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MANAGING ENTERPRISE RISK UNDER PANDEMIC UNCERTAINTY: A TRANSCENDENTAL PHENOMENOLOGICAL STUDY

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Dedication

This dissertation is dedicated to the memory of my dear parents, Anthony and Sarah Burgess, whose love, values, and example shaped the person I became. Though they are no longer here, they are deeply missed, and their influence remains with me always.

This dissertation is also dedicated to my wife, Catherine Burgess, whose unwavering love, patience, and encouragement sustained me throughout this journey and whose presence, strength, and belief in me made it all possible.

And to my daughter, Elizah Carlyle, who brings joy, meaning, and enduring perspective to all that matters most, and whose resilience, spirit, and growth fill me with pride and inspire the best in me.

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I also wish to acknowledge that while the COVID-19 pandemic created the context for this research, it came at an extraordinary human cost. The hardship, disruption, and loss of life experienced by so many should be recognized with humility and respect.

I extend my sincere appreciation to the participants who generously shared their experiences and perspectives. Their openness and willingness to contribute made this research possible.

Abstract

This dissertation examines how organizational leaders experienced managing the risk management process during the COVID-19 pandemic, a period marked by sustained uncertainty, compressed decision cycles, and volatile operational conditions. The study sought to understand what it was like to lead and execute risk work in this context and how risk management practices were maintained, adapted, or reconfigured over time. Using a transcendental phenomenological approach, the study drew on in-depth, semi-structured interviews with twenty participants in the Canadian oil and gas industry who were responsible for enterprise risk, finance, operations, or executive decision-making.

Data were analyzed using systematic phenomenological procedures, progressing from horizontalization and clustering of significant statements to textural and structural descriptions, culminating in an integrated synthesis of essence. Findings indicate that risk management during the pandemic was experienced as a dynamic balancing act between stabilizing controls and adaptive learning. Participants described (a) the enabling and constraining role of governance and decision architecture, (b) the importance of communication cadence and cross-functional channels for coordination and trust, (c) reliance on information artifacts and deliberate signal management to support sensemaking, and (d) persistent agency-constraint tensions, including workload strain and morale risks, that shaped what was feasible in practice.

The dissertation offers a conceptual framework that links formal systems and lived practice to continuity-oriented controls and adaptation-oriented learning, clarifying how crisis conditions reveal both strengths and fragilities in risk processes. Practical implications are provided for leaders seeking to design resilient risk governance, improve information quality and escalation pathways, and sustain organizational capacity during prolonged uncertainty.

Keywords: COVID-19 pandemic, dynamic capabilities, emerging risks, enterprise risk management (ERM), oil and gas industry, transcendental phenomenology, uncertainty

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List of Abbreviations

CAPP	Canadian Association of Petroleum Producers
CAS	Casualty Actuarial Society
CEO	Chief Executive Officer
CFERF	Canadian Financial Executives Research Foundation
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CPA Canada	Chartered Professional Accountants of Canada
CRO	Chief Risk Officer
DC	Dynamic Capabilities View
ERM	Enterprise Risk Management
FERMA	Federation of European Risk Management Associations
GFC	Global Financial Crisis
IA	Internal Audit
IIA	Institute of Internal Audit
IEA	International Energy Agency
IRGC	International Risk Governance Council
ISO	International Organization for Standardization
MD&A	Management Discussion & Analysis
OECD	Organization for Economic Co-operation and Development
OPEC	Organization of Petroleum Exporting Countries
REB	Research Ethics Board
RIMS	Risk and Insurance Management Society

S&P	Standard & Poor's
TSX	Toronto Stock Exchange
WHO	World Health Organization

Glossary of Phenomenology Terms

Clustering (of meanings/themes)

The process of grouping the remaining invariant meaning units into thematically related clusters that express core aspects of the experience, a step Moustakas (1994) describes as "clustering the invariant constituents into themes*"* (p. 97) in preparation for textural and structural description.

Composite structural description

An integrated description of the underlying structures and conditions that shape how the experience unfolded across participants (Moustakas, 1994).

Composite textural description

An integrated description that brings together the individual textural descriptions across participants into a shared account of what was experienced (Moustakas, 1994).

Consciousness and intentionality

In phenomenology, consciousness is always *about* something. Experiences are understood as intentional acts directed toward objects, events, or situations (Moustakas, 1994). Risk management is thus examined as it is experienced and meant by participants, not as an abstract system.

Culling (reduction and elimination)

My study-specific analytic step, based on Moustakas (1994), involves initially reviewing broad sets of significant statements and clearly irrelevant, unclear, or repetitive material. Culling corresponds to Moustakas' reduction and elimination phase and prepares the remaining data for clustering into meaning units.

Epoché and bracketing

Epoché is a disciplined stance in which the researcher temporarily suspends judgments, assumptions, and taken-for-granted beliefs about the phenomenon in order to approach participant accounts with openness and freshness (Moustakas, 1994).

Bracketing is the practical expression of epoché: the researcher explicitly identifies, records, and sets aside prior experiences, theories, and expectations about the phenomenon so that analysis is guided first by participants' descriptions (Moustakas, 1994).

Essence (or composite essence)

The distilled synthesis of textural and structural descriptions articulates the fundamental nature of the phenomenon and what is invariable in the experience of those who lived it, even across differences in role or context (Moustakas, 1994).

Horizonalization

An early step in phenomenological reduction, in which each significant statement relevant to the phenomenon is initially treated as having equal value. Redundancies and clearly irrelevant statements are later removed, leaving a set of *horizons* that frame the experience (Moustakas, 1994).

Imaginative variation

An analytic process in which the researcher systematically varies possible perspectives, conditions, or structures (e.g., "What if this constraint were removed?") in order to uncover the underlying structures that make the experience what it is (Moustakas, 1994).

Meaning units (invariant constituents)

Clusters of significant statements or horizons that express a single, coherent aspect of the experience. They are *invariant* in that they recur across different contexts or participants and are not dependent on specific details of a single episode (Moustakas, 1994).

Participants

A term often used in transcendental phenomenology to emphasize that participants are not passive subjects. Instead, they are collaborators whose descriptions are essential for understanding the phenomenon (Moustakas, 1994). In this study, I use the term *participants* while retaining this spirit.

Phenomenon

The specific experience or *thing as lived* that is being studied (Creswell & Poth, 2018). In this study, participants' experience of managing the risk management process during the COVID-19 pandemic.

Phenomenological reduction

A systematic process of returning to the data (e.g., interview transcripts), describing *what* is experienced, and treating each statement as a potential insight into the phenomenon while holding in suspension external explanations and evaluations (Moustakas, 1994).

Structural description (the *how* and *under what conditions*)

A description of *how* the experience occurred, and under what conditions, contexts, or structures (e.g., organizational arrangements, temporal sequences, constraints) the phenomenon was lived (Moustakas, 1994).

Textural description (the *what*)

A rich description of *what* was experienced, such as events, feelings, thoughts, and situations, as reported by participants, often illustrated with quotations (Moustakas, 1994).

Transcendental phenomenology

An approach to qualitative inquiry that seeks to describe the meaning of a lived experience by setting aside the researcher's prior assumptions and returning *to things themselves* as they are given in consciousness (Moustakas, 1994).

Chapter 1. Introduction

The emergence of the COVID-19 outbreak plunged the global economy into unprecedented uncertainty. In March 2020, the declaration of COVID-19 as a pandemic by the World Health Organization (WHO) sent shockwaves across societies, health systems, economies, and governments (Fedotov, 2023; Grewal et al., 2022). As the scientific community prepared for an intensive pursuit of prevention and cure measures in the immediate term, alongside long-term research and recovery, the business and management community faced a parallel imperative in addressing the profound economic repercussions of the crisis (Dahmen, 2023; Seetharaman, 2020) with the understanding that "no amount of crystal ball gazing may help us fathom the full impact of the COVID-19 crisis on business organizations in a distinct manner" (Seetharaman, 2020, p. 1).

Our society faces extreme events capable of inflicting catastrophic impairment. Once these events materialize, systemic risks, such as the COVID-19 pandemic and the 2008 Global Financial Crisis (GFC), tend to trigger interconnected consequences that permeate various sectors of society. Their impact extends across numerous dimensions, including human well-being, economic damage, disruption to vital services, and environmental degradation, leaving a profound imprint on a global scale (Grewal et al., 2022). The COVID-19 pandemic was an extreme emerging risk (Dahmen, 2023; Grewal et al., 2022). While these risks are known, the full magnitude of their consequences and interaction with other risks is only partially apparent (Flage & Aven, 2015; Renn et al., 2020), making emerging risks "deadly surprises whose likelihood is difficult to estimate, and can turn society upside down in a matter of days or even minutes" (Grewal et al., 2022, p. 2).

According to the International Energy Agency (IEA) (2020), the COVID-19 pandemic introduced significant new uncertainties for the oil and gas industry and dramatically increased the range of pathways it could follow. The pandemic caused considerable disruption to supply and demand in the oil and gas sector, including a substantial reduction in capital investment. This decline in investment is likely to have significant repercussions for energy markets in the coming years (International Energy Agency, 2020). Meanwhile, the crisis has prompted changes in companies' strategic orientation, investors' behaviour, and consumer behaviour (International Energy Agency, 2020). Wu et al. (2021) argue that managing the risk management process

during the COVID-19 pandemic entailed navigating an unprecedented landscape of challenges and complexities.

In response to the rapidly changing environment, organizations increasingly face challenges in modifying or rebuilding their strategic and operational activities to perform in turbulent conditions (Beasley et al., 2020). The issues organizations must navigate are becoming more challenging to identify, leading to heightened anxiety (Gephart et al., 2009) and, consequently, more challenging to manage (Andersen & Sax, 2020). Management's primary concern is adapting the organization and revising its strategy to suit the changing context (Arend & Bromiley, 2009; Bromiley et al., 2016; Sax & Andersen, 2019). However, an active risk environment often overshadows this priority (Andersen, 2020; Etges & Cortimiglia, 2019). Part of the problem is that conventional risk management frameworks often employ unsuitable tools for addressing uncertainty and extreme events (Andersen & Sax, 2020). The introduction of the emerging risk phenomena illustrates the need for enterprise risk management (ERM) to inform organizational decision-makers effectively. Therefore, further research is necessary to investigate emerging risks, their impact on practice, and potential solutions (Andersen, 2020; Glette-Iversen & Aven, 2021; Sax & Andersen, 2019).

In recent decades, ERM has emerged as a progressively crucial mechanism for organizations in handling their primary risk exposures, leading to a burgeoning collection of scholarly research dedicated to implementation and benefits (Beasley et al., 2023; Beasley & Branson, 2022). Consequently, many definitions of risk and variations exist in ERM frameworks. Nonetheless, the existing body of research focuses on the antecedents of ERM and is predominantly quantitative, leaving a dearth of empirical research on ERM in practice. The COVID-19 pandemic was a novel, emerging risk, and exploratory research on this topic helps bridge research gaps, including the limitations of ERM in addressing emerging risks.

The evolution in how organizations assess and manage risks can be attributed to various events, including prominent accounting scandals such as Enron, WorldCom, and the Global Financial Crisis (Segal, 2011). "Risk management is a very old idea that has changed dramatically just in the past few decades" (Hubbard, 2020, p. 21), and there is a growing emphasis on expanding risk management processes and adopting a more formalized approach at

the enterprise-wide level (Andersen & Sax, 2020). Consequently, an extensive literature review is necessary to describe ERM's evolving nature and significance for organizations.

Chapter 1 presents a comprehensive overview of the research inquiry, encompassing the background, problem statement, and purpose. Furthermore, the chapter highlights the significance of the research problem and emphasizes the importance of the study. The research question is clearly defined, and the theoretical framework and key definitions are outlined, providing a solid foundation for the study. The chapter then discusses the research assumptions and delimitations.

Background

The increased levels of uncertainty influenced by globalization, socio-politics, disruptive technologies, currency instability, and cybersecurity (Beasley et al., 2015), among others, have reshaped the context for many organizations into a dynamic and complex network (Andersen & Sax, 2020). As a result, the intermingling of organizations and the strategic choices that each firm makes while navigating change result in nonlinear outcomes (Andersen, 2020) and makes subsequent consequences challenging to foresee (Bogodistov & Wohlgemuth, 2017). However, organizations that cope with their dynamic environment appear to possess a common attribute. One can argue that successful firms operating in a volatile, uncertain, complex, and ambiguous environment have effectively managed risk.

Risks are ubiquitous, affect all organizations (Bromiley et al., 2015, 2016; Hubbard, 2020), and stem from change (Viscelli, Hermanson, & Beasley, 2017). The literature on corporate finance, strategy, and accounting suggests that organizations should undertake risk-taking to manage uncertainty (Andersen et al., 2014) and strive to achieve a competitive advantage (Arena et al., 2011; Chatterjee et al., 2003; Hoyt & Liebenberg, 2011). Informed risk-taking demands specific organizational capabilities to respond to emerging risks, threats, and opportunities. Consequently, academics and practitioners have appealed to various viewpoints on risk management and, in some way, a connection to other organizational processes (Bogodistov & Wohlgemuth, 2017; Pierce & Goldstein, 2018).

Risk management has evolved over the last two decades to help organizations respond to uncertainty (Bromiley et al., 2015; Gordon et al., 2009). Initially, risk management was

introduced within the financial services sector (e.g., banking and insurance) (Bromiley et al., 2015) and primarily designed with a focus on control, audit, and management accounting (Bromiley et al., 2015; Viscelli et al., 2017). Following prominent corporate accounting scandals, such as those involving Barings Bank, Enron, and WorldCom, the scope of risk management conversations expanded to include corporate governance strategies. This prompted critical regulatory changes, including the appointment of a chief risk officer (CRO) who reports directly to the board of directors (Aebi et al., 2012; Dionne, 2013). The 2008 GFC further increased the regulatory requirements for board risk oversight (Lundqvist, 2015; Viscelli et al., 2016), stabilizing corporate earnings and, thus, restoring investor and market confidence (Andersen, 2008).

Managing risk has become a foundational capability within organizations and is crucial in achieving organizational objectives (Nair et al., 2014). It is argued that risk management has become critically important for firms facing rapid change and unprecedented uncertainty (Helbekkmo et al., 2019). The COVID-19 pandemic in 2020 serves as an example of how rapidly organizations can be confronted with risks to their supply chains and overall business sustainability (Chowdhury et al., 2021; El Baz & Ruel, 2021; Vishnu et al., 2019), ultimately impacting their performance (Das & Teng, 1998). The trend suggests "that the world of uncertainties organizations face is only growing in speed and complexity" (Beasley et al., 2020, p. 6). This reality requires that organizations re-examine risk management practices and further develop capabilities to cope with the changing environment.

Enterprise Risk Management

Enterprise risk management is a recognized and accepted management practice (Beasley et al., 2023; Sax & Andersen, 2019; Viscelli et al., 2017), a prescriptive means (Bogodistov & Wohlgemuth, 2017) to manage risks and continues to receive attention among academics and practitioners (Choi et al., 2016). The rise in interest is partially in response to institutional demands from regulators, stock exchanges (Beasley et al., 2005; Kleffner et al., 2003), credit rating agencies, shareholders, and professional associations (Beasley et al., 2015; Lundqvist, 2015; Viscelli et al., 2017). More recently, organizations are asking how to enhance risk management capabilities to deal with the turbulent risk landscape shifting towards rising uncertainty and 'unknowability' (Andersen, 2020; Mishra et al., 2019; Sax & Andersen, 2019).

Proponents of ERM argue that the holistic approach to risk management can assist organizations by addressing the dynamic risk landscape they continually face. For example, the interplay of forces within business environments can create substantial challenges for firms steering through uncertainty, where strategic choices will impact the organization's risk profile (Beasley, Branson, & Hancock, 2018). Enterprise risk management, for this research, "represents an integrated approach where all risks are analyzed in aggregation across the entire organization including those risks for which probability, timing and impact can be hard to predict such as the risk inherent in strategic decisions" (Sax & Andersen, 2019, p. 720).

Numerous empirical studies have demonstrated that the adoption of ERM has resulted in improved firm performance (Bohnert et al., 2019; Hoyt & Liebenberg, 2015; Krause & Tse, 2016) and has conferred a competitive advantage for organizations (Chatterjee et al., 2003; Hoyt & Liebenberg, 2011; Stroh, 2005). However, other empirical studies examining the correlation between ERM and performance have yielded mixed results (McShane et al., 2011; Pagach & Warr, 2010). Furthermore, ERM is criticized for failing to address strategic exposures (Bromiley & Rau, 2016), and it is argued that ERM is "fundamentally flawed" (Andersen, 2020, p. 7) with its inability to consider "organizational processing of evolving risk situations" (Andersen, 2020, p. 7). Further research is required to better understand how ERM is implemented and practiced across diverse organizational settings and how it interacts with other organizational processes and capabilities to cope with a dynamic environment.

Traditional risk management primarily manages financial and hazard risks, whereas organizations rely on hedging and insurance contracts. This conventional view of risk management is often described as a *silo* approach rooted in finance and insurance (Schiller & Prpich, 2014). While organizations might benefit from hedging strategies and the ability to transfer risk through insurance, this silo approach to managing risk is deficient when an organization is subjected to high-impact, low-probability risk events (Taleb, 2007). The traditional risk management approach addresses well-defined, predictable risks (Godfrey et al., 2020) using statistical models to measure risk and guide decision-making (Meidell & Kaarbøe, 2017; Osuszek & Ledzianowski, 2020;Meidell & Kaarbøe, 2017). However, dependence on quantitative statistical modelling has exposed organizations to severe operational damage (Hubbard, 2020) as these risks are "not typically normally distributed, exhibiting positive

skewness with fat tails" (McShane, 2018, p. 139). Choi et al. (2016) have highlighted the potential for underestimating risks when relying on a normal distribution as the basis for risk assessment. Therefore, it is advisable to exercise caution when considering strategic, operational, economic, and hazard risks. These risk categories are described below.

Evolution of Enterprise Risk Management

The ERM concept was established in the mid-1990s (Arena et al., 2010; Bromiley et al., 2015; Dickinson, 2001). The notion of ERM is that the practice provides a comprehensive, holistic view of organizational risks to be managed (Charette, 2008), thereby enabling the firm "to better understand the aggregate risk inherent in different business activities" (Hoyt & Liebenberg, 2011, p. 797). Progressively, ERM has become an essential element of an organization's governance and strategy (Bogodistov & Wohlgemuth, 2017; Bromiley et al., 2015) and a paradigm that organizations widely adopt (Pagach & Warr, 2010) "in response to increased uncertainty and rapidly changing environments" (Nair et al., 2014, p. 556).

When risk management is focused on mitigating unfavourable consequences, opportunities to enhance organizational value are missed; that is, the upside potential of risks (Callahan & Soileau, 2017; Lundqvist, 2015). Moreover, when risks are managed separately in silos within organizations, the holistic perspective is absent (Lundqvist, 2014), and the ability to consider "intricate relationships between various risk factors" (Andersen & Sax, 2020, "Introduction," para. 4) through the portfolio perspective is lost. Consequently, since fewer people are informed and involved, a lack of communication and integration between organizational functions occurs, and risk management fails to become rooted in the culture (Viscelli et al., 2017).

The holistic view of handling risk, beyond the traditional focus of downside exposure, considers business opportunities "to enhance upside gains through innovation, responsive decision-making, redeployment of resources, etc." (Andersen, 2008, p. 156). The evolution of ERM as a critical management practice has contributed to the preservation of shareholder value (Callahan & Soileau, 2017; Gordon et al., 2009) while serving to improve earnings volatility (Pagach & Warr, 2010) and cope with the interconnectivity of risks in turbulent environments (Bogodistov & Botts, 2016).

Enterprise risk management requires considering all organizational risks relative to one another to produce a combined risk profile. When implemented broadly and methodically, ERM

can influence organizational outcomes (Beasley et al., 2009; Krause & Tse, 2016; Liff & Wahlstrom, 2018). When fully adopted, ERM helps to preserve organizational value and permits improvements in firm performance (Baxter et al., 2013; Frigo & Anderson, 2011; Kleffner et al., 2003; McShane, 2018). According to Andersen (2008), risk exposures can be categorized across the firm as follows:

- *Strategic risks* jeopardize or strengthen a firm's competitive advantage and involve change management.
- *Operational risks* are associated with the firm's people, processes, and technologies.
- *Economic risks* encompass market and financial risks.
- *Hazard risks* relate to natural and man-made disasters, terrorism, and casualties that affect the firm's financial performance.

