, where seeing the detained persons as human beings worthy of respect, rather than merely as sources of risk, is fundamental.

By maintaining professional yet humane relationships, organizational members can build trust and gain insights into subtle changes in behavior, crucial for picking up on early cues. This approach reflects both early theories (Weick & Roberts, 1993) and more recent research, such as Vaz et al.'s (2023) findings on the importance of a caring rather than controlling approach to safety. Lastly, the emphasis on prosocial motivation and caring interactions, as discussed by Vogus et al (2014) reinforces Zelandia's commitment to mindful organizing. This human-centered approach not only reflects Weick and Roberts' (1993) concept of heedful performance but, through my findings, also advances the existing literature on HROs by demonstrating the positive impact of staff engagement and empathy on rehabilitation and reliability outcomes.

6.4 Practical implications

In this section, I explore how organizations with similar characteristics to Zelandia, ranging from low-security correctional facilities to hospitals, police, and the military, can benefit from this research. I will begin with low-security correctional facilities. In environments that do not rely on technology for their security measures, purposeful relationships with the detained persons are key. The significance of relational context in the process of sensemaking, although not a novel concept in the literature (e.g., Balogun, 2015), is underscored by my findings. My research adds depth to the existing evidence, however, in that it shows that the sensemaking process is strongly influenced both by the individuals *with* whom you are doing the sensemaking and by those *about* whom you are sensemaking. Staff members of the organization under study take great pride in their empathetic approach towards detained persons, asserting that this empathy positively influences their sensemaking activities. They argue that staff who are more removed from direct interaction with

detained persons, such as cantonal case management, are less able to make sense of critical incidents because they do not see the *human factor* the way the members within the organization do. This means that recognizing another person as a human being and not reducing him to a source of risk allows a closeness to him. This closeness is a prerequisite for seeing all cues – not only the ones driven by risk, but also by potential. This leads to more comprehensive sensemaking, facilitating the organizational goals of both reliability and rehabilitation.

This finding is applicable to other human-centered HROs: the care and concern of organizational members for those they serve fundamentally shapes the sensemaking process, often aligning it more closely with the interests and welfare of the people within their care. Such an approach underscores a commitment to ensuring reliable outcomes for those affected, and ultimately for society as a whole. The organization under study has a routinized system in place that facilitates the merging of multiple sensemaking perspectives through the process of triangulating individual perspectives on critical incidents. The system acts as a safeguard, ensuring that if one aspect of reliability oversight falters, there is another line of defense. However, in instances where there are differences in sensemaking, the sensemaking perspective in favor of rehabilitation tends to prevail given that the organizational goal in low-security correctional facilities is that of rehabilitation. This finding reveals a potential weak spot in human-centered HROs, as an understanding of a situation that keeps things moving towards the main organization goal is most likely to be contagious (Weick, Sutcliffe & Obstfeld, 2005). This is particularly evident in cases in which organizational members are filled with hope regarding an expected positive outcome and this hope remains unquestioned by others in the triangulation process (Schulman, 1993). Reliability issues can arise in such situations because contagious hope shifts attention – and therefore also the processing of cues – to a potential positive outcome rather than reliability.

Larger correctional facilities and high-security institutions that rely more on technological solutions for security and prioritize the organizational goal of security over rehabilitation, can also benefit from this research. These facilities, despite their different operational focus, also encounter critical incidents that necessitate effective sensemaking. In particular, my findings on the advantages of routinizing the individual and social aspects of the sensemaking process present an important opportunity for enabling organizational reliability. Here, too, it is beneficial to bear in mind the observation that the routinization of sensemaking and the routinization of critical incidents are profoundly distinct. Indeed, the organization under study anticipates critical incidents but neither normalizes them nor tries to predict each one of them. This distinction between the

routinization of sensemaking versus the routinization of responses to incidents underlines the process-oriented nature of successful sensemaking in such settings. The conceptual model derived from this study highlights how routinized sensemaking processes can assist in dealing with unexpected events and disruptive information, building upon Schildt's (2020) insights into such processes and potentially serving as a template for other human-centered HROs looking to institutionalize sensemaking practices. Future research or even institutional audits could examine the extent to which these routines are embedded with organizational practices, considering the mix of structured procedures and individual initiative observed in my fieldwork.

Organizations in adjacent sectors, such as hospitals, police, and the military can benefit from this research, as can human-centered HROs more broadly. The ways in which HROs expand their knowledge remain underexplored (Milosevic, 2018). In this context, this organization under study approaches critical incidents as opportunities for learning, purposefully and continuously broadening their understanding of the detained individuals through the ongoing sensemaking of critical incidents, thereby seeking to avoid potential future larger reliability breaches. Nevertheless, this organization's learning is primarily individual-centric, with a lack of systematic translation of this knowledge into broader, organizational-wide learning that could apply across various critical incidents. During interviews, I asked each interviewee whether they relied on past experiences of other critical incidents when faced with a new one. Most responded in the negative, and while this seemed surprising at first, it became clear through further analysis that this was indicative of the importance they place on the uniqueness of each detained person and their efforts to avoid a 'one size fits all' approach in order to reduce bias. Despite this, their approach to sensemaking followed similar steps, as illustrated in the empirical model.

The uniqueness of each detained person and the lack of translating individual-centric learning to the organizational level also affect the reliability derived from purposeful relationships. The strength of the relationships between organizational members and detained persons is the personal engagement of these members, which becomes problematic in situations of high staff turnover. In such cases, the organization loses both knowledge and reliability due to the loss of these personal relationships. While the case- and person-specific approach offers valuable insights, it also highlights the need for broader organizational learning mechanisms. Future research could explore how organizations can institutionalize individual-centric learning from critical incidents at a more general level. This could involve integrating a feedback loop into the sensemaking process to support adaptive sensemaking, as explored by Strike and Rerup (2016), or employing after-action reviews to consolidate and share learning across the organization, as discussed by (Dunn, 2016).