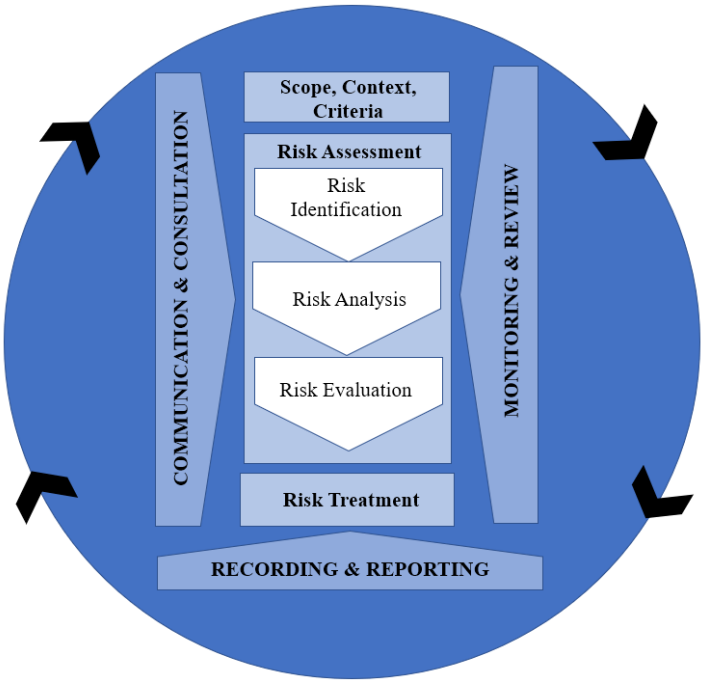
Managing the above-captioned risk categories involves an iterative process. The formal risk management process, which varies between organizations, involves the generic steps: Identifying risks, analyzing risks and evaluating their potential impact, determining how to manage the risks intelligently, and finally, ascertaining appropriate risk responses (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017; International Organization for Standardization (ISO), 2018). Subsequently, the organization monitors the identified risks for revisions to risk management actions and scans the business context for changes in preparation for the next cycle.

Enterprise Risk Management Frameworks

Risk management practices have advanced, driving the evolution of standards and frameworks. One of the preeminent and accepted standards is the '31000 series – Risk Management' from the International Organization for Standardization (ISO), which comprises four primary standards regularly evaluated and implemented in organizations globally (Rampini et al., 2019). The ISO (2018) risk management process, illustrated in Figure 1, highlights the iterative process of establishing context, assessing, treating, monitoring, reviewing, recording, reporting, communicating, and consulting on risk. The 2018 revision of the ISO 31000 Risk Management standard signifies a more comprehensive and strategic view for managers, specifying the principles and methodologies used in risk management (Rampini et al., 2019).

Figure 1

ISO Risk Management Process



Note. Reproduced from International Organization for Standardization (ISO) (2018).

The International Organization for Standardization prescribes the enterprise-wide risk management process to be a vital element of management and decision-making and "integrated into the structure, operations and processes of the organization" (International Organization for Standardization (ISO), 2018, para. 6.1). Moreover, ERM contributes a holistic perspective to an organization's risk management processes through direct links with the firm's strategy and governance (Bromiley et al., 2015; Sax & Andersen, 2019; Viscelli et al., 2016, 2017). Some scholars argue that the integral capability of ERM is a significant source of competitive advantage for firms (Arena et al., 2011; Hoyt & Liebenberg, 2011). However, research evidence suggests that many organizations struggle with ERM implementation and do not necessarily realize benefits (Fraser & Simkins, 2016).

The 2008 global financial crisis revealed risk events exposing weaknesses in ERM (Sabato, 2009), such as overconfidence in risk management systems (Nair et al., 2014; Stulz, 2008). According to Nair et al. (2014), some organizations that implemented superior risk

management practices experienced higher failure rates. The most notable example of this overconfidence is the Lehman Brothers' September 15, 2008 bankruptcy, demonstrating how sophisticated risk management capabilities failed to prevent excessive risk-taking (McConnell, 2016).

Risk Management and the Oil and Gas Industry

Organizations will always face unforeseeable circumstances (Bogodistov & Wohlgemuth, 2017). Managing risk becomes progressively more critical when the environment is rapidly changing, increasingly uncertain and unstable (Nair et al., 2014). The oil and gas industry is complex, featuring the attributes of volatility and uncertainty (Rioux & Winter, 2020) making risk management exploration appealing and relevant. The oil and gas industry presents a dynamic operating environment (Shuen et al., 2014). It poses challenges for organizations, as they often have limited capacity to manage unexpected events (Jagoda & Wojcik, 2019) and efficiently capitalize on opportunities (Shuen et al., 2014) due to numerous factors that affect the industry.

The oil and gas industry is highly competitive. Supply and demand primarily establish market prices for crude oil, natural gas, petrochemicals, and petroleum products. The main factors in determining global supply are the production levels determined by members of the Organization of Petroleum Exporting Countries (OPEC), Russia, and the United States (Chevron Corporation, 2020). According to Chevron Corporation (2020), demand is influenced by conditions in national and global economies. Furthermore, it cites weather patterns and taxation as significant drivers shaping the demand and supply curve. Moreover, local and federal laws and government policies, especially those related to the environment, determine how and where firms operate (Halliburton Company, 2020; Royal Dutch Shell PLC, 2020; Suncor Energy Inc., 2020). The main risks identified by firms include the global macroeconomic environment, geopolitical and regulatory change, financial and commodity market conditions, project start-up timelines, operational disruptions (e.g., production outages, supply chain), weather events and cybersecurity risks (Frigo & Chookaszian, 2023).

The Role of Risk Management: Emerging Themes

The role of risk management is to ensure that top management and the board of directors are informed and understand the likelihood of potential outcomes of the organization’s strategy before making decisions that commit resources and capital (Bromiley et al., 2015; Nocco &

Stulz, 2006; Stulz, 2008). According to Jagoda and Wojcik (2019), risk management requires "top management to understand the direct metrics of plausibility correlating to unanticipated events" (p. 385). Although some events cannot be foreseen, management is expected to devise risk strategies to minimize the financial, economic, and social repercussions on the organization (2019) while exploring opportunities to leverage as an advantage (Bromiley et al., 2015). According to Stulz (2008), "most unknown risks do not create risk management problems" (p. 44) primarily due to exceptionally low probabilities of occurrence. However, a classic mistake of many organizations is the "failure of taking initial steps to determine chance consequences" (Jagoda & Wojcik, 2019, p. 386).

While various ERM frameworks prescribe a risk management cycle and process to follow, in an organizational context, the risk management process becomes significantly complicated (Andersen, 2012). ERM activities are influenced by corporate objectives and management controls embedded to scrutinize and evaluate performance (Anderson, 2012). Leadership and corporate culture also affect ERM activities since not all cultures are committed to ERM (Andersen, 2012; Barton & MacArthur, 2015; Fraser & Simkins, 2016). For example, in a culture that respects loyalty to management, employees may be unwilling to identify risk exposures that expose poor leadership and decision-making (Barton & MacArthur, 2015). Furthermore, ERM activities are influenced by the capabilities rooted in the organization, how the organization is structured, how information systems are arranged (Andersen, 2012; Fraser & Simkins, 2016; McShane, 2018), and whether firms recognize ERM as a change management initiative (Fraser & Simkins, 2016). In sum, ERM is shaped by various organizational, structural, and management contexts. Fraser and Simkins (2016) argue that little progress has been made across the last decade in dealing with obstacles firms face in making ERM successful, and "more diligent risk management is necessary" (Dionne, 2013, p. 163).

Statement of the Problem: Dealing with Uncertainty and Extreme Events

The main issue lies in handling events with low likelihood but significant impact. According to Stein and Wiedemann (2016), limitations in risk management in our evolving business environment are becoming more apparent. As the business environment becomes increasingly more complex, the pace of change creates greater uncertainty (Água & Correia, 2020). This may suddenly affect organizations, favourably or unfavourably, and management and boards of directors are expected to manage the firm's risks in relation to the overall strategy.

The growing uncertainty encompassing the vast repercussions of the COVID-19 pandemic was an example of how a sudden collection of risks develops seemingly overnight, influencing practically all facets of most organizations (Swango, 2020). The COVID-19 pandemic has revealed how intertwined the business environment is: changes in one aspect of a business network or supply chain affect other network elements.

The COVID-19 pandemic exposed how ERM practice can be strained when organizations confront a fast-moving, interconnected shock with significant knowledge gaps (Grewal et al., 2022). While organizations often consider pandemic impacts by business line (e.g., SARS), many may have underestimated how pandemic losses can be triggered simultaneously across silos, creating secondary impacts (Grewal et al., 2022). The same work cautions that, for emerging risks, risk assessment based on likelihood-impact matrices can be misleading because likelihood is "immersed in uncertainty" (p. 46) and because interdependencies create common consequences that cascade through society (Grewal et al., 2022). Risk-science emphasizes the need to address the uncertainty and knowledge dimensions of COVID-19 risk beyond assigned probabilities, noting the difficulty of judging pandemic trajectories given limited data and knowledge (Glette-Iversen et al., 2023) and the persistence of key uncertainties (T. Aven, 2024). Empirical evidence indicates that organizations relied on formal and informal risk management strategies during the crisis (Riepl et al., 2024). For example, Riepl et al. (2024) document firms intensifying liquidity planning, KPI-based monitoring, and scenario analysis while simultaneously relying on informal mechanisms such as close employee and customer relationships, deliberations with external advisors, and ad hoc brainstorming to sense and respond to rapidly evolving risks. This gap between prescribed ERM frameworks and the real-world experience of managing uncertainty thus warranted a phenomenological inquiry into how risk management was lived and enacted during the pandemic.

Many organizations have embraced ERM (Malik et al., 2020), which provides their boards of directors and management teams with a top-down, strategic view of risks. Management can then proactively handle these risks to enhance the probability of achieving objectives (Brown, Duane, & Schuermann, 2019; Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017; Fox, 2018). ERM principles suggest that the most critical risks are identifiable, evaluated, and managed in advance, while risk exposures are monitored throughout

the firm through management control and reporting. However, this formal risk management practice is "rather mechanistic" (Stein & Wiedemann, 2016, p. 818), incompatible with unexpected events (Andersen & Sax, 2020), and "control-based management practices fall short in dealing with disruptive developments" (Andersen, 2020, p. 1).

While risk management standards and ERM frameworks describe structures and processes intended to support decision-making, less is known about what it is like to manage the risk management process when uncertainty is persistent, and signals are ambiguous. During the COVID-19 pandemic, many leaders faced elevated risk exposures and uncertainty about the reliability of information, the duration of constraints, and the second-order effects of actions taken under time pressure. This gap matters because the effectiveness of risk management under uncertainty often depends on how it is practiced and how information is curated. In addition, how decisions are coordinated and how governance and culture shape what becomes actionable influence how risk management works under extreme conditions (Andersen & Sax, 2020). Observing how organizations in the Canadian oil and gas industry have responded to increasing volatility and uncertainty over the last decade underscores the need to organize effectively to address emerging risks. Understanding this phenomenon better through the experiences of those involved will help improve risk management practices.

Purpose of the Study

The purpose of this transcendental phenomenological study was to describe the lived experience of managing the risk management process during the COVID-19 pandemic. The pandemic event offered an environment of emerging risk. The term *emerging risk* is "related to an activity when the background knowledge is weak but contains indications/justified beliefs that a new type of event (new in the context of that activity) could occur in the future and potentially have severe consequences to something humans value" (Flage & Aven, 2015, p. 66). Attributes include a major unexpected shock, low probability, and high impact.

Literature on risk issues associated with the COVID-19 pandemic has quickly developed (T. Aven & Bouder, 2020). The pandemic is considered an emerging risk and transboundary crisis in an interconnected world, where minor risk events can magnify in unforeseen ways (Bryce et al., 2020; A. Collins et al., 2020). "Unexpected events often audit our resilience"

(Weick & Sutcliffe, 2007, p. 1), and the pandemic has caused considerable challenges for organizations. For example, crisis management responses can become futile, and business continuity can be severely disrupted as setbacks unexpectedly manifest in multiple areas (Bryce et al., 2020). Furthermore, business continuity management primarily focuses on operational aspects during a crisis and on managing the risks that have already occurred. However, unforeseen events can quickly create a complex web of interrelated problems that overwhelm an organization, making it challenging to prioritize and manage risk during a crisis.

The study aimed to identify common themes to develop ERM practices that are guided by uncertainty and extreme events (Andersen & Sax, 2020). In this qualitative inquiry, participants are interviewed with semi-structured questions to identify and probe for emerging patterns. The results provide organizational leaders with an understanding of the factors that enable ERM to address emerging risks. For a phenomenological inquiry, purposeful sampling must include individuals who have all experienced the phenomenon to be explored and can express their lived experiences (Adu, 2019; Creswell & Poth, 2018). Accordingly, creating criteria for selecting study participants was necessary and discussed in Chapter 3.

Significance of the Problem

Each year, the ERM Initiative at North Carolina State University conducts research on the current state of risk oversight processes. In partnership with the American Institute of Certified Public Accountants (AICPA), the research provides insight into the relative maturity of core activities used by executives and boards of directors to monitor the changing risk landscape for organizations. Key findings from the 2020 edition have raised awareness that many management teams and boards of directors recognize the consequences of being unprepared to deal with the wide range of risks produced by the COVID-19 crisis (Beasley et al., 2020).

Furthermore, the research reveals that respondents perceive a greater risk environment than in 2015: external stakeholders pressure management teams and boards of directors for complete information on strategic risks affecting firms. However, few executives describe their firm's risk management process as mature (Beasley et al., 2020). The current report on risk oversight capabilities suggests that current practices require improvement. The current reality of profound health and economic uncertainty raises the importance of intelligently managing risks

and engaging in proactive practices (Beasley et al., 2020; Boholm, Corvellec, & Karlsson, 2012; Finn, Mysore, & Usher, 2020).

Significance of the Study

The findings provide an integrated account of what it was like to manage the risk management process during the COVID-19 pandemic. The contributions span theory, methodology, and practice.

First, the study advances conceptual understanding of ERM in crisis by framing ERM as an independent four-domain socio-technical system rather than a static framework or checklist. The domains (governance and decision control, informational flows and sense-making, emotional climate and relational risk work, and learning, foresight, and professional identity) are tightly coupled and mutually reinforcing. This refines existing ERM and dynamic capabilities perspectives by showing that effectiveness under uncertainty depends on formal structures and on how information, emotion, and learning are enacted together in practice. While *scenario planning* is one formal technique for exploring alternative futures, *foresight* in this study encompasses a broader set of practices, including imagination, horizon scanning, sense-making, and judgement, many of which occur informally and continuously rather than through structured planning exercises.

Second, the study reframes the centralization-decentralization and risk appetite debates as ongoing judgment practices rather than fixed design choices. The findings show how leaders continually balanced board-level appetite and central oversight with local autonomy, simple escalation rules, and fair distribution of risks and burdens. This offers a more dynamic view of governance under uncertainty and directly links it to trust and legitimacy.

Third, the research brings the emotional and identity-laden nature of risk work into sharper focus. The analysis shows how agency-constraint tensions, fatigue, moral strain, and evolving professional identities shaped risk decisions as much as technical models or policies. This refines prevailing accounts of risk management and dynamic capabilities by embedding them in lived experience and highlighting that people with histories, values, and emotional responses to crisis always carry capabilities such as sensing, seizing, and reconfiguring.

Finally, the study contributes methodologically by demonstrating how a transcendental phenomenological approach, combined with staged cross-case analysis (Stages A-D), can be used to derive a structured, multi-domain framework from rich lived-experience data. The staged design (i.e., theme-first coding, domain introduction, exemplar-based consolidation, and confirmation) provides a transparent template for future qualitative research on risk and uncertainty.

Nature of the Study

Organizations have complex risk management issues, and qualitative research focuses on uncovering varying perspectives of experiences (Creswell & Poth, 2018). This qualitative study examines the phenomenon of managing emerging risks during a crisis. Emerging risk has not been fully understood or studied beyond the articles found within the literature review. Dealing with emerging risks is complex. Since this inquiry involved developing a composite description of the essence of the experience of participants (Moustakas, 1994), a phenomenological study was the most appropriate method for this study (Creswell & Poth, 2018; Larsen, 2023; Marshall & Rossman, 2016). The phenomenological approach is discussed next and in greater detail in Chapter 3.

Research Method: An Overview

The research method selected for this study is a phenomenological approach. Key phenomenological terms used in this study are defined in a glossary in the front matter on page xvi. Additional explanation of how these terms are applied in the analytic process is provided in Chapter 3, *Key Phenomenological Terms*. In researching a qualitative problem, meanings are multiple and varied, guiding the researcher to examine the complexity of views rather than narrowing them to a single truth (Creswell & Creswell, 2018). Qualitative inquiry is appropriate to explore participants' lived experiences (Adu, 2019; Marshall & Rossman, 2016). A phenomenological study allows the use of the interviewed participants' perceptions and impressions (Adu, 2019; Creswell & Poth, 2018) of a risk management program as it relates to the "what" participants have experienced and "how" they have experienced it (Moustakas, 1994) in their respective organizations during the pandemic. The results provide a deeper understanding of how organizations address unforeseen circumstances and their role in enhancing enterprise risk management practices.

A qualitative phenomenological approach (Moustakas, 1994) was used to explore how risk leaders experienced managing the risk management process during the COVID-19 pandemic. Data were collected through semi-structured interviews with leaders responsible for organizational risk oversight. The analysis proceeded in a series of structured steps: I examined each transcript in detail, identified recurring ideas and experiences within and across cases, and progressively organized these into themes that captured both what participants reported and how they made sense of managing risk under conditions of uncertainty. These themes were then integrated into an overall description of the shared experience. Chapter 3 provides full procedural details and introduces the specific phenomenological concepts and terminology used in the study.

Research Question

Elevated uncertainty in complex business environments poses challenges for organizations. Erratic conditions, with unexpected and potentially acute outcomes, may exceed the capacity of traditional risk management approaches. Consequently, the possible difficulties of conventional ERM frameworks in managing unforeseen strategic exposures are becoming progressively more severe (Andersen, 2020; Bogodistov & Wohlgemuth, 2017). These challenges underscore a development opportunity to enhance risk management capabilities.

This phenomenological research study advances the success of ERM programs in organizations by examining the experiences and perspectives of risk managers who have navigated rapid change and uncertainty.

The purpose was to learn the essence of risk managers' experiences operating their ERM program during a crisis. From a transcendental perspective, examining participants' subjective first-person accounts with varied experiences enabled me to understand the phenomenon’s universal meaning (Larsen & Adu, 2022). The research question is:

What was it like to manage the risk management process during the COVID-19 pandemic?

The research question is a psychological research question informed by transcendental phenomenology (Larsen & Adu, 2022). The focus is solely on the experience, and this question implies that I sought to examine participants' experiences to understand and describe the essence

(meaning) of the experience (Adu, 2019; Creswell & Creswell, 2018; Larsen, 2023; Larsen & Adu, 2022).

Theoretical Framework

Several theories explain the dynamics of ERM. Arena et al. (2010) take an institutional perspective to analyze the ERM dynamics of three firms over seven years. Bromiley et al. (2015) identify probability, systems, agency, and decision theories in their review and critique of ERM. Mikes and Kaplan (2015) propose a framework for organizations leading to the development of a contingency theory of ERM. To guide the search for theories and the selection of literature for analysis, Larsen and Adu (2022) propose using a scoping review question to identify a suitable theory to guide the study. In managing emerging risks, the scoping review question posed was, "*What theories explain the experience of managing emerging risk during a crisis?*"

In this transcendental phenomenological study, attention is directed to theories of risk management that emphasize the thought process, consciousness, and perception (Larsen & Adu, 2022) of risk managers' experience during the pandemic. This research study adopted the *Dynamic Capabilities (DCs) View* to explore risk management processes during a period of uncertainty, drawing on the works of Teece and Pisano (1994) and Teece, Pisano, and Shuen (1997). Despite the emergence of numerous definitions of dynamic capabilities since their introduction in 1997, the literature continues to reflect definitional plurality rather than convergence (Easterby-Smith et al., 2009; Helfat & Peteraf, 2015; Teece, 2014). Dynamic capabilities relate to high-level activities that enable management to sense and seize opportunities, navigate threats, and reconfigure organizational assets (Teece, 2007).

These high-level activities comprise processes and routines that have the potential to evolve and, directly or indirectly, enable organizations to adjust to rapidly changing environments (Nair et al., 2014). According to Teece (2007), *sensing* relates to the identification, interpretation and evaluation of an opportunity or threat; *seizing* relates to the allocation of resources to capitalize on a chance or to respond to a threat and create value through these activities; and *reconfiguring* relates to reconfiguring, integration and renewal of resources to shifting market conditions. A dynamic capability in the context of ERM refers to an organization's ability to continuously sense changes in its external environment, analyze potential risks and opportunities, and seize opportunities or mitigate risks effectively. It involves

efficiently adapting and reallocating resources to emerging challenges and market shifts, ensuring the organization's long-term viability and competitiveness. Examples of sensing and seizing activities could include:

Example 1:

Sensing activity: Real-time risk monitoring. The organization implements advanced data analytics tools and real-time risk monitoring systems to continuously collect and analyze data on market trends, geopolitical events, supply chain issues, customer preferences, and emerging risks. The organization can quickly identify shifting industry and macroeconomic patterns, as well as emerging market opportunities.