6.5 Limitations and future research opportunities

Several opportunities for future research arise from this dissertation. I selected a single site to examine the sensemaking process following critical incidents. Despite this site being particularly revelatory, future research could investigate and compare sensemaking at multiple sites within this organizational type, as well as explore other kinds of human-centered HROs. Furthermore, this study was limited to nine cases of sensemaking due to practical and time constraints, and a larger dataset could provide a more comprehensive view of the sensemaking process. My research relied on interviews, document analysis, and observations. While the interviews and documents were directly related to each case of sensemaking, real-time observations were not possible due to the retrospective nature of the incidents. Future studies might benefit from an ethnographic approach to capture the details of active sensemaking, despite the challenges such an approach presents, including extensive time commitment and the low likelihood of observing a critical incident firsthand. Although the logistical and cost considerations may limit the feasibility of full-scale ethnographic studies, such an approach could offer important insights into the immediacy and dynamics of sensemaking as it unfolds following a critical incident. Lastly, the goal of this research was to develop theory inductively. The resulting model from this study could now benefit from validation through empirical testing in a quantitative research framework.

In summary, organizational reliability cannot be achieved through technological measures alone but requires organizational strategy and managerial efforts (Boin & Schulman, 2008). In the particular organization under study, reliance is placed not on technological design but on the commitment and care of its staff. These individuals are dedicated to taking care of those whom society often overlooks. While acknowledging the mistakes they absolutely do not want to make, the people working at this facility do not dwell on the worst-case scenarios. Instead, they have faith in the detained persons and believe in their ability to work with them. The lack of technological safety measures in this organization underscores the fact that its staff are the real safety net. Despite having so many things working against them, they persistently opt for hope, embodying mindful organizing as they strive to benefit others. Because they care.

APPENDIX A

Overview of literature in Chapter 2: Positioning.

1. Sensemaking

1.1 Sensemaking classics

Author(s)	Year	Journal	Title	Core tenet
Weick, K. E.	1988	Journal of Management Studies	Enacted Sensemaking in Crisis Situations	Action precedes cognition. How can I know what I think until I can see what I say?
Weick, K. E.	1990	Journal of Management	The Vulnerable System: An Analysis of the Tenerife Air Disaster	Pressure leads people to fall back on what they learned first and most fully.
Weick, K. E.	1993	Administrative Science Quarterly	The collapse of sensemaking in organizations: the Mann Gulch disaster	Reality is an ongoing accomplishment that emerges from efforts to create order and make retrospective sense of what occurs.
Weick, K. E.	1995	Book	Sensemaking in organizations	Seven properties of sensemaking
Maitlis. S.	2005	The Academy of Management Journal	The social processes of Organizational Sensemaking	Mundane sensemaking – sensemaking in everyday organizing.
Weick, K. E., Sutcliffe, K. M. & Obstfeld, D.	2005	Organization Science	Organizing and the process of Sensemaking.	Meanings materialize through language – "What's the story here?" And "now what should I do?"

1.2 Review of the sensemaking literature

Author(s)	Year	Journal	Title
Maitlis. S. & Christianson, M.	2014	Academy of Management Annals	Sensemaking in organizations: Taking stock and moving forward.

1.3 Recent sensemaking work

1.3.1 Recent sensemaking work focusing on thematic aspects

Author(s)	Year	Journal	Title	Thematic aspect (s)
Cornelissen, J. P., Mantere, S. & Vaara, E.	2014	Journal of Management Studies	The Contraction of Meaning: The Combined Effect of Communication, Emotions and Materiality on Sensemaking in the Stockwell shooting.	Emotion, materiality, use of cognitive frames
Heaphy, E.D.	2017	Academy of Management Journal	Dancing on hot coals: how emotion work facilitates collective sensemaking.	Emotion
Schabram, K. & Maitlis, S.	2017	Academy of Management Journal	Negotiating the challenges of a calling: emotion and enacted sensemaking in animal shelter work.	Emotion
Mikkelsen, E.N., Gray, B. & Petersen, A.	2020	Journal of Management Studies	Unconscious processes of organizing: intergroup conflict in mental health care.	Emotion
Dwyer, G., Hardy, C. & Tsoukas, H.	2023	Human Relations	Struggling to make sense of it all: the emotional process of sensemaking following an extreme incident.	Emotion
Hultin, L. & Mähring, M.	2017	Human Relations	How practice makes sense in healthcare operations: studying sensemaking as performative, material-discursive practice.	Materiality

Berthod, O. & Müller-Seitz, G.	2018	Journal of Management Inquiry	Making Sense in pitch darkness: an exploration of the sociomateriality of sensemaking in crises.	Socio-materiality
Steigenberger, N. & Lübcke, T.	2022	Organization Studies	Space and sensemaking in high reliability task contexts: insights from a maritime mass rescue exercise.	Space
Hahn, T., Preuss, L., Pinkse, J. & Figge, F.	2014	Academy of Management Review	Cognitive frames in corporate sustainability: managerial sensemaking with paradoxical and business case frames.	Use of cognitive frames
Christianson, M.	2019	Administrative Science Quarterly	More and Less Effective Updating: The Role of Trajectory Management in Making Sense Again.	Updating
Patriotta, G. & Gruber, D.A.	2015	Organization Science	Newsmaking and sensemaking: navigating temporal transitions between planned and unexpected events.	Time
Dahm, P.C., Kim, Y., Glomb, T.M. & Harrison, S.H.	2019	Academy of Management Journal	Identity affirmation as threat? Time bending sensemaking and the career and family identity patterns of early achievers.	Time
Schildt, H., Mantere, S. & Cornelissen, J.	2020	Organization Studies	Power in Sensemaking Processes.	Power
Vaara, E. & Whittle, A.	2022	Journal of Management Studies	Common sense, new sense or non-sense? A critical discursive perspective on power in collective sensemaking.	Power and discourse
Whittle, A., Vaara, E. & Maitlis, S.	2023	Journal of Management	The role of language in organizational sensemaking: an integrative theoretical framework and an agenda for future research.	Language

Reinecke, J. & Ansari, S.	2015	Organization Science	What is a fair price? Ethics as sensemaking	Ethics

1.3.2 Recent sensemaking work using sensemaking as an analytical lens to contribute to other literatures

Author(s)	**Year**	**Journal**	**Title**	**Contribution to other literature**
Hahn, T., Preuss, L., Pinkse, J. & Figge, F.	2014	Academy of Management Review	Cognitive frames in corporate sustainability: managerial sensemaking with paradoxical and business case frames.	Corporate sustainability
Aguinis, H. & Glavas, A.	2019	Journal of Management	On corporate social responsibility, sensemaking and the search for meaningfulness through work.	Corporate social responsibility
Ganzin, M., Islam, G. & Suddaby, R.	2020	Organization Studies	Spirituality and entrepreneurship: the role of magical thinking in future-oriented sensemaking.	Entrepreneurship
Rothausen, T. J., Henderson, K.E., Arnold, J.K. & Malshe, A.	2017	Journal of Management	Should I stay or should I go? Identity and well-being in sensemaking about retention and turnover.	Retention and turnover
Dahm, P.C., Kim, Y., Glomb, T.M. & Harrison, S.H.	2019	Academy of Management Journal	Identity affirmation as threat? Time bending sensemaking and the career and family identity patterns of early achievers.	Identity

Hay, G.J., Parker, S.K. & Luksyte, A.	2021	Human Relations	Making sense of organizational change failure: an identity lens.	Identity and organizational change
Stigliani, I. & Elsbach, K.D.	2018	Journal of Management Studies	Identity co-formation in an emerging industry: forging organizational distinctiveness and industry coherence through sensemaking and sensegiving.	Organizational identity
Crawford, W.S., Thompson, M.J. & Ashforth, B.E.	2019	Academy of Management Review	Work life events theory: making sense of shock events in dual earner couples.	Work-life events
Konlechner, S., Latzke, M., Güttel, W.H. & Höfferer, E.	2019	Human Relations	Prospective sensemaking frames and planned change interventions: a comparison of change trajectories in two hospital units.	Change
Balogun, J., Bartunek, J.M. & Do, B.	2015	Organization Science	Senior Managers' Sensemaking and Responses to Strategic Change.	Strategic change
Weissner, A.K.	2021	Journal of Management Studies	The role of substantive actions in sensemaking during strategic change.	Strategic change
Kornberger, M., Leixnering, S. & Meyer, R.E.	2019	Organization Studies	The logic of tact: how decisions happen in situations of crisis.	Decision-making

Parmar, B.	2014	Organization Studies	From intrapsychic moral awareness to the role of social disruptions, labeling, and actions in the emergence of social issues.	Ethical decision-making
Whittle, A., Mueller, F., Gilchrist, A. & Lenney, P.	2016	Organization Studies	Sensemaking, sense-censoring and strategic inaction: the discursive enactment of power and politics in a multinational corporation.	Power and politics
Shin, S.J., Yuan, F. & Zhou, J.	2017	Journal of Organizational Behavior	When perceived innovation job requirement increases employee initiative behavior: a sensemaking perspective.	Innovative behavior
Ng, K., Niven, K. & Hoel, H.	2020	Human Relations	I could help but…: a dynamic sensemaking model of workplace bullying bystanders.	Bystander behavior
Van das Giessen, M., Langenbusch, C., Jacobs, G. & Cornelissen, J.	2022	Human Relations	Collective sensemaking in the local response to a grand challenge: recovery, alleviation and change oriented responses to a refugee crisis.	Grand challenges
Schembera, S., Haack, P. & Scherer, A.G.	2023	Organization Science	From compliance to progress: A sensemaking perspective on the governance of corruption.	Corruption

1.3.3 Recent sensemaking work identifying different types of sensemaking

Author(s)	Year	Journal	Title	Type of sensemaking
Cornelissen, J. P., Mantere, S. & Vaara, E.	2014	Journal of Management Studies	The Contraction of Meaning: The Combined Effect of Communication, Emotions and Materiality on Sensemaking in the Stockwell shooting.	Sensegiving
Strike, V.M. & Rerup, C.	2014	Academy of Management Journal	Mediated Sensemaking.	Sensegiving, mediated sensemaking and adaptive sensemaking
Heaphy, E.D.	2017	Academy of Management Journal	Dancing on hot coals: how emotion work facilitates collective sensemaking.	Sensegiving
Stigliani, I. & Elsbach, K.D.	2018	Journal of Management Studies	Identity co-formation in an emerging industry: forging organizational distinctiveness and industry coherence through sensemaking and sensegiving.	Sensegiving
Weissner, A.K.	2021	Journal of Management Studies	The role of substantive actions in sensemaking during strategic change.	Sensegiving
Schabram, K. & Maitlis, S.	2017	Academy of Management Journal	Negotiating the challenges of a calling: emotion and enacted sensemaking in animal shelter work.	Enacted sensemaking
Kutscher & Mayrhofer	2023	Organization Studies	Mind the setback! Enacted sensemaking in young workers' early career transitions.	Enacted sensemaking
De Rond, M., Holeman, I.	2019	Academy of Management Journal	Sensemaking from the body: an enactive ethnography of rowing the Amazon.	Embodied sensemaking

& Howard-Grenville, J.				
Kornberger, M., Leixnering, S. & Meyer, R.E.	2019	Organization Studies	The logic of tact: how decisions happen in situations of crisis.	Embodied sensemaking
Meziani, N. & Cabantous, L.	2020	Journal of Management Studies	Acting intuition into sense: how film crews make sense with embodied ways of knowing.	Embodied sensemaking
Van der Giessen, M., Langenbusch, C., Jacobs, G. & Cornelissen, J.	2022	Human Relations	Collective sensemaking in the local response to a grand challenge: recovery, alleviation and change oriented responses to a refugee crisis.	Collective sensemaking
Höllerer, M., Jancsary, D. & Grafström, M.	2018	Organization Studies	A picture is worth a thousand words: multimodal sensemaking of the global financial crisis.	Environmental sensemaking
Klarin, A. & Sharmely, R.	2021	Journal of Management Inquiry	Strategic sensemaking and political connections in unstable institutional contexts.	Strategic sensemaking
Balogun, J., Bartunek, J.M. & Do, B.	2015	Organization Science	Senior Managers' Sensemaking and Responses to Strategic Change.	Relational sensemaking
Konlechner, S., Latzke, M., Güttel, W.H. & Höfferer, E.	2019	Human Relations	Prospective sensemaking frames and planned change interventions: a comparison of change trajectories in two hospital units.	Prospective sensemaking