Seizing activity: Agile product development. Based on insights from data analytics, the organization rapidly adjusts its product development process to introduce new products or services or modify existing ones to meet changing demands or address supply chain disruptions.

Seizing activity: Agile decision-making teams. Establish cross-functional teams that can swiftly respond to identified opportunities or threats. These teams are empowered to make rapid decisions, reallocate resources, and capitalize on emerging opportunities or mitigate risks before they escalate.

Example 2:

Sensing activity: Environmental scanning and scenario planning. The organization establishes a dedicated team responsible for monitoring and scanning the regulatory and environmental landscape for emerging sustainability and climate change risks. The team remains current on evolving regulations, industry standards, and political debates. Conducting scenario planning exercises helps to assess impact and better understand potential risks and opportunities, enabling the organization to prepare responses in advance.

Seizing activity: Agile risk response team. When the environmental scanning team identifies new regulatory requirements and growing demand for sustainable products, the organization proactively launches initiatives to reduce its carbon footprint, such as adopting renewable energy sources or developing eco-friendly products and services. This seizing activity mitigates risks and positions the firm as an industry leader in sustainability.

In both examples, the sensing activities involve continuously monitoring the external environment for potential risks and opportunities. In contrast, the seizing activities demonstrate the organization's ability to swiftly adapt its strategies and operations to capitalize on the identified insights.

The dynamic capabilities framework was developed to help guide decisions and actions in rapidly changing, complex environments (Teece & Leih, 2016). The framework has been the subject of scholarly attention as a potential overarching paradigm capable of prioritizing and shaping decisions related to risk and uncertainty. Dynamic capabilities present a theory of the firm in conditions characterized by deep uncertainty, known as the *unknown unknowns* or *black swan events* (Andersen & Sax, 2020; Teece, Peteraf, & Leih, 2016). Dynamic capabilities are established through various organizational processes that equip an organization to handle the challenges presented by rapidly shifting environments (Teece, 2007). Teece et al. (1997) identified *processes* as one of the fundamental elements in developing dynamic capabilities.

It has been posited that ERM processes collect or generate the knowledge needed to develop such dynamic capabilities. For example, Nair et al. (2014) examine the effectiveness of ERM as a dynamic capability during a crisis. Bogodistov and Wohlgemuth (2017) propose that risk management processes, as an integral part of a dynamic capability, allow organizations to develop risk resilience in turbulent environments. Ahmed, Yuantao, and Bhutta (2021) investigate how different risk management processes perform under the dynamic capability perspective. Lastly, Buzzao and Rizzi (2023) adopt a dynamic capabilities view to examine the specific capabilities that organizations develop to anticipate, respond to, and succeed in unprecedented situations. Moreover, researchers have utilized the theoretical framework of dynamic capabilities to gain a deeper comprehension of the impact of the COVID-19 pandemic on firms and to suggest potential strategies for bolstering the resilience and recovery of these organizations (Chih et al., 2022; El Idrissi et al., 2023; Mohammed et al., 2023).

In summary, theoretical frameworks "should be there to assist researchers in ensuring that their research projects are coherent and to focus their minds on what the research is trying to achieve" (Green, 2014, p. 35). Collins and Stockton (2018) suggest that the theory in qualitative research assists in data coding and interpretation and "provides a clearly articulated signpost or lens for how the study will process new knowledge" (p. 2). Dynamic capabilities theory offers a unique lens for exploring ERM in the context of the COVID-19 pandemic.

Definition of Terms

Specific terms can be confusing because they may have multiple definitions or applications. Hence, specific terms have been identified in this study to eliminate ambiguity, thereby aiding the reader in understanding their contextual usage.

Capabilities. Capabilities, or operational capabilities, "enables a firm to perform an activity on an on-going basis using more or less the same techniques on the same scale to support existing products and services for the same customer population" (Helfat & Winter, 2011, p. 1244). According to Helfat and Winter (2011), such a capability is "ordinary in the sense of maintaining the *status quo*" (p. 1244).

Dynamic capabilities. Dynamic capabilities are "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997, p. 516). Dynamic capabilities comprise processes and routines that have the potential to evolve and, directly or indirectly, enable organizations to adjust to rapidly changing environments (Nair et al., 2014). Examples of dynamic capabilities are presented in the previous section.

Economic risk. Economic risks encompass market and financial risks (Andersen, 2008).

Emerging risk. An emerging risk is "related to an activity when the background knowledge is weak but contains indications/justified beliefs that a new type of event (new in the context of that activity) could occur in the future and potentially have severe consequences to something humans value" (Flage & Aven, 2015, p. 66). Attributes include a major, unexpected shock, a low-probability event, and a high-impact event.

Enterprise risk management (ERM). ERM represents "an integrated approach where all risks are analyzed in aggregation across the entire organization, including those risks for which probability, timing and impact can be hard to predict, such as the risk inherent in strategic decisions" (Sax & Andersen, 2019, p. 720).

Hazard risk. Hazard risks relate to natural and man-made disasters, terrorism, and casualties that affect the firm's financial performance (Andersen, 2008).

Operating risks. Operational risks are associated with the firm's people, processes, and technologies (Andersen, 2008).

Risk. The risk definition provided by Aven and Renn (2009) is the predominant definition for this study: "Risk refers to uncertainty about and severity of the consequences (or outcomes) of an activity with respect to something that humans value" (p. 2).

Risk appetite. Risk appetite is a target level of risk exposure and "frames the acceptable risk to everyone in the organization and specifies the parameters to operate within" (Andersen & Sax, 2020, p. 22). It represents an "expression of judgement by management, or more specifically, by the ERM committee, as to the level of enterprise risk exposure, at the maximum limit, with which the shareholders are comfortable" (Segal, 2011, Chapter 6, "Defining Risk Appetite," para. 2).

Strategic risks. Strategic risks jeopardize or strengthen a firm's competitive advantage and involve change management (Andersen, 2008).

Systemic risk. A systemic risk is "the extent to which risk is embedded in the larger contexts of societal processes" (van Asselt & Renn, 2011, p. 436). Systemic risks develop in tightly interdependent systems (Schweizer, 2021) that are characterized by high complexity, stochastic relationships, and cascading effects (Renn, 2021; Renn et al., 2019, 2020).

Assumptions and Delimitations

Assumptions

Below are the assumptions I made about this study. First, organizations implementing ERM do not necessarily prepare the firm to consider and manage emerging risks. The assumption is based on the ongoing debate that ERM has mixed results in delivering value to organizations (Anton & Nucu, 2020; Sax & Andersen, 2019). Moreover, some firms consider ERM a compliance exercise (Segal, 2011) and a barrier to innovation (Kaplan & Mikes, 2012).

Second, organizations, in the quest to enhance specific practices, learn by doing and make incremental changes in risk management processes. These processes may not be officially categorized as risk management. They often appear within other organizational processes that provide information for decision-making. This assumption is grounded in my experience, where formally defined risk management processes fall short of their intended functionality. As a result, other organizational capabilities become critical in enabling the decision-making system to

function effectively. Therefore, organizations continue to manage strategic risks to help them achieve their objectives.

The following examples illustrate risk management process failures and show how other organizational capabilities play a critical role in decision-making for risk management:

1. Inadequate Risk Identification:
    - Failure: A company might fail to identify emerging risks or vulnerabilities due to an outdated risk assessment process.
    - Role of organizational capabilities: Data analytics and information-sharing capabilities can help collect and analyze relevant data from various sources, enabling a more comprehensive risk identification process.
2. Poor Risk Communication:
    - Failure: Ineffective communication of identified risks to relevant stakeholders can lead to misinformed decisions.
    - Role of organizational capabilities: Strong communication and reporting systems ensure that risk information reaches the right people in a timely and understandable manner, fostering informed decision-making.
3. Inflexible Risk Mitigation Strategies:
    - Failure: When risk mitigation strategies are rigid and not adaptable, they may become ineffective in dynamic environments.
    - Role of organizational capabilities: Flexibility and adaptability in decision-making processes, driven by a culture of continuous improvement, can allow organizations to adjust risk mitigation strategies as circumstances change.
4. Lack of Stakeholder Engagement:
    - Failure: Ignoring input from employees, customers, or other stakeholders can lead to unaddressed risks or missed opportunities.
    - Role of organizational capabilities: A culture of engagement and collaboration can help organizations involve relevant stakeholders in risk identification and decision-making processes, ensuring a more comprehensive and informed approach to risk management.

In each of these cases, the failure of risk management processes is often mitigated or addressed by other organizational capabilities, such as data analytics, communication systems, flexibility, stakeholder engagement, and employee training. These capabilities play a critical role in decision-making for effective risk management, ensuring that organizations can adapt and respond to the ever-changing risk landscape.

Third, those in risk management roles lack support and guidance when the firm's strategic risks exceed their competencies. Based on my experience, risk management roles are primarily organized within the audit function and report to the organization's finance structure. In addition, risk management has been an area of responsibility of the Audit Committee of the Board. Thus, management accounting typically lacks expertise in handling emerging risks. This reporting structure and focus on management control suggest that those involved in strategic planning and decision-making are valuable resources for this research.

Lastly, assumptions are made about the participants providing candid evidence about their experiences managing risk during the pandemic. I proceeded on the following assumptions:

- Participant candour and recall. Participants provide honest accounts and could recall key decisions, tensions, and adaptations from the COVID-19 pandemic period with reasonable accuracy.
- Meaning can be articulated and interpreted. The lived experience of managing the risk management process can be expressed in interview form and interpreted through a transcendental phenomenological analytic process (e.g., reduction, meaning, synthesis, and essence description (Moustakas, 1994)).
- Researcher reflexivity is workable. I assume I could actively surface and manage pre-concepts through explicit reflection on my prior assumptions and documentation to support disciplined interpretation (Moustakas, 1994).

Delimitations

Delimitations establish the boundaries of the research by specifying what is not included (Bloomberg & Volpe, 2019; Marshall & Rossman, 2016). The study was intentionally bounded in scope as follows:

- Phenomenon of interest. Managing the risk management process during the COVID-19 pandemic was interpreted, governed, and acted upon (rather than evaluating risk outcomes or organization performance effects).
- Design and data source. A transcendental phenomenological approach using semi-structured interviews as the primary data source (rather than a mixed-methods design, survey-based design, or document-centric case study).
- Participant and context boundaries. Participation was limited to risk managers, executives, senior managers, and analysts in the Canadian oil and gas industry during the COVID-19 pandemic era. Interviews were conducted in English.

Conclusion

The transcendental phenomenological study focused on understanding the experiences and lessons learned by risk leaders in managing the risk management process in the oil and gas industry during the COVID-19 pandemic. In Chapter 2, the study is supported by a thorough literature review to underpin the analysis by examining critical topics related to ERM. Specifically, the literature review examines the historical background, current perspectives, and developments in essential ERM concepts to identify gaps in ERM research. The review also introduces critical literature, such as approaches to ERM, to aid in determining the research gap and associated research question. The review considers ERM a dynamic capability and highlights how the identified gap in the literature led to the development of the study's conceptual framework. The literature review provides a foundation for contemporary best practices, trends, and opportunities related to ERM.

Chapter 3 outlines the study's methodology, including the study design, participants, research setting, data collection and analysis, and considerations of trustworthiness and ethics. In qualitative research, validity and trustworthiness must account for participants' sensitivities. Consequently, the study design follows the guidelines of Athabasca University's Research Ethics Board (REB). Chapter 4 presents findings from 20 interview participants on their lived experience of managing the risk management process during the COVID-19 pandemic. Chapter 5 discusses the cross-domain themes and contributions of this study. The study's implications and limitations are discussed, along with recommendations for future research. I provide concluding reflections.

Chapter 2. Review of the Literature

The previous chapter presented and outlined the structure of the study. The purpose of this chapter is to review the existing literature to identify critical issues and develop a conceptual model for the research. This chapter is organized into nine sections and is represented in Table 1. The first two sections discuss the scope, structure, and focus of the literature review. Next, the risk domain section presents the risk field, highlighting definitions, key concepts, and the evolution of ERM. The risk rationalities section discusses the role of uncertainty and how organizations conceptualize uncertainty into risks. The ERM section investigates components of ERM and highlights empirical research. Organizational roles in risk management are discussed next. The remaining sections discuss research gaps in the literature, present the conceptual framework, and conclude the chapter.

Table 1

Literature Review Chapter

Literature Review Scope
Literature Review Structure and Focus
Risk Domain
Risk Rationalities and the Role of Uncertainty
Enterprise Risk Management Practices
Organizational Roles in Managing Risk
Research Gaps in the Literature and Research Question
Conceptual Framework
Conclusion

Enterprise risk management is a significant paradigm that facilitates the identification, assessment, and management of organizational risks. According to Bohnert et al. (2019), organizations that employ the ERM process are influenced by financial distress, earnings and share price volatility, the board's independence, regulatory requirements, and growth opportunities. Furthermore, a holistic, enterprise-wide risk management perspective can become a source of competitive advantage (Chatterjee et al., 2003; Hoyt & Liebenberg, 2011; Stroh,

2005). According to Arena et al. (2010), ERM provides the linkage between risk management, setting organizational objectives, business strategy, and decision-making. While ERM has been of central importance to academics and practitioners, its shortcomings in today's dynamic business environment have become more apparent (Louisot, 2024; Stein & Wiedemann, 2016). Overall, this highlights a considerable body of research committed to ERM.

Literature Review Scope

A key objective of the literature review is to provide a comprehensible and objective picture of contemporary leading concepts, theories, and data relevant to the subject of study (Bloomberg & Volpe, 2019). Publications satisfying the following criteria were involved in the review of literature, such as:

- The academic and professional literature is written in English.
- The emphasis of literature is predominantly on North America and Europe.
- The literature search was performed using numerous key terms such as 'risk management,' 'enterprise risk management,' 'risk governance,' 'strategic risk management,' and 'emerging risks.'

To enhance transparency and reproducibility, Table 2 summarizes the literature review protocol used to identify, screen, and select sources for this review, including the databases searched, the time period covered, primary search terms, inclusion criteria, targeted journals, and the use of selected grey literature (e.g., COSO and ISO standards). This protocol was designed to capture both (a) foundational conceptual work underpinning risk, uncertainty, and dynamic capabilities, and (b) contemporary ERM scholarship and practice-oriented guidance most relevant to understanding how risk management processes were enacted under conditions of heightened uncertainty. Additionally, works, including books and book chapters, by scholars with extensive publications on risk management, ERM, and uncertainty, were included.

Table 2

Literature Search Protocol

Search Element	Detail	Operational notes (for transparency/reproducibility)
Review purpose	ERM/risk governance and managing risk under uncertainty, with attention to crisis/pandemic conditions and dynamic capabilities.	Align to research question: "What was it like to manage the risk management process during the COVID-19 pandemic?"
Databases	Business Source Complete (EBSCO), ABI/INFORM (ProQuest), Scopus, Google Scholar.	Database coverage to include business sources.
Time period	2000-2025	With seminal works pre-2000, including Knight (1921) and Teece et al. (1997).
Concept blocks	Block A (Risk Management): ERM, risk governance, strategic risk, risk oversight. Block B (Uncertainty/emerging risk conditions): uncertainty, emerging risk*, ambiguity, *deep uncertainty*, systemic risk. Block C (Dynamic capabilities (DC) lens): dynamic capability*, sensing, seizing, reconfigure*, agility, resilience. Block D (Context filter; sensitivity check): COVID*, pandemic*, crisis/disruption (used selectively to ensure COVID-specific retrieval without excluding foundational ERM/DC literature).	Within each concept block, synonyms were combined using OR to increase sensitivity; the concept blocks were then combined using AND to increase quality/specificity. Parentheses were used to preserve Boolean logic and ordering.
Primary search terms	(enterprise risk management OR ERM OR strategic risk OR risk governance) AND (emerging risk* OR uncertainty) AND (dynamic capabilities)	Keep asterisk truncation rationale (e.g., "risk*" captures risk, risks, riskiness).
Optional COVID-19 pandemic/crisis sensitivity terms	COVID* OR pandemic* OR crisis OR "black swan" OR disruption	Used optional terms as a supplementary string to explore search results to avoid overly narrowing the core ERM/DC results.
Search fields	Title, Abstract, Keywords (where available.	
Limits/filters	Peer-reviewed; English	
Inclusion criteria	Peer-reviewed journals; English; North America and Europe Focus; financial and non-financial sectors	Geography was used to keep the contextual comparability with the participant and potential participant base.

Search Element	Detail	Operational notes (for transparency/reproducibility)
Exclusion criteria	Non-English; non-substantive mentions of ERM/DC (e.g., passing references); purely technical quantitative risk modelling outside ERM/governance; non-organizational contexts.	I tailored exclusions to keep the review anchored in "managing risk under uncertainty," not statistical risk modelling per se.
Key journals (targeted hand-search); n=10	Journal of Risk Research, Journal of Applied Corporate Finance, Journal of Risk & Financial Management, Risk Analysis, Reliability Engineering and System Safety, Academy of Management Review, Academy of Management Journal, Journal of Management, Long Range Planning, Strategic Management Journal.	This was targeted hand searching, and journals frequently returned by database searches.
Grey literature	COSO ERM framework (2004, 2017); ISO 31000:2018; Harvard Business Review; industry/practice reports (e.g., RIMS, ERM Initiative, CAPP, Enserva).	Purpose: (1) define practice standards; (2) contextualize practitioner framing; and (3) understand academic versus practice discourse.
Data management	Reference manager: Mendeley.	Microsoft Excel is used for additional advanced sorting and matrix reporting (e.g., by year, author, journal, and keywords).

Since ERM is a relatively new management practice, with most of the academic research on this leading paradigm (Bohnert et al., 2019) published across the last two decades, the literature review organized in this chapter concentrates on academic and professional publications from 2000. ERM was initially established in the financial services sector (Bromiley et al., 2015; Schiller & Prpich, 2014). The concentration has primarily focused on quantitative measures to mitigate financial risks (e.g., market risk, credit risk, and liquidity risk) (Aebi et al., 2012; Bohnert et al., 2019; Farrell & Gallagher, 2015; Liebenberg & Hoyt, 2003). However, contemporary non-financial organizations continue to adopt ERM as an enterprise-wide approach to managing risk, with a focus on more strategic and systematic themes. This holistic view considers opportunities and threats to organizations (Bohnert et al., 2019; Bromiley et al., 2016). Therefore, the literature review includes research across various industries.

Literature Review Structure and Focus

The literature review draws on van Asselt and Renn (2011) and harnesses principles of risk governance. Risk governance, according to van Asselt and Renn (2011), "involves the translation of the substance and core principles of governance to the context of risk and risk-related decision-making" (p. 432). Moreover, risk governance relates to modes in which "many actors, individuals, and institutions, public and private, deal with risks surrounded by uncertainty, complexity, and/or ambiguity" (p. 432). Lundqvist (2015) argues that "implementation of risk governance is the active step beyond traditional risk management to ERM" (p. 441), which can arguably be a reaction to the escalating distress about the deficiency of both corporate governance and risk management in organizations (2015). Since risk governance can be considered the ERM identifier (Aebi et al., 2012; Lundqvist, 2015), principles introduced by van Asselt and Renn (2011) highlight three key areas significant for this study. The researcher considers the following fundamental principles:

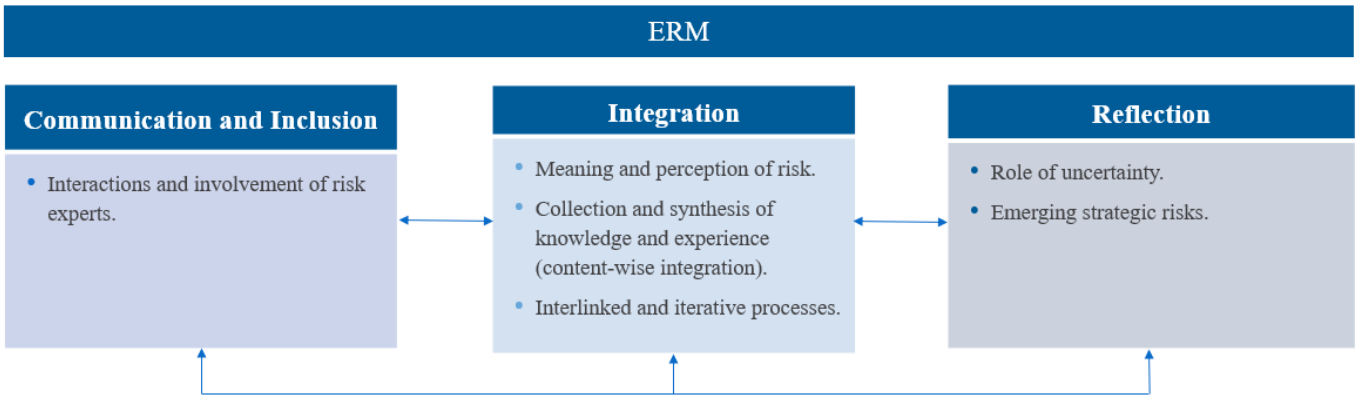
1. **The communication and inclusion principle:** this two-part principle refers to "meaningful interactions in which knowledge, experiences, interpretations, concerns and perspectives are exchanged" (van Asselt & Renn, 2011, p. 439) in a multi-actor process. The inclusion of various actors co-produces risk knowledge, coordinates risk evaluation, and facilitates the design of risk management, that is, the structuring and institutionalization of responses that guide implementation.
2. **The integration principle** emphasizes the importance of considering *content risk activities*, such as relevant experiences, knowledge, and expressions of risk perceptions and values, and *process-related risk activities*, including approaches to framing, appraising, characterizing, evaluating, and managing risks.
3. **The reflection principle** – reflective discourse emphasizes that critical, challenging issues (i.e., uncertainty, complexity, ambiguity, and balancing/reconciling) require repeated consideration to avoid the temptation of treating risks as simple and applying familiar risk management routines. This collective reflection is focused on uncertainty (versus safety) and centred around the question, "how much uncertainty is the [organization] willing to accept in exchange for some benefit(s)?" (p. 442).

Figure 2 presents the literature review framework and illustrates the following key focus areas, reordered in the following sequence:

1. **Risk domain** – discusses emerging risks and key definitions.
2. **Risk rationalities** (Arena et al., 2010) – discusses the role of uncertainty, the conceptualization of uncertainty into organizational risks, and the synthesis of risk knowledge.
3. **Risk processes** – discusses the management of emerging risks.
4. **Risk experts** (Arena et al., 2010) – discuss organizational roles in risk management.

Figure 2

The Three Key Facets and Focus of the Literature Review



Note. Reproduced from van Asselt & Renn (2011).

This critical review explores various risk-related themes, focusing on communication and inclusion, integration and processes, and the reflection on emerging risks. According to Bromiley et al. (2015), risk management research requires a different focus than past management research on risk. A more prescriptive stance is necessary, and greater emphasis should be placed on the effectiveness of practices and activities, including how organizations rationalize risk. Moreover, Power (2009) explains that risk management research is associated with accounting and finance but lacks a comprehensive view of risk management in practice. Analyzing the literature, considering the three interconnected principles mentioned above, helps address the criticisms identified by Bromiley et al. (2015) and Power (2009). It ensures that organizations' capabilities are considered when dealing with the nature of uncertainty, ambiguity, and complexity of

emerging risks. Research gaps are identified throughout the literature review, and a research question is subsequently determined.

Risk Domain

The concept of risk has had different meanings in various academic fields (Andersen & Sax, 2020; Bromiley et al., 2015). Over the last two decades, risk management discourse has become a key source of general management and governance principles (Andersen & Sax, 2020; Power, 2007). The organizational context, industry dynamics, and how situations are framed (Stein, Wiedemann, & Bouten, 2019) influence decision-makers' risk tendencies and determine managerial risk-taking and the outcomes that follow (Hoskisson, Chirico, Zyung, & Gambeta, 2017). This contingency view has instigated a comprehensive stream of research on risk management.

According to Bromiley et al. (2016), risks are identified and described in different ways across academic fields and professional groups. Table 3 summarizes the range of perspectives and illustrative examples presented by Andersen and Sax (2020). Across the multiple perspectives, the general attribute is that the potential impact of certain strategic risks is substantial. In extreme conditions, the potential impact could threaten the organization's sustainability.

Table 3

Risk Perspectives

Perspective	Interpretation Example
Financial	Price volatility affects organizational value, uncertainty may affect organizational performance, and external events affect shareholder value.
Governance / regulatory environment	Events impact organizational strategy, and the organization's failure to embrace the appropriate strategy or implement the selected strategy.
Financial management	Significant working capital and resource commitments made yield superior gains, and substantial capital investments carry uncertain results.
Planning	Significant influences on the organization impact the ability to execute strategy, unexpected challenges in strategy development, circumstances that shape organizational objectives, and issues that affect the organization's ability to attain objectives.
Contingency	Risk factors related to competitors, technology, and the political environment.

Note. Reproduced from Andersen and Sax (2020).

Consequently, the multidisciplinary roots of risk management and the progression into ERM have united numerous practical views that shape the perception of risk factors appearing on risk maps of those involved in the risk management process (Andersen & Sax, 2020; Andersen & Young, 2020; Bromiley et al., 2016). In this view, it is plausible that the field encompasses numerous definitions and viewpoints on the ERM concept.

The subsequent subsections frame an evolutionary account of ERM and provide the setting for discussing various risk definitions, motivation for ERM, managing emerging strategic risks, and assessing ERM in the context of a global pandemic.

Risk Overview

Risk and its measurement are fundamental elements of business and "clearly play a significant role in strategic management research" (Ruefli et al., 1999, p. 181). "Risk has a very long past, but very short history" (Rosa, 1998, p. 15) and the risk field continues to mature as a discernible field of study (T. Aven, 2016; Bromiley et al., 2015). According to Ruefli et al. (1999), risk has been primarily conceptualized through financial economics and statistical

decision theory and measured by the *ex-post* variance of economic performance over time. Moreover, Ruefli et al. (1999) contend that, in a strategic management context, using performance variance in risk measurement is deficient in validity and overlooks the primary interest of organizational executives in responding to changing environmental conditions (Teece, 2007, 2018; Teece et al., 1997). Qualitative research into risk assessment has been limited and insufficiently incorporated into quantitative research designs (Bromiley et al., 2015; Ruefli et al., 1999). In sum, advancing our understanding of perceived risk and its role in organizations remains a central focus of strategic management (Andersen et al., 2014; Roggi & Andersen, 2016).

Attempts to understand the influence of risk in organizations have been impeded by the lack of good information and fragmented risk research (Bromiley et al., 2015; Fraser et al., 2021). For example, some conceive risk as an *ex-ante* evaluation of decisions under uncertainty. Others consider risk an *ex-post* event measured in performance volatility, such as profits, cash flow and return on investment, over time. In addition, strategy scholars have long asserted an essential tenet to conceptualize risk from a strategic perspective (Andersen & Young, 2020; Bromiley et al., 2016; Ruefli et al., 1999). However, definitions in the risk field continue to vary and have not found a consensus (Andersen & Sax, 2020; Bromiley et al., 2015). Moreover, the lines between risk and uncertainty remain vague (Andersen & Sax, 2020; van Asselt & Renn, 2011).

Risk is frequently mentioned when referencing potential exposure sources in the management literature (Andersen & Sax, 2020; Bromiley et al., 2015; Miller, 1992). These sources of exposure refer to internal and external factors that may impact organizational performance (Andersen et al., 2014; Andersen & Sax, 2020). From a strategic viewpoint, according to Andersen and Sax (2020), these factors are known as “trends, developments and environmental changes that may have an influence on the firm’s long-term strategy, competitive advantage, and survival” (p. 30).

Definition of Risk

Fundamental to risk management is the recognition of numerous types of risk, yet there is no agreed-upon definition of risk (T. Aven & Renn, 2009; Bromiley et al., 2015; Mazri, 2017; Rosa, 1998). In Knight’s (1921) classic, *Risk, Uncertainty and Profit,* which has become the

dominant framing of risk (van Asselt & Renn, 2011), risks have been treated in terms of probability and effects, experience and response, and cause and consequence. Risk scholars describe this framing as "the technocratic, decisionistic, and economic models of risk assessment and management" (p. 436). They further explain that for simple risks where the cause is known, the outcomes are apparent, the uncertainty is low, and there is little ambiguity in understanding the risk; in such cases, statistics are available and beneficial (Renn et al., 2011). Furthermore, simple risks recur and remain unaffected by ongoing or anticipated major changes. Examples of simple risks include automobile accidents and seasonal weather events such as flooding.

Another view of risk, which overtly opposes Knight's (1921) definition that risk is limited to quantitative probability distributions (T. Aven & Renn, 2009) is the recognition that not all risks are simple and linear. As a result, many risks facing the organization cannot be determined as a linear function of cause and consequence. Mazri (2017) states that emerging systemic risks have become progressively more important to organizational decision-makers. The global financial crisis, social strife in the Middle East, cybersecurity, the SARS outbreak, and the COVID-19 global pandemic are examples of how systemic events have markedly challenged our understanding of risk systems and their evolution. S*ystemic risk* is "the extent to which risk is embedded in the larger contexts of societal processes" (van Asselt & Renn, 2011, p. 436). Systemic risks develop in tightly interdependent systems (Schweizer, 2021) that are characterized by high complexity, stochastic relationships, and cascading effects (Renn, 2021; Renn et al., 2019, 2020).

Risk scholars argue that uncertainty, complexity and ambiguity contribute to why risk definitions vary and resist straightforward concepts of causation (Renn et al., 2011; van Asselt & Renn, 2011). Furthermore, it is a consistent finding in the risk management literature that, in many cases, emerging systemic risks are assessed and managed as if they were simple (Andersen & Sax, 2020; van Asselt & Renn, 2011). Accordingly, emerging systemic risks are straining contemporary risk management practices and creating new unresolved challenges for practitioners (Andersen & Sax, 2020; Renn et al., 2019; van Asselt & Renn, 2011). Thus, how we understand and define risk affects how risk is assessed, which may entail serious consequences for risk management and communication (T. Aven, 2016; T. Aven & Bouder, 2020).

Among the earliest scholars to consider strategic risks were Baird and Thomas (1985), who described the effects of risks related to strategic decisions, causing performance to fluctuate and involving uncertainty that can threaten the firm. This view parallels Knight's (1921) notion of uncertainty, defined as circumstances in which insufficient data are available to support statistical predictions of future events, as opposed to risk, for which outcomes can be derived from probability distributions. S. Kaplan and Garrick (1981) define risk in terms of probabilities, where risk entails scenarios, probabilities, and outcomes. Similarly, the Institute of Risk Management continues to follow an earlier ISO version in which risk is defined as "the combination of the probability of an event and its consequences" (Institute of Risk Management, 2002, p. 2). The above definitions can be grouped into those in which probabilities and expected values express risk. However, T. Aven (2007, 2010) and Shortridge, Aven, and Guikema (2017) argue that it is insufficient to refer to probabilities and expected values when defining risk, suggesting that such perspectives are too narrow.

Moreover, the probability element of risk should be replaced by uncertainty to avoid overlooking any aspects related to extraordinary and extreme events (T. Aven, 2010; Renn et al., 2020). For example, the risk associated with expected loss purports that there is no difference between events involving potentially significant outcomes and associated small probabilities and recurrent events with minimal consequences if the sums of the products of possible outcomes and the related probabilities are equivalent (Shortridge et al., 2017). These two circumstances entail different risk management approaches (T. Aven, 2010). In sum, expected value decision-making is distorted for rare and extreme events since expected value does not adequately capture events with low probabilities and high consequences (T. Aven, 2012).

The ISO 31000:2018 risk management standard defines risk as "the effect of uncertainty on objectives" (International Organization for Standardization (ISO), 2018). COSO defines risk as "the possibility that events will occur and affect the achievement of strategy and business objectives" (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017, p. 9). These two risk management guidance definitions focus on the "effect of incomplete knowledge of events or circumstances on an organization's decision making" (Andersen & Young, 2020, p. 2), where an *effect* is recognized as a variance from expectations, either favourable or unfavourable. Additionally, this perspective alters traditional risk management by

directing organizations to customize risk management to their context and objectives. These definitions, however, are ambiguous (T. Aven et al., 2011). For example, is a risk under these definitions related to events and outcomes, uncertainties, or both? According to Aven et al. (2011), different interpretations are possible.

Authors such as Rosa (1998) offer a contemporary definition of risk as "a situation or event where something of human value (including humans themselves) has been put at stake and where the outcome is uncertain" (p. 28). The key to this definition is that uncertainty replaces probability, and a broader dialogue of outcome stakes replaces specific outcomes. Rosa (1998) conveys an ontological realism that identifies which states of the world are to be conceptualized as risk (T. Aven et al., 2011; T. Aven & Renn, 2009; Rosa, 1998). Consequently, as an objective state of the world, the risk is independent of our views, knowledge assertions and judgments about what is at risk and how likely risk will occur (T. Aven & Renn, 2009; Rosa, 1998). A critical issue with Rosa's (1998) definition, according to Aven and Renn (2009), is that for the definition to be helpful in practice for risk assessment and risk communication, *ad hoc* assumptions are required. For example, by considering risk as a state of the world, we cannot determine if the risk is high, moderate, or low. Moreover, the ontological status invites arguments over interpretations of risk and about comprehending how some groups are distressed with some risks while discounting others (T. Aven & Renn, 2009).

Aven and Renn (2009) assert that a revision to Rosa's (1998) definition is necessary to strengthen the foundation of the meaning of risk. Risk, as defined by Aven and Renn (2009), "refers to uncertainty about and severity of the consequences (or outcomes) of an activity with respect to something that humans value" (p. 2). This prevailing definition's attributes are based on the combined elements of uncertainties and severity. Risk refers to uncertainty about events/consequences, and severity is a means to characterize the consequences. Severity, for example, refers to measures of magnitude such as intensity, size, extension, and scope and affects something humans value (e.g., lives, money, environment).

Like Rosa's (1998) definition, the general definition constructed by Aven and Renn (2009) includes essential attributes of the essential risk definition: both desirable and undesirable outcomes are accommodated, it considers uncertainties rather than probabilities, and it focuses on outcome stakes rather than specific consequences. However, it disputes that risk is a state of

the world. Said differently, "risk does not exist independent of the assessor, as the uncertainties need to be assessed by somebody" (T. Aven & Renn, 2009, p. 8) and require a "mental construction" (p. 8) of the uncertainty element. Risk, then, is not a state of the world, but the events/consequences that are linked with the risk are states of the world (p. 10), where uncertainties may be the result of 'known uncertainties' (i.e., we know what we do not know) and 'unknown uncertainties' (i.e., we do not know what we do not know). In essence, Aven and Renn's (2009) definition includes an epistemological (knowledge) element of uncertainty in the definition of risk.

As previously cited, there is no agreed-upon definition of risk, yet many definitions have been constructed (Andersen & Sax, 2020; T. Aven et al., 2011). According to risk scholars, when risk definitions are evaluated in terms of their ontological status, differences are revealed in how risk is conceptualized. This analysis affords an enriched means of understanding the risk domain, especially for risk assessment, management and communication (Amundrud & Aven, 2015; T. Aven et al., 2011; T. Aven & Renn, 2009; Rosa, 1998). This section introduces a selection of risk definitions to describe the concept of risk. The researcher considers the risk definition proposed by Aven and Renn (2009), the predominant definition for this study: "*risk refers to uncertainty about and severity of the consequences (or outcomes) of an activity with respect to something that humans value*" (p. 2).

The COVID-19 pandemic sparks many risk-related issues, including how to describe, manage and communicate risks (T. Aven & Bouder, 2020; Beasley et al., 2020; Dryhurst et al., 2020). Countries have adopted various policies, from strict lockdowns to public health guidance. This broad range of strategies to confront the global pandemic has influenced how organizations navigate the rapidly changing, uncertain environment. According to Aven and Bouder (2020), previous pandemic responses can provide insight into the risk field. Following Bromiley et al. (2015) and Aven (2016), researchers need to acquire a more profound understanding of what managers mean by risk, as risk concepts may vary across parts of the organization and by different organizations (Bromiley et al., 2015). Further research in this area is warranted.

The literature review revealed that the role of uncertainty and knowledge must be clarified to understand risk. Researchers have argued that it is not enough to discuss probabilities and historical data (T. Aven & Bouder, 2020; Renn et al., 2020). Furthermore, how risk is

conceptualized and described may be critical for how organizations assess the severity or magnitude of prevailing risks and how risk is communicated and managed. Risk models should be used cautiously to circumvent extreme events being given more substantial weight than is justified (T. Aven & Bouder, 2020; Renn et al., 2020). As discussed in the following subsection, understanding how risks are characterized will inform risk analysis and handling.

Risk Classification

Risk can be market, financial, economic, environmental, social, or technological (Andersen & Sax, 2020; Bromiley et al., 2015). Previously, ERM frameworks classified risks through compartmentalization, focusing on processes, functions, or departments. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2017) currently suggests a broad categorization of risks focusing on new, emerging, and changing risks impacting the strategy's performance and business objectives. Similarly, the International Organization of Standardization (ISO) (2018) advises an all-encompassing means to identify and describe risks that might help or prevent an organization from achieving its objectives. This concept of emergence in risk management can be viewed as a warning sign of the escalating need for organizations to update risk portfolios in a rapidly changing and highly competitive environment (Mazri, 2017).

While the concept of emergence has been widely discussed in academia and by practitioners, a lack of agreement prevails on how emerging risks should be differentiated from other types of risk (Andersen & Sax, 2020; Andersen & Young, 2020; T. Aven & Renn, 2020; Mazri, 2017). Furthermore, emerging risks are no longer a specific category since they are an early distinguishing attribute in every risk lifecycle (Mazri, 2017). According to T. Aven (2016), how organizations understand and describe risk shapes how risk is analyzed and may have significant consequences for risk management and decision-making. A commonly used classification system to discern between different types of risks and risk problems is through using four categories: simplicity, complexity, uncertainty and ambiguity (T. Aven & Renn, 2020; International Risk Governance Council (IRGC), 2017; Renn, 2012; van Asselt & Renn, 2011).

Aven and Renn (2020) describe the four classes as follows:

- A risk problem is *simple* if it is feasible to accurately predict the occurrence of events or consequences, where a probability distribution can express outcomes.
- A *complex* risk problem makes it difficult to accurately predict the performance of a system/activity based on knowing the specific functions and conditions of the system's components. Examples are communication networks and healthcare systems, where there are mediating variables between cause and effect.
- A risk problem is *uncertain* if it is challenging to forecast the occurrence of events or consequences. Uncertainty can occur for various reasons, such as invalid data, variation, poor understanding, and modelling errors.
- Lastly, a risk problem is *ambiguous* when there are different views on (a) the relevance and significance of the basis for decision-making (interpretative ambiguity) or (b) the values to be guarded and priorities to be attained (normative ambiguity).

The risk problem classification system provides a means to "collect and synthesize all relevant knowledge and experience from various disciplines and various sources" (van Asselt & Renn, 2011, p. 441). The link between risk assessment and risk handling can facilitate a distinct risk management strategy (T. Aven & Renn, 2020; International Risk Governance Council (IRGC), 2017; Renn et al., 2011).

Initially coined by the Organization for Economic Co-operation and Development (OECD, 2003), *systemic risk* denotes a condition marked by intricacy and interdependence, with consequences that transcend borders and lead to ripple effects. It is typified by non-linearity, tipping points, delays in regulation and perception, and stochasticity in structure, resulting in heightened uncertainty (Renn, 2021; Renn et al., 2020; Schweizer, 2021; van Asselt & Renn, 2011). According to Schweizer (2021) and Renn et al. (2020), systemic risks, such as climate change, pandemics, and financial crises, pose significant challenges for organizations due to their interconnectedness and complexity, and organizational decision-makers appeal for scientific guidance to govern the evolving future. With no clear boundaries of scope, space, and time, the COVID-19 crisis, a systemic risk, has generated ripple effects that extend from health risks into economic, social, and political realms, producing new risks and opportunities (T. Aven & Bouder, 2020; Renn et al., 2020).

This body of literature clarifies that risk is a complex, multidisciplinary concept shaped by context and framing. It highlights that modern definitions emphasize uncertainty and knowledge gaps more than probability and variance. It also expands traditional risk concepts by distinguishing systemic or emerging risks (characterized by complexity, interdependence, and cascading effects) from simpler risks. It emphasizes that how risk is defined significantly shapes assessment, communication, and management strategies. However, despite these advances, the literature offers limited insight into how organizations perceive and continuously evaluate emerging risks in practice. This includes how managers detect weak signals, handle conflicting interpretations across departments, and incorporate shifting uncertainties into risk profiles, thereby shaping their ability to meet objectives under deep uncertainty. This gap motivates an exploration of the lived experience of sensemaking: how emerging risks are recognized, interpreted, prioritized, and acted upon during a crisis.

While all organizational risks are essential to the ERM process for holistic risk management, systemic risks, as recently shown by the spread of the Coronavirus pandemic, are of particular significance to this research study. Contemporary risk analysis struggles to provide authoritative guidance for sufficiently handling these risks (T. Aven & Zio, 2021). Following Arena et al. (2010), three elements are examined to better understand ERM capabilities in practice: risk rationalities, technologies (or processes), and the activities of actors embedded as uncertainty experts.

Risk Rationalities and the Role of Uncertainty

While the previous section presents risk and uncertainty, this section examines their influence on ERM. Risk rationalities refer to how uncertainty is conceptualized as risk, prompting a range of understandings of the unknown and its impact and a necessity for control (Arena et al., 2010). Understanding and dealing with uncertainty has been widely debated in the literature (Andersen, 2020; T. Aven, 2016). However, there is a dearth of evidence in the literature that analyzes how risk and uncertainty are considered in the context of ERM (Bromiley et al., 2016).