Dwyer, G., Hardy, C. & Maguire, S.	2021	Organization Studies	Post-inquiry sensemaking: the case of the Black Saturday bus fires.	Prospective sensemaking and post-inquiry sensemaking
Ganzin, M., Islam, G. & Suddaby, R.	2020	Organization Studies	Spirituality and entrepreneurship: the role of magical thinking in future-oriented sensemaking.	Prospective sensemaking
Mueller, F., Whittle, A. & Addison, S.	2023	Human Relations	Official truth, applied deconstruction and post-inquiry sensemaking in the Mull of Kintyre helicopter crash.	Post-inquiry sensemaking
Dwyer, G., Hardy, C. & Tsoukas, H.	2023	Human Relations	Struggling to make sense of it all: the emotional process of sensemaking following an extreme incident.	Post-incident sensemaking
Gover, L. & Duxbury, L.	2018	Journal of Organizational Behavior	Making sense of organizational change: Is hindsight really 20/20?	Retrospective sensemaking

2. High Reliability Organizations

2.1 Normal Accident Theory and early work on High Reliability Organizations

Author(s)	**Year**	**Journal**	**Title**	**Core tenet**
Perrow, C.	1984	Book	Normal Accidents. Living with high risk technologies.	Due to tight coupling and high-risk technology, accidents are bound to happen.
Roberts, K.H.	1990	Organization Science	Some characteristics of one type of HRO.	Initiating a strand of the literature dedicated to organizations that maintain error-free operations in circumstances where errors are to be expected.

LaPorte, T.R. & Consolini, P.M.	1991	Journal of Public Administration Research and Theory	Working in practice but not in theory: theoretical challenges of high reliability organizations.	HROs are under intense public scrutiny due to the severe consequences of organizational failure, with expectations of failure-free performance from both the public and political spheres.
Weick, K.E. & Roberts, K.H.	1993	Administrative Science Quarterly	Collective mind in organizations: heedful interrelating on flight decks.	Introduced the concepts of 'collective mind' and 'heedful interrelating' as an antecedent to HROs.
Bierly, P.E. & Spender, J.C.	1995	Journal of Management	Culture and HRO: the case of the nuclear submarine.	HROs prioritize reliability above profit and other organizational goals.

2.2 Seminal book Weick and Sutcliffe on 5 principles of High Reliability Organizations

Author(s)	**Year**	**Title**
Weick, K. E. & Sutcliffe, K. M.	2001	Managing the unexpected.

2.3 Recent work on High Reliability Organizations

Author(s)	**Year**	**Journal**	**Title**	**Organizing for reliability: Focus**
Madsen, P., Desai, V., Roberts, K. & Wong, D.	2006	Organization Science	Mitigating hazards through continuing design: the birth and evolution of a pediatric intensive care unit.	Practices

Roth, E.M., Multer, J. & Raslear, T.	2006	Organization Studies	Shared situation awareness as a contributor to high reliability performance in railroad operations	Practices
Madsen, P.M.	2009	Organization Science	These lives will not be lost in vain: organizational learning from disaster in us coal mining	Practices
Dunn, A.M., Scott, C., Allen, J.A. & Bonilla, D.	2016	Human Relations	Quantity and quality: increasing safety norms through after action reviews	Practices
Roe, E. Schulman, P., Van Eeten, M. & De Bruijne, M.	2005	Journal of Public Administration Research and Theory	High reliability bandwidth management in large technological systems: findings and implications of two case studies	Context
Busby, J.S.	2006	Journal of Management Studies	Failure to mobilize in reliability seeking organizations: two cases from the UK railway	Context and outcome
Waller, M.J. & Roberts, K.H.	2003	Journal of Organizational Behavior	HRO and org behavior: finally the twain must meet	Context
Müller-Seitz, G.	2014	Journal of Management Inquiry	Practicing Uncertainty in the Face of Large-Scale Disease Outbreaks	Context
Vogus, T.J. & Welbourne, T.M.	2003	Journal of Organizational Behavior	Structuring for high reliability: HR practices and mindful process in reliability seeking organizations	Context
Vogus, T.J., Rothman, N.B., Sutcliffe, K.M. & Weick, K.E.	2014	Journal of Organizational Behavior	The affective foundations of high reliability organizing	Cognitive dimension
Steigenberger, N. & Lübke, T	2022	Organization Studies	Space and sensemaking in high reliability task contexts: insights	Cognitive dimension

			from a maritime mass rescue exercise	
Beck, T.E. & Plowman, D.A.	2014	Organization Science	Temporary, emergent interorganizational collaboration in unexpected circumstances: A study of the Columbia space shuttle response effort	Cognitive dimension
Burtscher, M.J., Meyer, B., Jonas, K., Feese, S. & Tröster, G.	2018	Journal of Organizational Behavior	A time to trust? The buffering effect of trust and its temporal variations in the context of high-reliability teams	Cognitive dimension
Colquitt, J.A., LePine, J.A., Zapata, C.P. & Wild, R.E.	2011	Academy of Management Journal	Trust in typical and high reliability contexts: building and reacting to trust among firefighters	Cognitive dimension
Kalkman, J.P.	2023	Journal of Management Inquiry	Mindful members: developing a mindset for reliable performance in extreme contexts	Cognitive dimension
Vaz, S.L., Maia, G.X., Nelson, R.E. & Henriqson, E.	2023	Journal of Management Inquiry	Multiple identities in high reliability organizations: a case study	Cognitive dimension
Ramanujam, R. & Goodman, P.S.	2003	Journal of Organizational Behavior	Latent errors and adverse organizational consequences: a conceptualization	Outcome
Barton, M.A. & Sutcliffe, K.M.	2009	Human Relations	Overcoming dysfunctional momentum: organizational safety as a social achievement	Outcome
Boin, A. & Schulman, P.	2008	Public Administration Review	Assessing NASA's Safety Culture: The Limits and Possibilities of High-Reliability Theory	Outcome
Dunbar, R.L.M. & Garud, R.	2009	Organization Studies	Distributed Knowledge and Indeterminate Meaning: The Case of the Columbia Shuttle Flight.	Outcome