Scholars have been critical of risk managers in their assessment and acknowledgement of uncertainty as an essential element of risk (Bromiley & Rau, 2016; Renn et al., 2020). To

amplify this criticism, an emerging strand of scholars highlights the importance of uncertainty when knowledge and experience about future circumstances are weak (Ale et al., 2020; Amundrud & Aven, 2015; T. Aven, 2016; Friberg, 2015). However, ERM scholarship remains silent when uncertainty transfers to a risk for organizations (Bromiley & Rau, 2014). Overall, risk scholarship has two primary tasks; according to T. Aven (2016), the risk field "is about understanding the world (in relation to risk) and how we can and should understand, assess and manage this world" (p. 1).

The former United States Secretary of Defense, Donald Rumsfeld (Ale et al., 2020; Friberg, 2015), provides an often-cited statement on the challenges of describing states of the world. Rumsfeld honoured the idea of (Luft & Ingham, 1955), known as the Johari window, which has evolved and been applied in the risk field as a risk matrix (Ale et al., 2020). The Johari window, depicted in Table 4, is a four-quadrant matrix that describes the relationship between people's knowledge and the hidden knowledge: the things we know we know: known knowns; the things we know we do not know: known unknowns; the things we do not know we know or said differently, the things we do not know that is known somewhere in the world; and lastly, things we do not know that is unknown; unknown unknowns, or simply, unknowns. The latter, "unknown unknowns," underscores our problems in describing states of the world in advance when there is uncertainty (Friberg, 2015), which is the most difficult and the most discussed (Ale et al., 2020).

Table 4

The Johari Window

	Known (to self)	**Unknown (to self)**
Known (in the world)	Known known (open)	Unknown known (blind)
Unknown (in the world)	Known unknown (hidden)	Unknown

Note. Reproduced from Ale et al. (2020).

The introduction of the black swan concept represents extreme events as a fundamental characteristic of modern times (Ale et al., 2020; Swango, 2020; Taleb, 2007). The concept also notes that people tend to overlook the role of randomness and significant deviations that violate the conventions of scientific methodologies, encouraging reliance on large-scale predictions to

assess future conditions (Andersen, 2020). However, rare and improbable events do occur, such as the 1918 Spanish Flu Pandemic, the 1929 Stock Market Crash and Great Depression, the Black Monday Stock Market Crash of 1987, the 9/11 Terrorist Attacks, the 2000-2002 Dot-Com Bubble Collapse, the 2008-2011 Global Financial Crisis, and the 2020 COVID-19 Pandemic (Swango, 2020).

Whether or not the COVID-19 pandemic is a black swan is a matter of judgment, considering the standard criteria for such events: unpredictability, unexpectedness, and severe consequences (T. Aven & Bouder, 2020; T. Aven & Zio, 2021; Swango, 2020; Wu et al., 2021). Events like the COVID-19 pandemic remind us of risk and the inevitable uncertainties in decision-making, planning and forecasting (Andersen, 2020; Swango, 2020; Wu et al., 2021). “It is an inescapable truism of our existence that we will always be exposed to the element of surprise. ERM is not designed to prevent unknown events from emerging that can damage or even destroy the organization, nor could it, or any other system, be so designed” (Segal, 2011, Chapter 4, “Environmental scanning for unknown risks,” para. 3). Likewise, ERM is incapable of predicting events or knowing the unknown. ERM allows us to make better sense of risk-reward decisions and organize and leverage information about known risks (Segal, 2011).

Black swan events are not studied to predict future events (Swango, 2020; Taleb, 2007). Instead, black swan events are analyzed to create strategies to manage such events' repercussions better and to unearth lessons for preparedness (T. Aven & Zio, 2021; Glette-Iversen & Aven, 2021; Swango, 2020). Hence, further research is necessary to explore how uncertainty impacts emerging risk management. The COVID-19 pandemic, caused by the SARS-CoV-2 virus, is an appropriate setting to perform research.

Organizations cope with numerous risks that are difficult to foresee and have unknowable characteristics (Andersen & Sax, 2020; Andersen & Schrøder, 2010; Bromiley & Rau, 2014). Seemingly, the complexity of risk relationships might be overwhelming to manage. However, a systematic approach to identifying risks and assessing their effects on an organization can aid the firm by delineating the most critical exposures. Adopting an enterprise risk management perspective gives the organization a structured and systematic method to identify, assess and integrate the most significant risk exposures (Andersen & Schrøder, 2010; Bromiley et al., 2015). Thus, enterprise risk management is discussed further in the next section.

Research on risk rationalities and uncertainty shows that uncertainty is a fundamental part of risk. It shapes how the unknown is perceived, what is considered controllable, and which forms of risk knowledge (e.g., known knowns, known unknowns, and unknown unknowns) are accepted within ERM practices. It also shows that extreme-event concepts, such as black swans, challenge prediction-based rationalities. This highlights the limitations of traditional planning and forecasting when knowledge is limited, and surprises are inevitable. However, the literature offers limited insight into how uncertainty affects how organizations cope with emerging risks. Specifically, it overlooks how practitioners adapt (or fail to adapt) their risk rationalities as uncertainty grows, how they decide what to formalize versus keep provisional, and how ERM practices are modified in real time when unknowns cannot be easily measured or controlled. This gap prompts further investigation into how risk leaders experienced and emotionally managed uncertainty while dealing with emerging risks during the pandemic.

Enterprise Risk Management Practices

Background

Enterprise risk management (ERM) is increasingly becoming the leading paradigm of corporate risk management (Jankensgård, 2019; Sax & Andersen, 2019). ERM depicts a shift in how organizations manage risks by using vital management approaches to holistically evaluate the significant risks they face (Bromiley et al., 2015; Power, 2009). Across the past two decades, there has been an increase in demand for ERM and improved governance of organizational risks (Jankensgård, 2019; Jean-Jules & Vicente, 2021). The primary drivers behind this demand are pressure from organizational stakeholders as a response to recent corporate scandals involving companies like Enron, WorldCom, Tyco, Parmalat and others, by demanding higher self-discipline, more ethical behaviours and public risk disclosure (Andersen & Schrøder, 2010; Bromiley et al., 2015; Fraser & Simkins, 2016; Segal, 2011).

The 2002 Sarbanes-Oxley Act in the United States was the most prominent legislative initiative, holding boards of directors, Chief Executive Officers (CEO) and other senior executives responsible for potential risks (Andersen & Schrøder, 2010; Bromiley et al., 2015; Lundqvist, 2014). This accountability, in effect, compels boards of directors and executives to conduct comprehensive corporate risk reviews rather than operate on the periphery (Andersen & Schrøder, 2010; Lundqvist, 2015). The central aim of these initiatives is to ensure that

organizations have appropriate management controls in place to address recognized risks (Jankensgård, 2019; Segal, 2011).

In a world of increasing complexity, technological advancement, political volatility, and global interconnection, organizations face new and often interdependent exposures (Andersen & Sax, 2020; Bryce et al., 2020; Louisot, 2024) with higher uncertainty (Andersen, 2020; Louisot, 2024). The literature suggests that traditional planning frameworks based on forecasts are insufficient, and foresight has become increasingly important (Andersen & Schrøder, 2010). Enhancing an organization's capabilities to sense emerging environmental changes is essential (Bogodistov & Botts, 2016; Bogodistov & Wohlgemuth, 2017; Louisot, 2024; Nair et al., 2014). Therefore, managing risk is not only a matter of appropriate management controls to monitor predetermined exposures, but is also a matter of ensuring necessary flexibility within the organization to allow suitable responses to 'unknown unknown' risk events (Andersen, 2020; Andersen et al., 2014; Bogodistov & Wohlgemuth, 2017; Louisot, 2024).

Enterprise Risk Management Defined

The distinctive feature of ERM is that it represents risk management as viewed from the perspective of the organization's top management team and board of directors (Jankensgård, 2019). Moreover, ERM aggregates all risk management activities into a single integrated framework that enables the identification of such interdependencies (Hoyt & Liebenberg, 2011) and "frame the firm's willingness and capacity to accept such exposures" (Jankensgård, 2019, p. 565).

Enterprise risk management helps organizational managers limit downside risk from significant exposures. Concurrently, ERM supports managers by contemplating opportunities more systematically, such as those that represent upside potential (Andersen & Schrøder, 2010; Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017; International Organization for Standardization (ISO), 2018). As an emerging risk management approach, ERM has various definitions. Table 5 presents ERM definitions and descriptions from academic journals, industry publications and associations, rating agencies and standards-setting organizations, listed in order by publication year.

Table 5

Conceptualizations of Enterprise Risk Management

Author / Source	Enterprise Risk Management Definition / Description
Dickinson (2001, p. 360)	"…is a systematic and integrated approach to the management of the total risks that a company faces."
Harrington, Niehaus, and Risko (2002, p. 71)	"…a firm should identify and (when possible) measure all of its risk exposures—including operational and competitive risks—and manage them within a single unified framework."
Liebenberg and Hoyt (2003, p. 37)	"Unlike traditional risk management, where individual risk categories are separately managed in risk 'silos,' ERM enables firms to manage a wide array of risks in an integrated, holistic fashion."
Verbrugge et al. (2003, p. 8)	"… corporate-wide, as opposed to departmentalized, efforts to manage all the firm's risks—in fact, its total liability structure—in a way that helps management to carry out its goal of maximizing the value of the firm's assets. It amounts to a highly coordinated attempt to use the right-hand side of the balance sheet to support the left-hand side—which, as finance theory tells us, is where most of the value is created."
Kleffner et al. (2003, p. 54)	"…the ERM approach requires that a company-wide approach be taken in identifying, assessing and managing risk."
Casualty Actuarial Society (CAS) (2003, p. 109)	"…is the discipline by which an organization in any industry assesses, controls, exploits, finances, and monitors risks from all sources for the purpose of increasing the organization's short- and long-term value to its stakeholders."
Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2004, p. 2)	"… a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives."
Sobel and Reding (2004, p. 29)	"…a structured and disciplined approach to help management understand and manage uncertainties—encompasses all business risks using an integrated and holistic approach."

Author / Source	Enterprise Risk Management Definition / Description
Dreyer and Ingram (2008, pp. 2–3) for Standard and Poor's	"… as an approach to ensure the firm is attending to all risks; a set of expectations among management, shareholders, and the board about which risks the firm will and will not take; a set of methods for avoiding situations that might result in losses that would be outside the firm's tolerance; a method to shift focus from "cost/benefit" to "risk/reward;" a way to help fulfill a fundamental responsibility of a company's board and senior management; a toolkit for trimming excess risks and a system for intelligently selecting which risks need trimming; and, a language for communicating the firm's efforts to maintain a manageable risk profile."
Segal (2011, p. Chapter 2, Definition of ERM section)	"The process by which companies identify, measure, manage, and disclose all key risks to increase value to stakeholders."
Hoyt and Liebenberg (2011, p. 798)	"ERM provides a structure that combines all risk management activities into one integrated framework that facilitates the identification of such interdependencies."
Mikes and Kaplan (2015, p. 38)	"Enterprise risk management consists of active and intrusive processes that (1) are capable of challenging existing assumptions about the world within and outside the organization; (2) communicate risk information with the use of distinct tools (such as risk maps, stress tests, and scenarios); (3) collectively address gaps in the control of risks that other control functions (such as internal audits and other boundary controls) leave unaddressed; and, in doing so, (4) complement—but do not displace—existing management control practices."
Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2017, p. 3)	"…the culture, capabilities, and practices that organizations integrate with strategy-setting and apply when they carry out that strategy, with a purpose of managing risk in creating, preserving, and realizing value."
Beasley (2019, p. 4)	"The "e" in ERM signals that ERM seeks to create a top-down, enterprise view of all the significant risks that might impact the strategic objectives of the business. In other words, ERM attempts to create a basket of all types of risks that might have an impact – both positively and negatively – on the viability of the business."

Author / Source	Enterprise Risk Management Definition / Description
Sax and Andersen (2019, p. 720)	"ERM represents an integrated approach where all risks are analyzed in aggregation across the entire organization including those risks for which probability, timing and impact can be hard to predict such as the risk inherent in strategic decisions."
Andronache, Althonayan, and Matin (2021, p. 1)	"ERM concentrates on 'risk oversight' value, articulating and embedding due diligence within an organization's strategy to establish a risk mindset across the organization."
Risk and Insurance Management Society (RIMS) (2022)	"Enterprise Risk Management ("ERM") is a strategic business discipline that supports the achievement of an organization's objectives by addressing the full spectrum of its risks and managing the combined impact of those risks as an interrelated risk portfolio."

The comprehensiveness of ERM definitions in Table 5 highlights no universal definition. Moreover, there appears to be disagreement about what ERM represents. To indicate this disagreement, Table 6 below groups each definition or description into one of four categories.

Table 6

Distinction Between Enterprise Risk Management Definitions and Descriptions

Area of Distinction	Author / Source of ERM Definition/Description
Risk is defined independently of organizational objectives:	Dickinson (2001); Liebenberg and Hoyt (2003); Kleffner et al. (2003); Sobel and Reding (2004); Hoyt and Liebenberg (2011); Mikes and Kaplan (2015); Sax and Andersen (2019)
Risks are unequivocally defined in terms of achieving organizational (strategic) objectives:	Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2004); Beasley (2019); Andronache et al. (2021); Risk and Insurance Management Society (RIMS) (2022)
Risks are viewed mainly as an issue or problem to be reduced:	Harrington et al. (2002); Dreyer and Ingram (2008) for Standard and Poor's
Risks viewed as opportunities and sources of value creation:	Verbrugge et al. (2003); Casualty Actuarial Society (CAS) (2003); Segal (2011); Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2017)

With respect to Table 6, a key distinction emerges between perspectives that treat ERM as largely independent of organizational objectives and those that explicitly frame ERM as a means of achieving organizational objectives. Next, there is a distinction between risks to be mitigated versus the view that risks can be considered opportunities and sources of firm value. These definitions share that risks should be managed in an integrated, holistic manner under a portfolio approach and not in organizational silos (Andersen & Schrøder, 2010; Bromiley et al., 2016; Lam, 2014; Power, 2004). As counselled by Power (2007), the caveat stresses that ERM is an all-embracing concept, and managers should resist assuming ERM is a rational collection of practices. The risks of risk management are summarized in a leading challenge as the "risk management of everything" (Power, 2004, p. 20), mainly brought on by emerging new risk categories, which Power (2009) eventually uncovers as the "risk management of nothing" (Power, 2009, p. 853).

Proponents of integrated risk management approaches argue that ERM can outperform traditional risk management methods due to synergies that may arise from considering interdependencies between organizational risks (Hoyt & Liebenberg, 2011). Consequently, by aggregating risks into a single portfolio, "firms are able to improve the understanding of their overall risk exposure" (Bohnert et al., 2019, p. 236). Key findings from the 2020 Risk Management Society (RIMS) *Enterprise Risk Management Survey* report that 98% of organizations have a fully or partially integrated ERM program, up 26% from 2017. In addition, 76% of senior management teams and boards of directors apply ERM insights into decision-making, and 45% reported increasing coordination and meeting strategic and operational objectives as ERM's most significant value; and 22% experienced an increase in resource allocation for ERM as a consequence of the COVID-19 pandemic challenges (Risk Management Society, 2020). However, while most organizations accept the ERM concept, many continue to be discouraged by implementation issues that have hampered the expected benefits of ERM (Jean-Jules & Vicente, 2021). For instance, in Canada, ERM has made significant strides in the past decade, with "73% of organizations surveyed hav[ing] some form of ERM program in place" (Côté-Freeman, 2019, p. 4); however, there remains a "lack of perceived opportunity to grow the ERM function" (p. 14). This is troubling, as risk practitioners continue to report modest levels of ERM integration into business strategy and core business processes (Beasley et al., 2021; Côté-Freeman, 2019).

Enterprise Risk Management Frameworks

The increase in demand for more formal risk management systems from institutional investors, stock exchanges, credit rating agencies, and regulators (Andersen & Schrøder, 2010; Arena et al., 2010; Sax & Andersen, 2019) has led to the prominent introduction and subsequent revisions of risk management frameworks (Arena et al., 2010; Jean-Jules & Vicente, 2021; Segal, 2011). Thus, according to Sax and Andersen (2019), adopting ERM is recognized as an indicator of good corporate governance, and organizations put themselves at risk by abandoning it.

The literature variously refers to risk management activities, programs, frameworks, and models, each reflecting a different level of abstraction and formalization. Activities denote discrete risk-related practices; programs refer to coordinated and sustained sets of practices; frameworks provide normative guidance on how risk management should be structured; and models offer simplified representations to support analysis and decision-making. While these distinctions are conceptually meaningful, empirical studies frequently show that they overlap in practice. This study treats such overlap as an empirical feature of how risk management is enacted under conditions of uncertainty rather than as a definitional problem.

The risk management practices proposed by the joint Australian/New Zealand risk management standard (AS/NZS 4360), the Committee of Sponsoring Organizations of the Treadway Commission (COSO), International Organization for Standardization (ISO), the Casualty Actuarial Society's (CAS's) framework, and the Federation of European Risk Management Associations (FERMA) common standard, all represent examples of current ERM frameworks. The COSO and the ISO frameworks are the most widely used risk management frameworks (Andersen & Sax, 2020; Côté-Freeman, 2019; Jean-Jules & Vicente, 2021). The COSO framework, initially introduced in 2004 as Enterprise Risk Management – Integrated Framework and revised in 2017 as Enterprise Risk Management – Integrating with Strategy and Performance, has become one of the models for best practices (Power, 2009; Sax & Andersen, 2019). Table 7 presents an overview of various ERM frameworks developed since 2001.

Table 7

Examples of Enterprise Risk Management Frameworks

Framework	Year	Key Attributes
Casualty Actuarial Society's (CAS's) framework	2001	Covers hazard, financial, operational and strategic risks managed systematically and holistically.
Australian/New Zealand risk management standard (AS/NZS 4360)	2004	Emphasis on embedding risk management practices in the organization's culture and processes.
COSO, Enterprise Risk Management – Integrated Framework	2004	Defines and discusses key ERM components and principles and offers guidance for ERM
ISO, Risk Management Framework (ISO-31000:2009)	2009	The framework presents a broader range of risk categories compared to COSO while maintaining a familiar structure of principles and processes.
COSO, Enterprise Risk Management – Integrating with Strategy and Performance	2017	The revised version emphasizes how ERM informs strategy and organizational performance through insight into the links between strategy, risk, and performance. The framework intends to offer guidance to deal with increasingly complex risks under heightened regulatory demands.
ISO, Risk Management - Guidelines (ISO-31000:2018)	2018	The revised version recognizes the importance of risk management integration into the organization's governance, including decision-making. Moreover, it acknowledges cognitive biases and the assumptions of those participating in the risk assessment process.

Across these frameworks, a common underlying assumption is that risk management is carried out through a structured process that encompasses risk identification, risk assessment and analysis, and risk response. While these frameworks offer helpful guidance, they face criticism. One limitation is that the frameworks are "prescriptive and normative, and they adopt a rational model stance" (Jean-Jules & Vicente, 2021, p. 249). Consequently, the reliance on a rational model tends to oversimplify the complexities of the risk management process, allowing firms to

believe that complete information is accessible to identify and assess all risks relevant to the firm and to have confidence that risk responses can be developed (Jean-Jules & Vicente, 2021).

The second limitation of the comprehensive frameworks originates from the management accounting and control domain (Hoyt & Liebenberg, 2011; Sax & Andersen, 2019). The aim of developing ERM frameworks in response to corporate misconduct and scandals was to safeguard stakeholders from the financial impacts of corporate risks (Andersen & Schrøder, 2010; Bromiley et al., 2015). While introducing these frameworks may have reinforced the control environment to satisfy the regulators, the restrictive nature "may constrain creative thinking and hold back the development of responsive solutions to changing conditions" (Andersen & Schrøder, 2010, Chapter 6, Section "6.4 Limitations of the ERM framework," para. 3). Consequently, implementing ERM frameworks has the potential to evolve into thick administrative exercises that erode upside benefits and incur high organizational costs.

Lastly, ERM frameworks recommend a top-down hierarchical structure involving reporting lines to executive management and, in most cases, the board of directors (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017; Fox, 2018; International Organization for Standardization (ISO), 2018). According to Andersen and Schrøder (2010), this structure potentially creates a centralization of power and central direction of activities, which may diminish the contribution of key actors and functional specialists. A potential outcome, as noted by Andersen and Schrøder (2010), may well be "lower organizational flexibility, slower decision-making and reduced responsiveness" (Chapter 6, Section "6.4 Limitations of the ERM framework," para. 5). Consequently, ERM frameworks may fall short in addressing progressively uncertain environments that require strategic response capabilities.

Unpacking the *ERM mix* in the search for crucial circumstances that steer the selection of a suitable risk management system for an organization, Mikes and Kaplan (2015) argue that the effectiveness of risk management ultimately depends on people who organize and contribute to the process rather than on the framework adopted. Nevertheless, risk management practices across the ERM frameworks share the same underlying principles, with some vocabulary differences (Sax & Andersen, 2019). In the next section, ERM components are examined to clarify what ERM represents and to outline the current academic debate.

Enterprise Risk Management Components

According to Andersen and Schrøder (2010) and Jean-Jules and Vicente (2021), ERM frameworks comprise shared key elements that organizations should adapt to their specific needs (Andersen & Schrøder, 2010; Mikes & Kaplan, 2015). Thus, the ERM framework is not a one-size-fits-all system or scheme (Mikes & Kaplan, 2015) but an outline that provides risk management guidance for organizations (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017; Lundqvist, 2014).

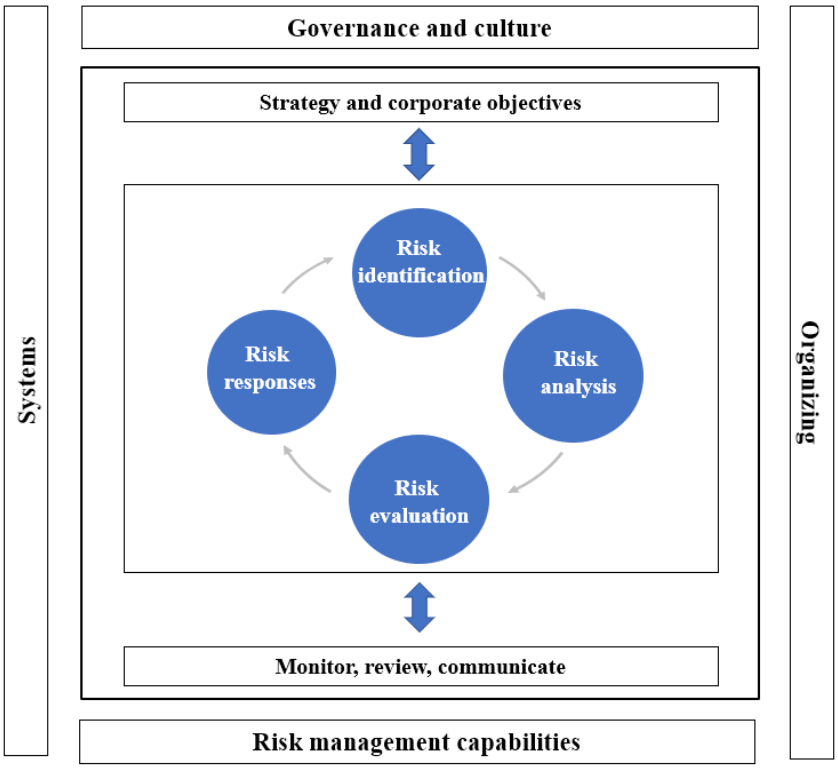
According to Mikes and Kaplan (2013), ERM is "deployed at different organizational levels, for different purposes, and by different staff groups" (p. 10). The absence of a formal ERM framework and the failure to announce an executive sponsor, such as a chief risk officer (CRO), may not necessarily indicate that ERM practices are lacking within the organization (Sax & Andersen, 2019). Risk management can be integrated into organizational practice in ways that are not explicitly stated and do not involve risk-related vocabulary (Boholm et al., 2012; Corvellec, 2009). Corvellec (2009) states, "an organisational silence about risk does not necessarily imply an absence of risk management" (Corvellec, 2009, p. 300). In line with Sax and Andersen (2019), this study assumes that many organizations enact ERM-consistent principles through existing management and decision-making processes, even when these are not labelled as *ERM*. In practice, such as learning-by-doing, changes appear in ordinary planning, analytics, communication, and stakeholder processes; for instance, rolling forecasts and simple stress tests in finance, 'what-if' conversations and pre-mortem-style discussions in leadership meetings, or informal supplier and customer health checks in commercial negotiations. Over time, these routines embed ERM-consistent principles (e.g., identification, assessment, response, and monitoring) without being formally labelled as risk management (see assumption 2 on learning by doing and risk-related capabilities embedded in other functions).

Notably, ERM frameworks are framed in terms of a process (Jankensgård, 2019) and retain the traditional risk management cycle consisting of risk identification, risk analysis, risk evaluation and risk response, as a fundamental process element. In other words, ERM clarifies how the process should identify, analyze, and respond to critical organizational exposures, and further explains how risk responses should align with overarching corporate objectives within a controlled environment that monitors exposure and risk management outcomes, as shown in

Figure 3 below. Moreover, ERM should be embedded and organized within the organization, specify which systems are required to support risk management activities and capabilities, and describe the desired aspects of corporate culture and leadership styles.

Figure 3

Enterprise Risk Management Components



Note. Reproduced from International Organization for Standardization (ISO) (2018).

The Risk Management Process

Within the context of ERM, the risk management strategy considers organizational objectives and aims to integrate risk management activities with business processes. By embedding risk management activities within business processes, actors across these processes can effectively control and manage risk events (Hall, Mikes, & Millo, 2015; Mikes & Kaplan, 2013). This embeddedness is an essential element of ERM. According to Andersen and Schrøder (2010), without this strategic embeddedness, risk management lacks a business policy context and may be reduced to a checklist exercise.

The COSO (2017) ERM framework comprises five interrelated components, each supported by various principles that aim to reinforce those components as follows:

1) *Governance and culture*: Exercises board risk oversight, establishes operating structures, defines a desired culture, demonstrates a commitment to core values, and attracts, develops, and retains capable individuals.
2) *Strategy and objective-setting*: Analyzes business context, defines risk appetite, evaluates alternative strategies, and formulates business objectives.
3) *Performance*: Identifies risk, assesses the severity of risk, prioritizes risks, implements risk responses, and develops a portfolio view.
4) *Review and revision*: Assesses substantial change, reviews risk and performance, and pursues improvement in enterprise risk management.
5) *Information, communication, and reporting*: Leverages information and technology, communicates risk information, and reports on risk, culture, and performance.

Based on the ERM process depicted in Figure 3, Table 8 presents empirical studies that examine the primary ERM elements adopted from COSO (2017), previously described as a best practices framework. The five selected elements in Table 8 are supplemented with two columns to the right that indicate whether the ERM study references systemic risks or pandemics. A checkmark (✓) suggests that the study explicitly refers to the ERM element. An '✗' indicates an absence in the study.

Table 8

Enterprise Risk Management Components

Author(s)	Comments	Enterprise Risk Management Components						
		Strategy/objective setting	Risk identification	Risk assessment	Risk response	Communication and monitoring	Systemic risks	Crisis or pandemic (e.g., COVID-19)
Jean-Jules and Vicente (2021)	Expansion and development of ERM to a socio-technical framework.	✓	×	×	×	✓	×	×
Etges and Cortimiglia (2019)	Systematic risk events review and development of an interpretation ERM model applicable in innovation-intensive contexts.	✓	✓	✓	✓	✓	×	×
Mishra et al. (2019)	Examines factors influencing ERM and explains its components, with a focus on risk identification.	✓	✓	×	×	✓	×	×
Braumann (2018)	Examine the relationship between the five ERM components and their influence on ERM effectiveness.	✓	✓	✓	✓	✓	×	×
Lundqvist (2014)	An exploratory study of ERM components and how firms implement ERM.	✓	✓	✓	✓	✓	×	×
Nair et al. (2014)	Examination of ERM capability to the 2008 global financial crisis.	✓	✓	✓	✓	✓	×	✓

Note. ERM components reproduced from COSO (2017).

Table 8 indicates that researchers appear to agree conceptually on the broad components of ERM. However, according to Lundqvist (2014), components "differ in their structural representations" (p. 396), including how integral elements of ERM are defined (Bromiley et al., 2015). The variations observed among the different ERM elements and the numerous frameworks that have emerged can result in a pervasive sense of ambiguity regarding the ability of ERM to generate value (Beasley et al., 2005; Beasley, Pagach, et al., 2008; Desender, 2007; Gordon et al., 2009; Hoyt & Liebenberg, 2011; Liebenberg & Hoyt, 2003; McShane et al., 2011). This is concerning because organizations invest considerable resources in developing and implementing ERM capabilities (Lundqvist, 2014).

Notably, the dominant ERM reference frameworks that inform both practice and much of the empirical literature (e.g., COSO, ISO 31000, CAS, and FERMA) are intentionally general and principle-based. Their purpose is to define core ERM concepts (e.g., governance, process, integration, and monitoring) across a wide range of organizations, rather than to provide crisis-specific operational protocols. Consequently, these frameworks offer limited explicit guidance for pandemic-type emerging risks characterized by deep uncertainty and systemic interdependencies (e.g., rapidly changing signals, shifting assumptions, and cascading second-order effects). This design limitation helps explain why the COVID-19 pandemic required organizations to adapt, supplement, or improvise beyond baseline ERM structures. This provides empirical motivation to examine how risk management was *lived and enacted* during the pandemic, thereby supporting a lived-experience inquiry.

The objective of risk management frameworks is to provide organizations with a comprehensive insight into the "magnitude, interrelatedness and importance of different exposures through a holistic, systematic and structured analysis of various risk factors" (Andersen & Schrøder, 2010, Chapter 6, Section "6.1 Drivers of the new risk paradigm," para. 6). However, little research has been conducted on systemic risks, crises, and pandemics. The following section outlines the empirical research that represents the current evidence and understanding to inform the field of ERM.

Empirical ERM Studies

Empirical studies on ERM have primarily focused on the impact of ERM on firm performance and value, and ERM adoption (Bromiley et al., 2015; Sax & Andersen, 2019). According to Andersen and Sax (2020), a promising research focal point is the application of ERM in specific organizational circumstances, such as developing risk management capabilities to manage strategic exposures in periods of rapid change (Andersen & Sax, 2020; Bogodistov & Wohlgemuth, 2017). Despite the growing attention to ERM (Bromiley et al., 2015; Jankensgård, 2019), empirical investigations have not yielded conclusive evidence regarding the efficacy of ERM practices (Andersen & Sax, 2020; Bromiley et al., 2015; Lundqvist, 2015). As Malik et al. (2020) note, there is no consensus among scholars thus far, with some studies suggesting that ERM is valuable while others suggest it is not.

The inconclusiveness, or variation in results, can be attributed to two main reasons. First, there has been a challenge in developing a trustworthy ERM construct. For example, various studies employ contrasting variables as indicators of ERM implementation, such as appointing a chief risk officer (CRO) as a proxy for ERM applications (Beasley, Pagach, et al., 2008; Liebenberg & Hoyt, 2003). Research has revealed a positive association between CRO existence and ERM adoption as a rationalization for using CRO positions as a proxy for ERM implementation (Beasley et al., 2005). Other studies search for ERM terms (Lundqvist & Vilhelmsson, 2018) and ERM disclosures (Maingot et al., 2018) in company annual reports as markers or signals of ERM implementation. However, these measures have been criticized for their sweeping statements and "fails to capture the nuances of ERM practices" (Andersen & Sax, 2020, Chapter 4, para. 2). In sum, these ERM indicators do not consider the extent to which ERM processes are performed within an organization (Beasley, Pagach, et al., 2008; Mikes & Kaplan, 2013). Second, the effect of adopting ERM is evaluated against various measures of organizational performance, such as measuring firm value (Hoyt & Liebenberg, 2011) and the use of market reactions represented by changes in stock price (Beasley, Pagach, et al., 2008). According to Andersen and Sax (2020), the varying use of firm performance measures complicates the ability to generalize on ERM effectiveness.

Enterprise risk management research has advanced beyond the limitations imposed by the proxies for ERM implementation mentioned above. For example, Baxter et al. (2013) and

McShane et al. (2011) use Standard & Poor's (S&P) ERM quality ratings of financial firms to assess levels of practice maturity and examine variations in organizational characteristics. For example, Baxter et al. (2013) found that firms with higher S&P ERM ratings are sophisticated, have greater financial resources and have better corporate governance. They also observed that higher-risk organizations had lower quality ERM ratings, which they attributed to resource and capability limitations constraining ERM investment. However, Lundqvist (2014) argues that the S&P ratings proxy must be evaluated further for suitability in ERM research "because of its newness and dependence on the S&P definition of ERM" (p. 398).

In another ERM measure, Gordon et al. (2009) constructed an ERM index as a measure of ERM effectiveness based on achieving the four objectives determined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) (2004). Moreover, based on the 2004 COSO ERM framework, various researchers have developed measures to study the extent of ERM implementation (Beasley et al., 2005; Paape & Speklé, 2012; Sax & Torp, 2015). In another study, Lundqvist and Vilhelmsson (2018) constructed a novel measure of the degree of ERM implementation in financial institutions. They conducted text-based searches of annual reports across several ERM dimensions (e.g., risk appetite and response). Lastly, Quon, Zeghal, and Maingot (2012) comprehensively explore the extent of ERM adoption among Canadian non-financial firms before and after the financial crisis. Their analysis examines the level of risk assessment reported in the Management Discussion and Analysis (MD&A) section of annual reports and in the Notes to the financial statements. Researchers have explored new and familiar ways to make sense of ERM. This section further explores empirical research on ERM adoption, ERM and firm performance, and the application of ERM in organizations.

ERM Adoption

Empirical research indicates that adopting ERM is associated with a range of internal and external organizational antecedents. For example, internal factors include firm size, profitability, and other financial considerations, institutional ownership, regional and international diversification, and a dedicated CRO role. External factors include regulatory pressure and the industry sector.

Organizational size affects the extent of ERM adoption, where larger organizations are presumably more formalized, and economies of scale support a fully functional ERM system

(Beasley et al., 2005; Bohnert et al., 2019; Gatzert & Martin, 2015; Kleffner et al., 2003; Lechner & Gatzert, 2018; Paape & Speklé, 2012). Adopting ERM is considered a significant organizational change initiative and involves considerable resource commitments (Bohnert et al., 2019; Fraser & Simkins, 2016; Paape & Speklé, 2012). Financial, human resources and information technology resources can be obstacles for organizations seeking to adopt ERM (McShane et al., 2011).

Gatzert and Martin (2015) argue that ERM can reduce volatility in earnings, cash flow, and stock price. Organizations with greater volatility potentially require additional external financing, which requires higher quality risk management to minimize the chance of financial distress (Hoyt & Liebenberg, 2011; Liebenberg & Hoyt, 2003). Consequently, these firms are more likely to adopt ERM to stabilize earnings and control stock prices (Hoyt & Liebenberg, 2011; Pagach & Warr, 2011). Similarly, Bohnert et al. (2019) find that earnings volatility and stock price are strong indicators that an ERM system is in place. However, in contrast, Hoyt and Liebenberg (2011) find a negative association pointing to the explanation that financial firms are already experiencing ERM's holistic benefit of reducing volatility in cash flows and reduced variation in stock performance.

Financial leverage, an indicator of capital structure, is related to an organization's borrowing. It is measured by the "ratio of the book value of liabilities to the market value of equity" (Hoyt & Liebenberg, 2011, p. 812). Empirical evidence of the effect of financial leverage on ERM adoption is mixed. Liebenberg and Hoyt (2003) and Pagach and Warr (2011) observe that financial leverage is positively related to ERM adoption as a mechanism to reduce financial distress. However, Hoyt and Liebenberg (2011) and Lechner and Gatzert (2018) determine a significant negative relationship with ERM engagement, suggesting that organizations with lower financial leverage, and therefore lower financial risk, may adopt ERM to absorb more risk due to enhanced risk awareness. Bohnert et al. (2019) observe a significant negative association, supporting the claim that organizations with high-quality risk management capabilities may reduce leverage, thereby reducing the risk of a debt payment default.

Another financial consideration relates to the buffer or cushion organizations establish to manage through periods of stress on operating cash flows. Financial slack is the term given to this buffer and is measured by the value of liquid assets on hand to support operations to cover

deficiencies in operating cash flows (Pagach & Warr, 2011). Pagach and Warr (2011) explain that while some organizations may increase financial slack to reduce financial distress, it is also acceptable to reduce financial slack if effective risk management practices are in place. According to Bohnert et al. (2019), insurance companies that have implemented robust risk management programs tend to maintain larger amounts of cash and short-term investments compared to their book value of assets. As a result, these firms possess greater financial slack when compared to insurance companies that have lower-quality risk management programs. This observation suggests that having a strong risk management program in place can lead to improved financial flexibility and resilience for insurance firms. However, Hoyt and Liebenberg (2011) find that the average ERM adopter has less financial slack and suggest that ERM firms may reduce financial buffers as a result of enhanced risk management capabilities.

Institutional ownership can influence ERM adoption. Pagach and Warr (2011) and Hoyt and Liebenberg (2011) argue that organizations with greater institutional ownership are likelier to adopt ERM because of the pressure they can exert to demand risk-adjusted decision-making. Bohnert et al. (2019) find that institutional shareholders persuade firms to develop a holistic risk management system. However, Liebenberg and Hoyt (2003) found no significant impact on their US-based sample using data prior to the global financial crisis. A potential explanation could be that investors did not value ERM as a beneficial management practice before the global financial crisis. However, Paape and Speklé (2012) do not find an effect for institutional ownership in their study based on firms in the Netherlands. A possible explanation could be that in certain countries, such as the Netherlands, "institutional block holders are traditionally rather reluctant to interfere with management" (p. 544).

According to Hoyt and Liebenberg (2011), industrial and international diversification likely influences whether an organization adopts ERM. While diversification may reduce overall exposure to an organization, such as political risks, by situating operations across industries and regions, greater diversification is expected to increase the complexity of aggregated risks (Andersen, 2011; Andersen & Sax, 2020; Hoyt & Liebenberg, 2011). This increase in complexity provides an incentive for organizations to adopt ERM, yet empirical research is mixed. For example, Lechner and Gatzert (2018) and Farrell and Gallagher (2015) find a significant positive relationship between ERM and diversification, whereas other studies do not

confirm a significant relationship between diversification and ERM adoption (Hoyt & Liebenberg, 2011; Pagach & Warr, 2011). Similarly, Liebenberg and Hoyt (2003) examine whether insurance companies in the United States are more likely to adopt ERM when they have subsidiaries in Canada or the United Kingdom; however, no empirical evidence supports this. Moreover, Hoyt and Liebenberg (2011) observe a negative association between international diversification and ERM adoption in the financial services industry.

Another critical internal factor influencing the adoption of ERM is whether the organization has a dedicated CRO role. The 2021 survey by the ERM Initiative in the Poole College of Management at North Carolina State University finds that a dedicated executive, such as a CRO, assigned to lead the risk management process, is becoming more common than it was a decade ago. However, only 47% of survey organizations have this leadership role (Beasley et al., 2021). Given the COVID-19 pandemic, the survey highlights that all types of organizations are reconsidering the need to identify a senior executive to serve as a CRO or equivalent, especially for public companies and financial services organizations (Beasley et al., 2021). In examining the use of ERM in Canadian organizations, Kleffner et al. (2003) find that ERM adoption is influenced directly by the risk manager or CRO. Similarly, Beasley et al. (2005) find that the presence of a CRO significantly affects ERM implementation. Additionally, Paape and Speklé (2012) find that the presence of a CRO demonstrates the degree of ERM adoption in organizations by advancing ERM success through strong support at the senior management levels, including the chief executive officer or chief financial officer (Beasley, Pagach, et al., 2008).

Other empirical research has considered links to external factors influencing the adoption of ERM, such as regulatory pressure and the industry sector. Kleffner et al. (2003) have reported that imposing legal requirements on organizations can encourage them to adopt and comply with formal risk management practices. Andersen and Sax (2020) have identified the following regulatory requirements: the Guidelines on Corporate Governance Principles for banks by the Basel Committee on Banking Supervision, the New York Stock Exchange Corporate Governance Rules, the Sarbanes-Oxley Act in the United States of America, and the Combined Code on Corporate Governance in the United Kingdom and the Netherlands. Generally, these codes require compliance with a formal risk management practice, establishing expectations that

organizations adopt an ERM program (Andersen & Sax, 2020). This suggests that regulatory frameworks can play an instrumental role in promoting the adoption of effective risk management practices within organizations.

Industries play a crucial role in organizations' adoption of ERM. Organizations in financial services are more likely to adopt ERM (Beasley et al., 2005; Liebenberg & Hoyt, 2003; Pagach & Warr, 2011). Firms operating in the oil and gas industry are more likely to adopt ERM due to the nature and scope of the work involved, including safety, market supply and demand volatility, and environmental concerns (Cornwell et al., 2022; Rogers & Ethridge, 2013). In addition, where financial service firms are internationally diversified and operate in countries with strict corporate governance requirements, such as Canada and the United Kingdom, ERM programs are more likely to be adopted (Liebenberg & Hoyt, 2003).