Milosevic, I., Bass, A.E. & Combs, G.M.	2018	Journal of Management	the paradox of knowledge creation in a high-reliability organization: a case study	Way forward
Zohar, D. & Luria, G.	2003	Journal of Organizational Behavior	Organizational meta-scripts as a source of high reliability: the case of an army armored brigade	Way forward

3. Critical incidents: occasions for sensemaking

3.1 Reliability failures

Author(s)	**Year**	**Journal**	**Title**	**Occasion for sensemaking**
Nowell, B. & Steelman, T.	2015	Journal of Public Administration Research & Theory	Communication under Fire: The Role of Embeddedness in the Emergence and Efficacy of Disaster Response Communication Networks.	Crisis and disaster
Kornberger, M., Leixnering, S. & Meyer, R.E.	2019	Organization Studies	The logic of tact: how decisions happen in situations of crisis.	Crisis and disaster
Maitlis, S. & Sonenshein, S.	2010	Journal of Management Studies	Sensemaking in Crisis and Change: Inspiration and Insights from Weick (1988)	Crisis and disaster
Weick, K. E.	1988	Journal of Management Studies	Enacted Sensemaking in Crisis Situations	Crisis and disaster
Weick, K. E.	1990	Journal of Management	The Vulnerable System: An Analysis of the Tenerife Air Disaster	Crisis and disaster

Weick, K. E.	1993	Administrative Science Quarterly	The collapse of sensemaking in organizations: the Mann Gulch disaster	Crisis and disaster
Dunn, A.M., Scott, C., Allen, J.A. & Bonilla, D.	2016	Human Relations	Quantity and quality: increasing safety norms through after action reviews	Fatal incident
Dunbar, R.L.M. & Garud, R.	2009	Organization Studies	Distributed Knowledge and Indeterminate Meaning: The Case of the Columbia Shuttle Flight.	Fatal incident
Boin, A. & Schulman, P.	2008	Public Administration Review	Assessing NASA's Safety Culture: The Limits and Possibilities of High-Reliability Theory	Fatal incident
Vaughan, D.	1990	Administrative Science Quarterly	Autonomy, interdependence, and Social Control: NASA and the Space Shuttle Challenger	Fatal incident
Cornelissen, J. P., Mantere, S. & Vaara, E.	2014	Journal of Management Studies	The Contraction of Meaning: The Combined Effect of Communication, Emotions and Materiality on Sensemaking in the Stockwell shooting.	Fatal incident

3.2 Reliability threats

Author(s)	**Year**	**Journal**	**Title**	**Occasion for sensemaking**
Morris, M.W.; & Moore, P.C.	2000	Administrative Science Quarterly	The Lessons we (don't) learn: Counterfactual Thinking and Organizational Accountability after a Close Call	Error and near-incident
Zhao, B. & Olivera, F.	2006:	Academy of Management Review	Error Reporting in Organizations.	Error and near-incident

Blatt, R., Christianson, M.K., Sutcliffe, K.M. & Rosenthal, M.M.	2006	Journal of Organizational Behavior	A Sensemaking Lens on Reliability	Error and near-incident
Vogus, T.J.; Sutcliffe, M.; & Weick, K.E.	2010	Academy of Management Perspectives	Doing No Harm: Enabling, Enacting, and Elaborating a Culture of Safety in Health Care	Error and near-incident
Catino, M. & Patriotta, G.	2013	Organization Studies	Learning from Errors: Cognition, Emotions and Safety Culture in the Italian Air Force.	Error and near-incident
Christianson, M.K.; Farkas, M.R; Sutcliffe, K.M.; & Weick, K.E.	2009	Organization Science	Learning Through Rare Events: Significant Interruptions at the Baltimore & Ohio Railroad Museum	Other unexpected events
Bechky, B.A. & Okhuysen, G.A.	2011	Academy of Management Journal	Expecting the Unexpected? How SWAT officers and film crew handle surprises.	Other unexpected events
Christianson, M.	2019	Administrative Science Quarterly	More and Less Effective Updating: The Role of Trajectory Management in Making Sense Again.	Other unexpected events
Müller-Seitz, G.	2014	Journal of Management Inquiry	Practicing Uncertainty in the Face of Large-Scale Disease Outbreaks	Other unexpected events
Bigley, G.A.; & Roberts, K.H.	2001	Academy of Management Journal	The Incident Command System: High-Reliability Organizing for Complex and Volatile Task Environments	Other unexpected events
Garud, R., Dunbar, R.L.M. & Bartel, C.A.	2011	Organization Science	Dealing with Unusual Experiences: A Narrative Perspective on Organizational Learning	Other unexpected events

APPENDIX B

Overview of interview guidelines in Chapter 3: Methods

1. Interview guidelines

1.1 Expert interviews

Themen	Einleitung	Fragen	Kernkonstrukt Forschungsfrage/Theorie
Biographie	Kennenlernen von Interviewee.	1. Sie verfügen über viel Erfahrung im JV. Was können Sie mir erzählen über Ihre Erfahrungen und aktuelle Rolle im JV?	Warm-Up
Kommunikation im JV	Breite Einstiegsfrage über Kommunikation. Später im zweiten Themenblock gehen wir tiefen auf	2. Was können Sie mir erzählen über Ihre Erfahrungen mit Kommunikation im JV allgemein und JVA's insbesondere?	Inhaltliches Warm-Up
Identifikation kritische Ereignisse	Viele kriminologische Studien zeigen, dass das Rückfallrisiko steigt, wenn Insassen involviert sind in kritischen Ereignissen. Kritische Ereignisse sind alle Ereignisse welche die Sicherheit in einem JVA gefährden können. Aber: mein Interesse ist für Ereignisse die nicht gleich eine Katastrophe sind, aber trotzdem die Sicherheit gefährden.	3. Welche Ereignissen erachten Sie als kritisch? Was sind Ihre Erfahrungen bzw. haben Sie Beispiele?	- Critical incidents
	Studien zeigen die Wichtigkeit von der Identifikation von frühen Warnzeichen.	4. Wie differenzieren Mitarbeitenden im JV allgemein und JVA's insbesondere zwischen Tagesgeschäft und ein frühes Warnzeichen? 5. Können Sie bezüglich Identifikation von kritischen Ereignissen etwas sagen über unterschieden auf verschiedenen hierarchischen Stufen? Bspw. unterschieden auf verschiedenen hierarchischen Stufen in Trennung	- Identifying early cues (HRO theory). - Sensemaking

		zwischen frühen Warnzeichen oder Tagesgeschäft? (‘follow the incident’) 6. Wie wird mit frühen Warnzeichen umgegangen und wie kann gewährleistet werden, dass sie als solche identifiziert werden?	
	Durch die Komplexität und dynamische Situation in JVAs sind kritische Ereignisse nie ganz auszuschliessen.	7. Inwiefern können kritische Ereignisse in einem JVA normalisiert werden? Passiert das bereits? Was für Gefahren birgt das normalisieren von kritischen Ereignissen?	- Normal Accident Theory (Perrow) - Normalization of deviance
Kommunikation. Austausch von Informationen: Fördernder und hindernde Faktoren für Reporting.	Aus den verschiedenen BJ-Berichten (bspw. aus den Jahren 2014 und 2018) dass es viel Verbesserungspotenzial gibt, wenn es geht um den Austausch von vollzugsrelevanten Informationen. Auch zeigt Organisationsforschung, dass der Austausch von Informationen und das gemeinsame Verstehen von zuständigen Personen entscheidend ist für die Sicherheit in Organisationen.	8. Wird aus Ihrer Sicht manchmal Information bewusst nicht geteilt? Kennen Sie solche Situationen? 9. Was wären möglichen Gründen Informationen nicht zu teilen? 10. Wie könnte man Vollzugsmitarbeitenden motivieren Informationen zu teilen und möglichen strukturelle Hemmschwellen verringern?	Reporting
	Beziehungen und die Erwartung ob seine Stimme gehört, spielen eine grosse Rolle ob jemand es anspricht, wenn auf höheren hierarchischen Ebenen Fehler gemacht werden.	11. JVAs keine flache hierarchische Organisation. Sind Kultur und Beziehungen so gestalten, dass Mitarbeitenden ihre Meinung durchsetzen? Vorbilder von gelungenen oder nicht gelungenen Organisationskulturen.	Safety culture
Lernen aus kritischen Ereignissen	JV kann nicht lernen durch Trial und Error, aber wie kann es lernen? Justizvollzug als lernende Organisation.	12. Wie wird in JV gelernt aus kritischen Ereignissen oder gar Fehlern? JV als System und JVA als Organisation? Was fördert und hindert beim Lernen?	Learning
		13. Wenn man als MA in JV seine Fehler eingesteht, wie wird darauf re-	Culture

		agiert? Shaming and blaming vs. kollektives lernenaus Fehler als Organisation? Haben Sie ein Beispiel?	
		14. Lernen aus kritischen Ereignissen trägt bei an reliability der Organisation: Vertrauen in Verlässlichkeit der JV. Was macht aus Ihrer Sich die Verlässlichkeit des JV aus? (Verlässlichkeit i.S.v. zuverlässig ihre Wiedereingliederungs- und Sicherheits- (Schutz-) saufgaben erfüllen – gesellschaftlichen und politischen Auftrag).	
		15. Braucht JV ein kollektives Gedächtnis von kritischen Ereignissen um voneinander zu lernen? ZB ein (evtl. anonymes) System auf Konkordatsebene wo kritischen Ereignissen gemeldet werden?	Critical incident reporting system
Zeitdruck und Effizienz	*Kritische Ereignisse passieren in Situation mit Zeitdruck und bedürfen eine schnelle Reaktion.*	*- Was sind die Unterschiede in Interpretation von Zwischenfällen zwischen MA die in direktem Kontakt mit Insassen stehen und höheren hierarchischen Ebenen?* *- Inwiefern können höhere hierarchische Ebene die Interpretation der MA welche direkt mit Insassen arbeiten, steuern (im positiven und negativen Sinne)?*	*- Temporal pressure* *- sensemaking* *- sensegiving*
	Studien zeigen, dass Teams in dynamische Situation effektiver arbeiten, wenn sie Änderungen schnell bemerken.	*- Wie kann man gewährleisten, dass Teams im JV immer mit einem offenen Blick mit den Insassen arbeiten?*	*- Updating sensemaking* *- Framing*
	JV sind öffentliche Organisationen. Einerseits Erwartungen in Gesellschaft an Sicherheit, anderseits eingeschränktes Budget.	*- Wie geht JV CH mit diesem Widerspruch um?*	*HRO (trade-off efficiency and meeting deadlines and budget goals vs safety)*

Vollzugsentscheidungen	*Studien zeigen, dass in dynamischen Situationen, Entscheidungskompetenz zu den Personen mit den meisten Expertise wandern sollte.*	*- In CH JV treffen EB (bzw. ROS Administration) die meisten Entscheidungen, obwohl JVAs meiste Wissen über Insassen haben. Wäre es nicht besser die JVAs mehr Entscheidungskompetenz zu geben?*	*- Decision-making* *- HRO theory*