ERM and Performance

Enterprise risk management adoption continues to increase (Bailey, 2022) despite the ongoing debate on the benefits of implementing ERM (Andersen & Sax, 2020). Some risk managers contend that the 2008 financial crisis stemmed from a system-wide failure to adopt ERM and that implementing ERM may prevent history from repeating (Eckles et al., 2014). ERM enhances firm value through risk management efficiencies, mitigating downside losses, enhancing decision-making capabilities and heightened risk awareness (Bromiley et al., 2015), and management accountability (Gates et al., 2012). Nocco and Stulz (2022) argue that organizations that successfully create an effective ERM system maintain a long-term competitive advantage and add shareholder value by managing the risk-return trade-off facing the entire organization. Adopting ERM "helps the firm maintain access to the capital markets and other resources necessary to implement its strategy and business plan" (Nocco and Stulz, 2022, p. 81). While there is rising support for the broad argument that organizations will improve performance by implementing ERM (Gordon et al., 2009), "high-quality ERM is difficult to define and, in many ways, poorly understood" (Bailey, 2022, p. 205).

The empirical studies that consider the impact of ERM on performance are summarized in Appendix A and discussed below under key subheadings. Tobin's Q is primarily used in studies to approximate firm value from shareholders' perspective, representing meaningful future expectations of shareholders (Hoyt & Liebenberg, 2015).

Prior research studies on the relationship between ERM implementation and performance are ambiguous. Research has reported benefits associated with ERM implementation, including improved firm performance, increased firm value, reduced earnings and stock price volatility, lower cost of capital, and greater capital efficiency. Gates et al. (2012) find that the practical value side of ERM is that it "makes management better" (p. 36) through enhanced consensus and communications, improved decision-making, and increased accountability. Their study finds that this enhanced management capability leads to greater ability to achieve strategic goals and improved performance. However, some researchers have not found positive relationships supporting the ERM benefits discussed below.

Firm (Financial) Performance and Value

Baxter et al. (2013) examine the relationship between ERM quality and firm performance and value in a sample of 165 banks and insurance companies, and find that ERM quality is positively associated with operating performance; however, they find no relation between ERM quality and market value prior to and during the 2008 Global Financial Crisis. However, Baxter et al. (2013) observe a positive association between ERM quality and market value during the market recovery. The observation may suggest that stakeholders seek organizations with enhanced strategic response capabilities and better oversight of managers' risk-taking behaviours once a crisis has been experienced. Grace, Leverty, Phillips, & Shimpi (2015) study the cash flow implications of specific ERM initiatives for insurers and find that firms emphasizing specific ERM-related activities achieve higher cost efficiency and return on assets.

Several empirical studies incorporate the independent Standard & Poor's (S&P) ERM rating to identify ERM activities and provide insight into the value of ERM. Moreover, S&P's ERM ratings provide a reliable measurement for the extent of ERM implementation, distinguishing between a high-quality and a lower-quality risk management system (Bohnert et al., 2019). Results from previous research incorporating S&P's quality ERM quality ratings find a statistically significant positive impact of ERM on firm value, thereby confirming the value relevance of ERM (Ai et al., 2018; Baxter et al., 2013; Bohnert et al., 2019; Lechner & Gatzert, 2018).

Beasley et al. (2008) studied 120 firms to examine equity market response to announcements of hiring CROs. They find that in nonfinancial companies, including those in the

oil and gas industry, markets respond positively to ERM adoption among large organizations with high earnings volatility. On the contrary, Lin, Wen, and Yu (2012) find a negative market response to ERM adoption among insurers with a strong negative correlation with firm value. McShane et al. (2011) also examine the relationship between ERM and firm value for insurers. They find a positive relationship between the increasing use of silo-based traditional risk management and firm value, but this does not increase further as insurance companies achieve ERM. This result raises the question of whether the ERM culture tends to restrict organizational growth, reflected in the firm's market value.

Eckles et al. (2014) also study insurers. Between 1995 and 2008, they observed that, after ERM implementation, organizations experienced reduced risk and higher profits concurrently and experienced a reduction in stock return volatility. Further, due to the costs and difficulty of ERM implementation, reduced stock return volatility is gradual at first. Then, stock returns become increasingly stable over time, where returns per unit of risk (measured by return on assets (ROA) / return volatility) increase post-ERM implementation. Similarly, Nair et al. (2014) studied how insurance firms with superior ERM capability performed during and after the financial crisis. Their findings offer a complex picture of risk management during and after a crisis. While the study focuses on a single industry and a specific crisis, the observation is that different elements of ERM are required to manage the transition from crisis to recovery (Nair et al., 2014). During the market collapse, superior ERM capability mitigated stock price declines yet had no impact on firm profitability. During the market recovery in 2010, superior ERM capability did not affect stock price, yet it was positively and significantly associated with firm profitability.

Callahan and Soileau (2017) evaluate the influence of ERM process maturity on operating performance across a broad sample of non-financial industries, unlike Baxter et al. (2013) and McShane et al. (2011), who focus their ERM process studies within the financial services industry, including insurance. They document that ERM processes and greater ERM process maturity are positively associated with industry median-adjusted performance, as measured by return on assets and equity. As Gordon et al. (2009) observed, these results will likely improve cash flow and market performance. Consistent with Grace et al. (2015), Farrell and Gallagher (2015), and Hoyt and Liebenberg (2011) conclude that organizations that have

achieved mature ERM levels and the degree of top-down executive engagement display higher firm value. Beasley et al. (2015) argue that organizations with greater ERM maturity are significantly more likely to involve the board of directors and senior management in certain risk oversight activities. They add that certain risk practices are linked with perceptions that ERM provides a strategic advantage. These findings imply that organizational stakeholders, including shareholders, management, and the board of directors, receive rewards not only upon embracing ERM but also in subsequent periods following the adoption of ERM (Callahan & Soileau, 2017).

According to McShane et al. (2011) and Mikes and Kaplan (2015), the primary barrier to ERM research is the development of a valid and reliable measure of the ERM construct. In contrast, Quon et al. (2012) examined the effect of ERM on firm performance as measured by various market-based performance measures, including Tobin's Q, sales growth, and profit. Their study of non-financial firms listed on the Toronto Stock Exchange found no relationship between ERM implementation and performance. Furthermore, Pagach and Warr (2010) fail to find evidence that ERM creates firm value. Failing to realize results does not imply that implementing ERM is not beneficial. It could be that measuring ERM success is challenging, especially during periods of corporate events impacting key financial statement metrics, such as mergers, acquisitions, and divestitures (Beasley et al., 2015; Pagach & Warr, 2010).

Arguably, ERM can provide organizations with the ability to lower the cost of capital and provide better access to capital markets as enriched risk disclosures decrease information asymmetries, which improves investor confidence (Liebenberg & Hoyt, 2003; Nocco & Stulz, 2006, 2022; Pagach & Warr, 2011). To further add to the discussion on how ERM increases firm value, Berry-Stölzle and Xu (2018) examine the relationship between ERM adoption and a firm's cost of external financing and study whether ERM adoption is negatively associated with the cost of equity capital. In their study of insurance firms, they find that ERM is significantly associated with a lower cost of capital. It suggests that the cost of capital benefits is a significant source of value creation for an organization.

While most of these studies do not consider the aspects of ERM practices or how ERM design varies between organizations, researchers agree that, in practice, ERM differs from one firm to the next (Andersen & Schrøder, 2010; Arena et al., 2010; Bromiley et al., 2015; Mikes, 2009). In some organizations, ERM is implemented as an integrated, cohesive practice to

manage various risks (Andersen & Schrøder, 2010). In other organizations, ERM is considered more of a catch-all term (Power, 2009), in which different organizational departments deliver distinct risk management practices (Arena et al., 2010), such as financial and credit risk.

ERM and Contingency Factors

By embracing a contingency approach to ERM, firm-specific or contextual factors may explain the "dependence of ERM performance outcomes on organization context" (Mikes & Kaplan, 2015, p. 37). Gordon et al. (2009) find that the ERM-firm performance relation is contingent upon a proper fit between ERM and contextual factors such as environmental uncertainty, industry competition, firm size, firm complexity, and board monitoring. While these factors significantly affect ERM effectiveness, their sample includes over fifty percent of observations from three highly regulated industries. Sax and Torp (2015) argue that ERM success is contingent upon a risk management culture that encourages people to speak up and report on risk events and rewards for such behaviour. Their study highlights that effective ERM rests on a participative leadership style contingent on a speak-up organizational culture. Further, Beasley et al. (2005) find that top management team support is critical for ERM implementation.

Sax and Andersen (2019) investigate the performance effects of ERM and the relationship with organizations' strategic planning among 260 large Danish firms. They find that ERM has a favourable and statistically significant impact on firm performance, improving profitability and reducing financial leverage. Furthermore, the study shows that the organization's strategic planning processes significantly mediate these performance effects. They argue that ERM enhances risk awareness and treatment, improving organizational capabilities to align risk initiatives in strategic planning (Sax & Andersen, 2019). In sum, implementing ERM practices in conjunction with strategic planning helps reap the risk management potential. Accordingly, firms may emphasize strategic planning to boost the value of ERM (Andersen & Sax, 2020).

In summary, many empirical studies provide strong evidence of the potential value of implementing ERM. However, the empirical evidence concerning the proposed benefits is mixed and inconclusive. Therefore, empirical research has provided only modest evidence on how ERM adoption creates value for the firm, despite compelling arguments and formal motivations.

ERM Applications

The third and emerging stream of empirical research, according to Mikes and Kaplan (2015), seeks to "understand risk management *in situ* as an organizational and social practice" (p. 38). Mikes (2009) defines two contrasting ERM models: quantitative enthusiasm, or ERM by the numbers, and quantitative skepticism, or holistic ERM. The variation in calculative practices can be substantial, according to Mikes (2009), both between firms and within the same industry (Arena et al., 2010; Mikes, 2009), and Power (2009) suggests that the extent to which these practices are embedded can also differ. Schiller and Prpich (2014) argue that organizations will only modify their risk management if they "learn to integrate different risks coherently" (p. 1000), which is closely tied to managing knowledge (Lelic, 2002; Neef, 2005).

T. Aven and Kristensen (2019) differentiate among types of knowledge and suggest that, while general knowledge can be strong, organizations must still consider who knows what and how well they understand the specifics when assessing risk and making decisions. They argue that complete control over risks cannot be achieved in complex systems, and that shocks and surprises will occur. Moreover, if complexity is not fully acknowledged, "the result will be blind zones and poor understanding of uncertainty" (p. 2). Thus, organizations must recognize "the importance of uncertainties and knowledge for the proper understanding, assessment and management of risk" (T. Aven & Kristensen, 2019, p. 2). According to Kiesler and Sproull (1982), the capability of sensing is the critical process that allows organizations to manage in periods of rapid environmental change and to capitalize on risk-taking, which requires a high level of dynamic capabilities (Andersen, 2020; Andersen & Sax, 2020).

The dynamic capability view further develops and extends resource-based theory (Peteraf et al., 2013). The dynamic capabilities perspective emerged due to the limited applicability of the resource-based view in dynamic environments. The resource-based view (Barney, 1991; Barney et al., 2001) or resource-based theory (Barney et al., 2011) presumes heterogeneity in resource attributes across organizations. It explains a firm's competitive advantage by its possession of resources with specific characteristics. Accordingly, for organizations to achieve a sustained competitive advantage, they should possess valuable (V), rare (R), inimitable (I) and non-substitutable (N) resources, described as the VRIN-criteria. Bogodistov and Wohlgemuth (2017) argue that the VRIN criteria are the "underlying pillars of holistic ERM" (p. 235) in that they

help set priorities in risk management. Organizations face an unlimited number of potential risks (Bromiley et al., 2016; Burisch & Wohlgemuth, 2016; Mikes & Kaplan, 2015), and management needs to identify and prioritize risks with the greatest impact on the organization. Applying the resource-based view highlights which risks deserve attention.

Dynamic capabilities refer to "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997, p. 516) and seek to explain how organizations can adapt to rapidly changing and turbulent environments. According to Bogodistov and Wohlgemuth (2017), the dynamic capability perspective supports ERM in shifting away from an *ex-ante* prediction of risky events by offering organizations resources, routines and processes to cope and recover from unforeseen events that may arise. The ERM approach presumes that critical risks can be identified in advance, that they can be explicitly assessed and managed, and that risk exposures can be communicated and reported without resistance to senior management (Andersen & Sax, 2020). Risk management often focuses on probability estimation and loss exposure based on previous events, which could be deceiving (Bogodistov & Botts, 2016; Bogodistov & Wohlgemuth, 2017). Andersen (2020) and Bogodistov and Wohlgemuth (2017) posit that organizations should concentrate on dynamism, the unpredictability of the environment and the necessary routines and capabilities to cope with *wicked problems* that are multifaceted, difficult to resolve, and require a risk-management capability of cross-functional and collective processes (Andersen, 2020).

Established initially to enrich insight into strategic agility in high-tech organizations operating in high-velocity environments (Teece et al., 1997), dynamic risk capabilities are relevant for the oil and gas industry due to the changing business ecosystem (Shuen et al., 2014). As previously argued, risk management in a dynamic business environment requires more than just *ex-ante* ERM. Both *ex-ante* and *ex-post* risk management capabilities are necessary (Bogodistov & Wohlgemuth, 2017).

In conclusion, while the empirical literature remains relatively scarce, there has been mounting attention to the antecedents of ERM adoption, the proposed benefits, and the capability to manage strategic risk exposures. Although this research focus has generated thought-provoking insights, the empirical results are largely inconclusive. Nevertheless, further research

is required to uncover additional details and nuances on how ERM is practiced in different organizational settings (Andersen & Sax, 2020; Mikes & Kaplan, 2015; Sax & Andersen, 2019).

The current empirical ERM literature remains methodologically unbalanced. As summarized in Appendix A, of 31 studies on ERM adoption, implementation, and performance, only two use qualitative methods (e.g., Arena et al., 2010; Mikes, 2009). Most rely on archival proxies, surveys, and regression analysis to examine relationships between ERM and outcomes. While these approaches enhance understanding of correlations and determinants, they provide limited insight into how risk management unfolds in real time, what practitioners experience amid ambiguity and trade-offs, and why certain organizational dynamics either facilitate or hinder risk management. This is especially true in contexts like the COVID-19 pandemic, where uncertainty is constantly shifting, information can be disputed, and practical judgments and improvisation are often not captured by survey instruments. This study addresses this gap by using a transcendental phenomenological approach (Moustakas, 1994) to collect practitioners' first-person accounts of managing risk during the pandemic. These yield detailed, process-focused insights that complement the existing quantitative evidence rather than compete with it.

The body of literature on ERM practices demonstrates that ERM has become a leading governance-oriented approach, implemented through widely accepted frameworks (e.g., COSO, ISO 31000), and guided by a common process (e.g., identification, assessment, response, and monitoring). This approach integrates risk oversight with strategy, performance, and organizational controls. Research shows that the rise in ERM adoption is driven by increased stakeholder expectations and regulatory pressures. Empirical studies primarily focus on factors leading to adoption and its relationship with firm outcomes, while a smaller number explore ERM as an *in situ* practice influenced by people, tools, and organizational context. Despite these developments, the literature provides limited insight into which ERM components are most crucial for managing emerging risks under deep uncertainty. Specifically, how organizations adjust or reconfigure key elements like governance structures, risk appetite, communication routines, and cross-functional engagement when signals are unstable, assumptions change, and quantification becomes unreliable. The heavy reliance on archival data (e.g., annual reports), disclosure measures, and surveys further conceals the real-time improvisation and trade-offs involved in enacting ERM during crises. This highlights the need for lived-experience studies on

how ERM practices are adapted or reshaped to address emerging risks, such as the COVID-19 pandemic.

Organizational Roles in Managing Risk

According to Arena et al. (2010), the third element of ERM dynamics analysis is that of uncertainty experts. Uncertainty experts are associated with the organizational roles involved in dealing with uncertainty, namely risk specialists, internal auditors, management accountants, and those with the title Chief Risk Officer (CRO). These uncertainty experts shape how ERM varies in practice and evolves within organizations through their embedded action as they interpret the firm's risk programs and objectives (Arena et al., 2010; Mikes, 2009; Segal, 2011).

Segal (2011) argues that any system that includes the randomness of human behaviour can never be relegated to a programmed arithmetic system to uncover unknown risks. The "façade of these approaches always falls away to reveal a delicate array of assumptions that must be constructed by the subject matter experts" (Segal, 2011, Chapter 4, "Environmental scanning for unknown risks," para. 4), and this traces back to how organizational actors are involved to different extents in conceiving and controlling uncertainty (Arena et al., 2010; Mikes, 2009; Power, 2009; Segal, 2011).

Organizational risk managers have been a familiar subject matter in the ERM literature. The first group, risk silo specialists, involves risk quantification: measuring and assessing risks across specific categories within different organizational silos, such as financial/credit risk (Arena et al., 2010; Mikes, 2009). Following the traditional risk management perspective, this group's analysis involves reporting trends and adherence to organizational risk limits (Mikes, 2009). E. Aven and Aven (2015) identify this role as task risk management, where goal achievement is routinely the focus instead of enterprise-level dimensions.

ERM literature identifies internal auditors within organizations as a second group of risk specialists. The function of Internal Audit (IA) has evolved into an essential governance mechanism in risk management (Weekes-Marshall, 2020). Studies reveal that IA is critical to risk management processes, where a strong linkage can develop between IA, senior management of the organization, and the audit committee at the Board of Directors level (Tamimi, 2021; Viscelli et al., 2016). Although risk oversight of the firm rests with the Board of Directors, the

internal audit function may often be tasked with specific risk management functions (Beasley, Clune, et al., 2008; Weekes-Marshall, 2020). Internal audit of risk management is guided by Standard 2120 issued by The Institute of Internal Auditors (IIA) and involves the evaluation and assuring: (a) risk management process design and how well processes operate; (b) management of critical risks, including the effectiveness of the controls; and (c) reliable and appropriate assessment of risks and risk reporting (The Institute of Internal Auditors, 2019). While the IA role in risk management has been clearly defined by the IIA (Radu, 2018), Weekes-Marshall (2020) finds ambiguity regarding the level of involvement that IA should have in risk management processes. Furthermore, some boards of directors may have concerns about how ERM involvement affects the objectivity and independence of internal audit.

Management accountants have been considered subject matter risk experts, critical in managing uncertainty through variance analysis related to organizational performance (Arena et al., 2010). In a 2019 Canadian ERM benchmarking study, 59 percent of respondents specified a background in accounting, leading the ERM function in organizations (Côté-Freeman, 2019). The role of the profession, according to The Chartered Professional Accounts of Canada (CPA Canada) and the Canadian Financial Executives Research Foundation (CFERF) (2016)has urged management accountants to take on a leading role in risk management to embed risk management within performance management.

The last group of risk experts relates to senior management. The leadership of risk management is structured in various ways across organizations and industries (Beasley & Branson, 2022), where “larger entities, public companies, and financial services organizations are more likely to have a dedicated risk leader” (p. 32). With the development of ERM, the role of CRO has emerged (Aabo et al., 2005; Andersen & Sax, 2020; Liebenberg & Hoyt, 2003). While some academic studies specifically discuss the CRO role (Bailey, 2022; Liebenberg & Hoyt, 2003; Mikes, 2009; Paape & Speklé, 2012), other studies concentrate more broadly on risk management oversight (Andersen & Schrøder, 2010; Beasley et al., 2015; Malik et al., 2020). CROs contrast with risk management specialists because they work beyond risk calculation and advise managers on risk decision-making (Power, 2007). Mikes (2014) argues that the role of the CRO “may be less about the packaging and marketing of risk management tools to business

managers, but instead, the facilitation of the creation and internalization of a specific risk talk as a legitimate, cross-functional language of business" (p. 16).

Appointing an executive, such as a Chief Risk Officer, to oversee the risk management process has become increasingly common over the past decade (Bailey, 2022; Beasley & Branson, 2022). In their annual survey of organizations of various types and sizes to better understand the current state of enterprise risk oversight, Beasley and Branson (2022) found that fewer than half of the 560 surveyed organizations assign an executive to a risk management role. Mikes and Kaplan (2015) assert that an organization with a CRO "explains very little about the quality, depth, breadth, and impact of a firm's risk management processes" (p. 38). However, Bailey (2022) maintains that expertise in the CRO role contributes to "ERM system quality" (p. 223) and represents an intangible asset that creates value for the organization.

As an extension of senior management and the CRO role, an organization's board of directors primarily oversees management's risk-taking actions (Beasley & Branson, 2022; Dupire et al., 2021; Malik et al., 2020). Beasley and Branson (2022) contend that formally assigning a board committee to oversee management's risk assessment and risk management process is essential to board governance. This practice is particularly prevalent in larger organizations and publicly listed firms, where the audit committee is most frequently selected for this role. Dupire et al. (2021) highlight this importance and find that robust board-level risk oversight practices in the pre-crisis period were less vulnerable to the financial crisis. Overall, the strength of board risk oversight can act as a buffer in crises, providing greater stability for the organization. Furthermore, Malik et al. (2020) argue that board-level risk oversight alone is insufficient. Moreover, they argue that a structurally strong board-level risk committee with high levels of monitoring and greater independence, coupled with financial experts, gender diversity, and inter-committee directorships, strengthens ERM's impact on firm performance.