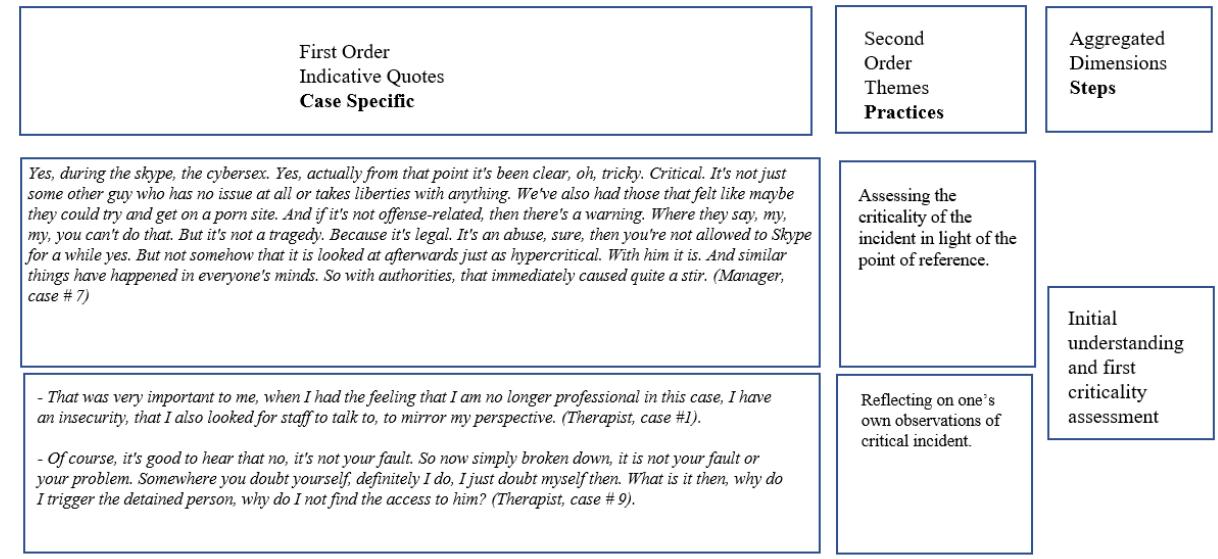
1.2. Case specific interviews

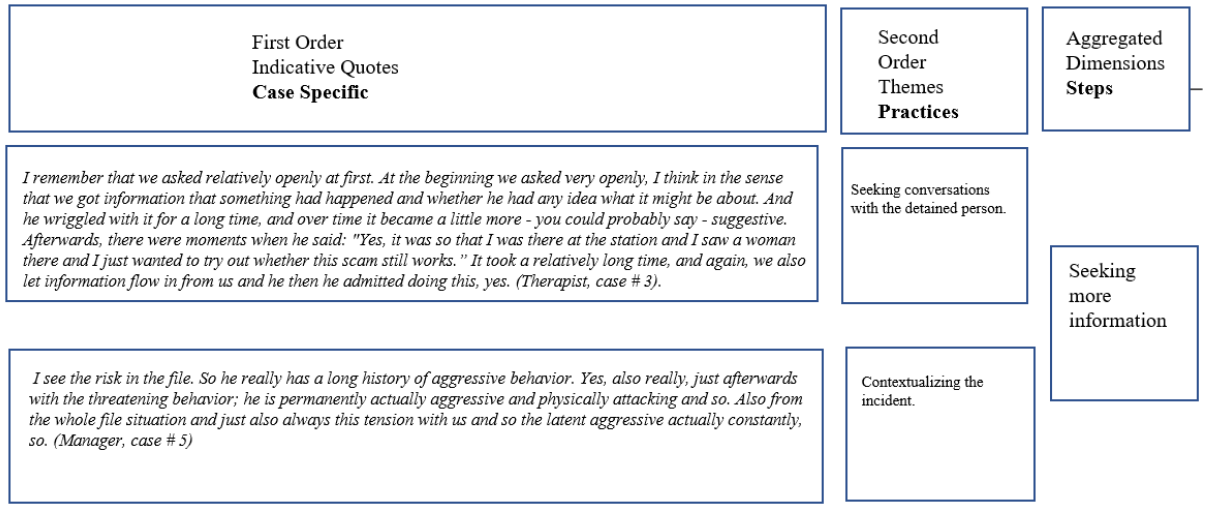
Themen	**Einleitung**	**Fragen**	**Aufrechterhaltungsfrage (n) und Case specific follow-up**	**Kernkonstrukt Forschungsfrage / Theorie**
Case spezifische Fragen				
Sensemaking	Gewisse Ereignisse stellen eine Diskrepanz zwischen Tagesgeschäft und kritischen Ereignissen dar.	1. Welche Hinweise haben bei dir die Wahrnehmung getriggerd, dass es sich um ein kritisches Ereignis handelt?		Extracted cues
Risk	Diese Organisation hat zwei Aufträge: Sicherheit und Wiedereingliederung. Ich möchte jetzt über Risikoeinschätzung reden.	2. Wie hast du die Selbst- und Fremdgefährdung in diesem Fall eingeschätzt?		Reliability threats: Selbst- und Fremdgefährdung
Risk		3. Wie hast du in diesem Fall das Risiko abgewogen?		Risk Work
Sensemaking		4.1 Hat bei diesem Fall dich etwas überrascht? *4.2 Und wie hast du das im ersten Moment gedeutet?*		Sensemaking ongoing
Sensemaking		5.1 Was hast DU gemacht, als du bemerkt hast, es handelt sich um ein kritisches Ereignis? 5.2 Mit wem hast du dich ausgetauscht? 5.3 Was habt IHR gemacht?		Enacted Sensemaking (individual and collective)

Sensemaking		6.1 Gab es im Prozess Dissens oder Konsens bezüglich der Entscheidung was zu tun ist?	Warum und wie? Warum nicht?	Sensemaking social
Sensemaking		7.1 Hast du (oder eine andere Person) irgendwann im Prozess gesagt: unsere Einschätzung stimmt nicht, wir sollten etwas anderes machen? 7.2 Was hätte dir in der Einschätzung dieses Falles mehr geholfen: mehr Informationen oder mehr Austausch?	Warum und wie? Warum nicht? Was für Informationen? Wieso habt ihr euch diese Infos nicht geholt?	Sensemaking: plausibility rather than accuracy
Sensemaking	Abschluss vom Case bzw. Interview.	8. Wenn du in der Zukunft einen ähnlichen Fall begegnest, würdest du etwas anders machen?	Warum und wie? Warum nicht?	Sensemaking retrospective.
Block: individuelle Identitätsfragen				
Sensemaking		9. *Wie hat deine bisherige Erfahrung (mit anderen Fällen) deine Einschätzung in diesem Fall beeinflusst?* ODER Inwiefern haben bisherigen Erfahrungen mit kritischen Ereignissen dir in der Einschätzung von diesem Fall geholfen?		Sensemaking retrospective
Identity (& identity construction in sensemaking)	Als Mitarbeitende dieser Organisation hat man einen gewissen professionellen Auftrag, welchen man so gut wie möglich erfüllen möchte.	10. Wie siehst du in solchen Fällen deine professionelle Rolle?		Professional identity
Identity	In dieser Organisation, arbeiten Mitarbeitenden mit verschiedenen beruflichen Hintergründen zusammen.	11. Ist in solchen Fällen eine Abgrenzung gegenüber anderen Professionen notwendig?	Warum und wie? Warum nicht?	Interprofessional collaboration

Schluss-frage	Wir haben (etwa eine Stunde gere-det) und sind jetzt am Ende vom Inter-view.	12. Du hast gesehen was ich dich gefragt habe. Möchtest du mir über diese The-men noch mehr sa-gen? *Mit wem sollte ich noch mehr über die-sen Fall sprechen?*	Wichtige Aspekte nicht erwähnt?	

2. Aggregated dimensions





First Order Indicative Quotes **Case Specific**	Second Order Themes **Practices**	Aggregated Dimensions **Steps**
And then we met again with the treatment-team. Because I see clients one hour a week. And I'm also very, very dependent on observations from everyday life. And from sociotherapy and from work and so on. That's why I have also exchanged ideas with them, in order to look a little bit, yes. Where there perhaps been critical things in everyday life that I can use for my assessment? (Therapist, case # 5)	Establishing a shared understanding by triangulating individual perspectives.	
So at the very beginning, we didn't expect an escape. In the end, we clearly accepted it, yes. In the end, we discussed it a lot with the detained person and also thought about it, okay, how does he assess it? And especially with the last escape, we looked at it with him in the same way, and then it came to this. And we were surprised that he really escaped again. And this was clearly due to the previous history and due to this chain of events. That has accumulated quite a bit. So in the beginning there was somehow quite a long time in between and then it became one thing after another and we put up with that. (Therapist, case # 2).	Establishing a collective framework of the critical incident.	Establishing a collective framing of the incident.
I am not directly involved in the case. I might have said earlier, now it's enough. It's no use. But if the staff who are directly involved and who work with the detained person say no, we want to continue. And then they have to give me good reasons, that they see opportunities. The potential and we could still work with him. (Manager, case # 2).	Escalating the collective framing.	
It's of course difficult to determine the facts, and there's a point where I'm confronted with [the question], 'What's the basis for making a decision?' If an employee says, 'I'm afraid', you can't argue against fear, can you? You can't say, 'No, no – you don't have to be afraid.' It's a fact: she's afraid. But what's the trigger of the fear? Is it really an external threat? Or is it her internal perception? Or both? (Manager, case #4)	Factualizing emotions.	

First Order Indicative Quotes **Case Specific**	Second Order Themes **Practices**	Aggregated Dimensions **Steps**
There you see, for example, all the years that he was here, the successes and so on, those are then very clearly in the background. Because this is such a critical incident. It's a matter of life and limb and so on. That's where you just have to react. Despite the therapy, the risk is still there. He still doesn't get it, he doesn't get it. When he goes out, the risk that there will be victims, it is so real. (Manager, case # 2).	Reconsidering the risk profile.	
So we decided, based on his openness, which then came, supposed openness, one must perhaps also say, based on the resources that he otherwise also brought with him, based on the fact that it went well many times, that we want to continue to support him and also to strengthen the self-efficacy. Because we have seen more benefit in the fact that we strengthen him, in self-efficacy experiences, so that he can stick to the goals, to the positive goals that we have formulated with him, than that we make him, yes, than we make the opposite. (Therapist, case #2).	Assessing protective factors (e.g., possibility of strengthening strengths) and risk factors (e.g., lack of transparency, unpredictability).	Evaluating the risk
For me, it's mainly the legal context. Because he's going to get out anyway. And then we give him as much as possible, so that he doesn't relapse and, above all, simply to protect society, so that at least he can pursue his apprenticeship, as a base to fall back on. (Manager, case # 6).	Taking legal context into consideration.	

First Order Indicative Quotes **Case Specific**	Second Order Themes **Practices**	Aggregated Dimensions **Steps**
So, of course, the authority's focus is really on risk, on as little risk as possible for the population and for society. And I have the feeling that this sometimes clashes with the idea of rehabilitation. There is no such thing as zero risk, that's not possible, because otherwise you have to keep people in somehow, forever. So and I think the focus here is just a little bit different than with authorities, I wouldn't say that we lost sight of the risk or didn't think about that at all, but we didn't find with one sanction it would be done at best, with another. So that at the same time, however, maybe we can really still maintain certain things that have a positive impact. (Therapist, case # 7).	Establishing a baseline for deciding acceptable risk levels for different stakeholders.	
Clearly we have assessed the risk if there is another escape, or what is the alternative? The alternative is to lock them up. Is that an alternative that will help people move forward? No, because the measure is finished at some point. That is, what else can we give him. And the risk in escaping, that's consumption. That's the consumption risk. Are we willing to take that. Yes, we are willing to take that. And the other thing is, of course, we see the huge potential in this guy. It is worthwhile to continue working on it. There's no point in locking him up now. Then it will go downhill. Then it will get even worse. That means we work with a maximum of trust. Show him that, and something will come back. A lot came back. And yes. He escaped four times, but he was never a danger to society in that sense, he was more a danger to himself. Because of the consumption. (Manager, case # 2).	Juxtaposing short- and long-term risk factors.	Decision-making
- We have then drawn up a special contract with him on how he is to behave in sociotherapy or what he is no longer allowed to do. I think we specifically mentioned not to stay in the dark, not to keep enough distance, enough decency (Manager, case # 4). *- The mood was just, hey, it's getting dangerous and we have no choice. So we just make sure nothing happens. We just had control functions. And keep an eye on him that nothing kind of gets derailed. And that was really the general tenor, it's enough now. It doesn't work anymore. Now we don't like it anymore. Now it becomes really critical. (Therapist, case # 9).*	Implementing measures to maintain reliability and, if possible, rehabilitation.	
With him, of course, it was clear, he had the whole back story, hey, we'll give it a try. And then of course-, so him personally and maybe the others also secretly, you realized very quickly that this probably doesn't work here. This is not the right place for him. (Therapist, case # 9).	Considering whether the detained person can remain in Zelandia.	

SELBSTÄNDIGKEITSERKLÄRUNG

Ich erkläre hiermit, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen benutzt habe. Alle Stellen, die wörtlich oder sinngemäss aus Quellen entnommen wurden, habe ich als solche gekennzeichnet. Mir ist bekannt, dass andernfalls der Senat gemäss Artikel 36 Absatz 1 Buchstabe r des Gesetzes vom 5. September 1996 über die Universität zum Entzug des aufgrund dieser Arbeit verliehenen Titels berechtigt ist.

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