Segal (2011) argues that ERM provides a means to organize and leverage risk information to make better risk-reward decisions by risk managers and leaders (Andersen & Young, 2020). However, the literature lacks consensus on the appropriate structure or body to oversee and be involved in an organization's ERM program (Beasley & Branson, 2022; Liebenberg & Hoyt, 2003). A greater understanding of the human element as an essential risk management feature is necessary (Andersen & Young, 2020).

Research on organizational roles in risk management shows that ERM involves a group of uncertainty experts, such as risk specialists, internal auditors, management accountants, and CROs, who work alongside senior leadership and the board of directors. Each group shapes how uncertainty is interpreted, formalized, and governed through different rationalities, ranging from measurement, compliance, and control to facilitation and cross-functional risk discussions. The literature indicates that internal auditors are expected to evaluate and enhance risk management, yet the appropriate level of involvement without compromising independence remains unclear. It also highlights the inconsistent presence of dedicated executive risk leaders across organizations. Despite these insights, there is limited understanding of who should be involved and how roles are organized and coordinated to manage emerging risks amid deep uncertainty. Specifically, how organizations leverage dispersed expertise beyond formal risk functions, reconcile varying perspectives across departments, and adapt escalation, decision rights, and governance when quantification is unreliable and circumstances change rapidly, remains unexplored. This gap warrants further study of how role structures, informal influence, and cross-functional engagement support or hinder the management of uncertainty and emerging risks, such as the COVID-19 pandemic.

Research Gaps in the Literature and Research Question

Although organizations use ERM to manage all risk categories (Andersen & Sax, 2020; Bromiley & Rau, 2014), it is imperative to examine how they account for emerging risks. With the internationalization of organizations and social networks across borders, the creation of intricate and interconnected networks emphasizes the need for this examination (Andersen & Young, 2020; Sax & Andersen, 2019). In this context, it is impossible to forecast events and consequences due to interweaving relationships that have nonlinear effects (Andersen & Sax, 2020). Consequently, increasing uncertainty defies traditional risk management practices built on assumptions that risk is identifiable and quantifiable, where genuine uncertainty cannot be quantified (Emmett, 2020; Knight, 1921). These circumstances challenge organizations in managing emerging risks, especially those subjected to global effects (e.g., organizations operating in the oil and gas industry).

Across the four streams of literature reviewed above, one clear process-related gap emerges. Research clarifies what emerging or systemic risks are (risk domain); discusses how

uncertainty is justified and understood (risk rationalities); identifies the ERM components organizations should have (ERM practices); and identifies who may be involved (organizational roles). However, it seldom explains how the management process operates when these risks intensify under conditions of deep uncertainty. Collectively, these bodies of work underrepresent the practical, end-to-end activities, such as detecting weak signals, negotiating conflicting interpretations, translating uncertainty into risk judgments, adapting ERM components (rather than rigidly following them), and dynamically coordinating roles and decision rights as conditions change and escalate. The overall gap, therefore, is a lack of empirical, practice-based insight into how organizations actively manage emerging/systemic risks; that is, how they make risks understandable enough to act upon and continually adjust governance, routines, and participation amid ongoing uncertainty, as exemplified by the COVID-19 pandemic.

The identified gaps converge on a single core research gap. We lack understanding of how risk management processes function in practice when organizations face emerging risks characterized by deep uncertainty. The research question, *"What was it like to manage the risk management process during the COVID-19 pandemic?"* directly addresses this missing experience-in-practice knowledge by prioritizing meaning, sensemaking, and real-time adaptation under deep uncertainty. A transcendental phenomenological approach is therefore justified because it is designed to describe the meaning of lived experience across individuals and to synthesize a composite description/essence of the phenomenon (Adu, 2019; Larsen & Adu, 2022; Moustakas, 1994). Its emphasis on bracketing and the development of textural (what) and structural (how/conditions) descriptions aligns with the aim to foreground participant accounts of how risk management was enacted under uncertainty rather than imposing prescriptive ERM assumptions (Moustakas, 1994). In this study, *bracketing* refers to the process of explicitly surfacing and setting aside my prior assumptions and professional experience with ERM so that participants' descriptions remain the primary basis for analysis (Moustakas, 1994).

Table 9 synthesizes the research gap identified in the reviewed literature. It first states the core gap: limited empirical understanding of how risk management processes operate in practice when organizations confront emerging/systemic risks under deep uncertainty. The table then decomposes this overarching gap into four interrelated dimensions that pinpoint where process knowledge is thin: (1) how emerging risks are perceived and conceptualized; (2) how uncertainty

shapes coping and action; (3) which ERM elements are actually critical in practice (as distinct from those emphasized in normative frameworks); and, (4) how roles and cross-functional coordination are configured and mobilized during escalation. These dimensions show that the research gap concerns the enacted risk management process under conditions of rapid change, limited knowledge, and cascading effects.

Table 9

Research Gap Synthesis: Core Research Gap and Four Gap Dimensions

Research Gap Dimension	Description
Core Gap	We lack an understanding of how risk management processes function in practice when organizations face emerging risks characterized by deep uncertainty.
Perception and Conceptualization	Weak comprehension of how organizations perceive and conceptualize emerging risks that impact their capability to achieve organizational objectives.
Uncertainty Management	Weak comprehension of the influence of uncertainty on handling or coping with emerging risks in practice.
Critical ERM Elements	Weak comprehension of which ERM elements prove critical in managing emerging risks (versus which elements are emphasized in normative frameworks).
Organizational Roles and Coordination	A greater understanding of who should be involved in managing emerging risks is needed.

Conceptual Framework

The conceptual framework developed for this research study facilitates research design, aids in providing a focus and shapes the research process, including determining which data collection instruments are used (Bloomberg & Volpe, 2019). The framework also becomes the data repository, providing the organizing structure for and informing iterations of a coding scheme (Marshall & Rossman, 2016). As such, the conceptual framework becomes a process and a product (Ravitch & Riggan, 2017).

The conceptual framework is developed through a review and critique of the literature, combined with personal experience from Harvard Business School's *Risk Management for Corporate Leaders* program in December 2021. The framework seeks to reduce the gap between ERM as a holistic management approach to managing risk (Andersen & Young, 2020; Bromiley et al., 2015) and the deficiency of scholarly and practical work on emerging risks during a crisis. Thus, the conceptual framework, Figure 6 (see page 79), explores how organizations apply ERM to manage risks and better prepare for future crises, thereby providing an expanded understanding of ERM in today's rapidly changing environment.

The development of the conceptual framework is influenced by Daft and Weick's (1984) model of organizational interpretation. The three phases, scanning (data collection), interpretation (data given meaning), and learning (action taken), together form a relationship in which "organizations learn about and make sense of the external environment" (p. 292). Risk management is closely tied to making sense of the external environment and developing risk knowledge. According to Kaplan (Robert S. Kaplan, personal communication, April 5, 2022), "committing some resources to (i) reducing the impact of an adverse event (so consciously trying to change the probabilities of future events happening), and (ii) reduce the impact should an adverse event still occur (so consciously trying to change the outcomes in a decision tree analysis)." Dr. Robert S. Kaplan is a Senior Fellow and Marvin Bower Professor of Leadership Development, Emeritus at the Harvard Business School, and he continues to explore how firms can implement risk management processes that reflect their strategies (Harvard Business School, 2023). In summary, organizations follow some activity or process when committing resources to an adverse event. Even though the impetus for action (i.e., a risk event) and the various phases

from risk identification to risk treatment have been characterized differently across studies, the underlying theme remains the same (Andersen & Sax, 2020).

Figure 4 shows the main elements of risk management processes, including feedback loops, which represent the process's cyclical nature. Furthermore, the feedback loops underscore that experiences gained from risk response and monitoring activities provide insight into emergent risks during a crisis and shape subsequent risk management activities (Andersen & Sax, 2020). The i*ssue-selling* concept, also known as *risk selling* by Andersen and Sax (2020), is an effective means of raising awareness about relevant risks among decision-makers in organizations (Braumann, 2018; Dutton et al., 1997; Dutton & Ashford, 1993). It aims to prompt adjustments or corrections to the organization's strategic direction (Andersen & Young, 2020).

As detailed in the section related to Figure 3: Enterprise Risk Management Components, risk management during the pandemic operated as an iterative, feedback-driven cycle rather than a linear sequence. Figure 4 synthesizes the process elements, especially the feedback loops and issue-selling/risk selling, showing how learning from responses and monitoring escalates emergent signals to decision-makers and informs subsequent risk cycles.

Figure 4

Risk Management Process Framework

Note. Reproduced from Andersen and Sax (2020).

According to T. Aven (2016), the data and information gathered through risk identification provide evidence and contribute to the knowledge base in risk decision-making. Moreover, T. Aven (2016) argues that uncertainty is a critical concept in risk conceptualization, risk analysis, and evaluation and is essential for consideration in the information flow in the process in which science is used as a base for decision-making on risks. Consequently, the second influence on the development of the conceptual framework is the risk model depicted in

Figure 5, created by Hansson and Aven (2014). The knowledge base accounts for emerging risks from known and unknown sources, thereby incorporating uncertainty into the conceptual framework.

Building on the risk process elements in Figure 4, Figure 5 introduces Hansson and Aven's (2014) risk model to make explicit how uncertainty enters risk work through the knowledge base, and shapes risk judgment and subsequent decisions.

Figure 5

Risk-Informed Decision-Making Model

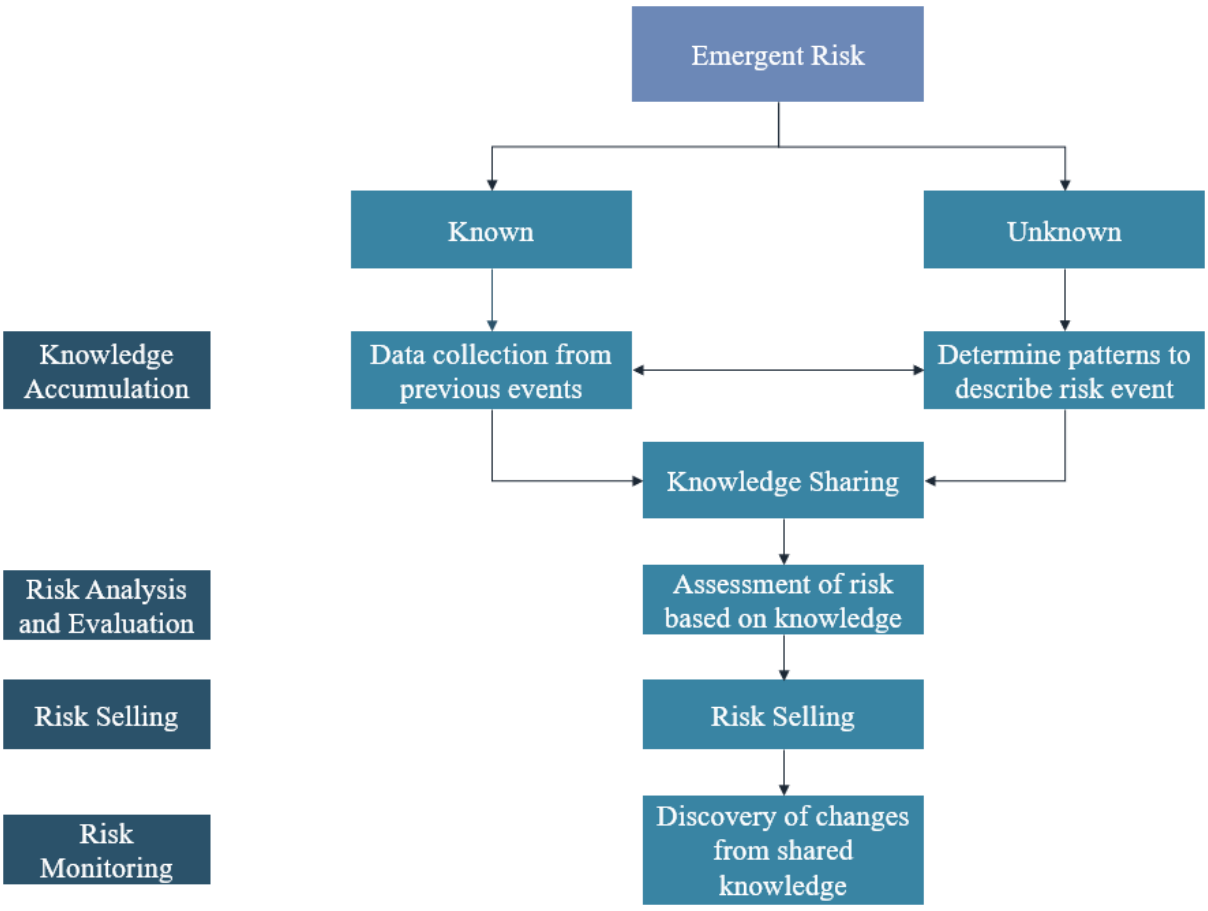
Note. Reproduced from Hansson and Aven (2014).

In Figure 5, data and information are assembled into a knowledge base that supports risk judgment; once risks and uncertainties are evaluated, decision-making follows, guided by the decision-maker's values. Together, Figures 4 and 5 informed four core ERM components used to develop the study's conceptual framework: knowledge accumulation (and sharing), risk analysis and evaluation, risk selling (following Andersen and Sax (2020)), and risk monitoring. Figure 6 integrates these components into a conceptual framework that guided this study's examination of how risk management was enacted under conditions of uncertainty and disruption.

Synthesizing the process elements in Figure 4 and the knowledge-uncertainty logic in Figure 5, Figure 6 presents the conceptual framework that guided this study. The framework depicts four core components: knowledge accumulation and sharing, risk analysis and evaluation, risk selling, and risk monitoring, and highlights how these interact under conditions of uncertainty and disruption during the pandemic. It was used to structure the interview focus and to orient coding and interpretation toward how risk management was enacted when signals were ambiguous, and assumptions shifted.

Figure 6

Conceptual Framework for Managing Emerging Risks Under Uncertainty During the COVID-19 Pandemic



As illustrated in Figure 6, the framework emphasizes that risk work during the COVID-19 pandemic was iterative and knowledge-dependent, with escalation mechanisms linking emerging signals to decision-making attention. The framework provides the organizing lens for the findings that follow.

Table 10 summarizes the underlying understanding of the four key ERM elements, and the following subsections present a detailed discussion of each element.

Table 10

Overview of the Underlying Concepts

Conceptual Framework Components	Concept Interpretation
Knowledge accumulation	Emerging risks are known or unknown and are related to the strength of background knowledge in organizational activities. Knowledge develops over time through participation from organizational members.
Risk analysis and evaluation	Risk assessment is based on existing knowledge, and reassessments occur when new knowledge is developed and shared over time through the risk management cycle.
Risk selling	Involves raising awareness among key decision-makers for an organizational response to emerging risks.
Risk monitoring	Risk monitoring permits the discovery of changes from shared knowledge and updates existing knowledge.

Knowledge Accumulation

The ERM literature, which includes the frameworks discussed and presented in Table 7, has not addressed the generation and sharing of both implicit and explicit knowledge (Schiller & Prpich, 2014). Nevertheless, both types of knowledge are crucial for assessing and communicating risks and uncertainties throughout the organization (T. Aven, 2016; T. Aven & Kristensen, 2019; Schiller & Prpich, 2014). A key organizational challenge in understanding and managing risk within organizations is to "unlock relevant tacit and codified risk knowledge from existing intra- and interorganisational networks of actors to generate risk knowledge" (Schiller & Prpich, 2014, p. 1008). Overall, the management of emerging risks, such as the recent COVID-19 pandemic outbreak, "calls for preparedness and a prompt response to control them" (T. Aven & Zio, 2021, p. 2) and knowledge generation and sharing are key capabilities (Andersen & Sax, 2020; T. Aven & Kristensen, 2019; Mishra et al., 2019) for organizations to manage change.

This might explain the extensive research that has begun to better link risk and knowledge (T. Aven & Kristensen, 2019).

As previously mentioned, traditional ERM concepts do not specifically address knowledge accumulation and sharing, as it is assumed to be embedded in various risk activities, such as risk identification. Risk identification aims to understand events that may inhibit an organization from reaching its objectives (International Organization for Standardization (ISO), 2018). This activity suggests that all risks can be identified in advance. The organization must first identify the risk factors to develop a risk inventory, listing risks the organization has realized (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017). COSO (2017) admits that certain risks will persist as unknown, and there is no expectation that the organization will consider them during the risk identification process (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017). Since ERM frameworks are silent on how organizations should address these unknown risks, this study considered knowledge accumulation to close the gap between the literature and practice.

Risk knowledge generation related to emerging and systemic risks differs from typical, routine risks, where systemic risks are "overextending established risk management and create new, unresolved challenges for policymaking in risk assessment and risk governance" (Renn et al., 2020, p. 1). Risk science describes these differences in processes used to collect data. Scholars have identified multiple methods for collecting data in risk assessment, such as qualitative descriptions, scenario analysis, and quantifying expected and unexpected loss (Mikes & Kaplan, 2015; Segal, 2011; Wu & Olson, 2008). Mikes and Kaplan (2015) argue that the selection of risk data collection processes is contingent on (1) the availability of data and knowledge about a particular risk and (2) the relevancy and reliability of the available risk tools in the opinion of risk experts in the organization. Consequently, routine risks tend to concentrate on the accumulation of quantitative data (Segal, 2011; Wu & Olson, 2008), and emerging, novel risks tend to converge on the collection of qualitative data (Andersen & Sax, 2020; Mikes, 2009; Mikes & Kaplan, 2015; Segal, 2011).

The COVID-19 pandemic demonstrates that risk management and governance systems did not function as intended (T. Aven & Zio, 2021). A vital issue for organizational managers is dealing with events that pose extreme consequences and significant uncertainties (Andersen &

Sax, 2020; T. Aven & Zio, 2021; Renn et al., 2020), such as a global pandemic. Knowledge accumulation and sharing become essential for managing these types of risks. First, accumulating and sharing knowledge helps managers conceptualize and acknowledge the importance of uncertainties for comprehending, assessing, and managing risk (Andersen & Sax, 2020; T. Aven & Kristensen, 2019). Second, knowledge accumulation and sharing within the organization contribute to the general and specific knowledge base and can enhance the foundation and practice of risk assessment and risk-informed decision-making (T. Aven & Kristensen, 2019).

Risk Analysis and Evaluation

Once identified, risks are analyzed and evaluated (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017) to construct a greater understanding of the changing environment (Andersen, 2020) where managers interpret risks and bring meaning to data before organizational learning and action occur (Daft & Weick, 1984). According to Andersen and Schrøder (2010), organizations no longer operate in contexts characterized by predictable and quantifiable risks. Instead, they face highly uncertain and complex environments shaped by numerous unknown factors. In such a scenario, assessing and managing risk becomes critical for organizations to make informed decisions (T. Aven & Kristensen, 2019; Segal, 2011). Moreover, how an organization's managers assess risks can be very important since variations in analysis and evaluation can lead to highly different responses (Andersen & Sax, 2020).

Integrating qualitative approaches and probability in risk analysis is crucial in identifying the most critical elements of uncertainty and risk (T. Aven, 2016; T. Aven & Renn, 2020; Renn et al., 2020). The risk evaluation step, depicted in Figure 5, is where the knowledge base is evaluated. Judgment is attained on the risk and uncertainties involved in the situation or event under consideration (T. Aven, 2016). Experts and technical committees support the assessment process by considering the decision-makers' values (T. Aven, 2016; Mikes & Kaplan, 2015; Segal, 2011). For events characterized by large and deep uncertainties, such as managing emerging diseases (e.g., the COVID-19 pandemic), "there seems to be a broad acceptance of the need for seeing beyond probability" (T. Aven, 2016, p. 6).

Qualitative risk assessment, according to Segal (2011), primarily aids in identifying and describing emerging risks. T. Aven (2016) and T. Aven and Kristensen (2019) argue that risk assessments should specify the degree of knowledge applied (e.g., weak, strong) as a validity requirement for stakeholders. Overall, qualitative risk assessments aid in detecting two 'black swan' types: the unknown, unknown type and the unknown, known type risk events (T. Aven, 2015). As additional knowledge develops and more data becomes available, quantitative risk methods may enhance risk ranking and prioritization (Segal, 2011), providing additional information for the next step of risk selling.

Risk Selling

The way risk managers interpret and communicate risk insights to gain decision-makers' attention for appropriate action and response is crucial for effective risk management (Braumann, 2018). The risk-selling process is aimed at organizational decision-makers to raise awareness of events and draw requisite attention to risks that affect the achievement of organizational objectives (Andersen & Sax, 2020). Referring to the term *issue selling*, Dutton and Ashford (1993) argue that issues exemplify what strategy researchers refer to as *wicked problems*, similar to how risk science has described the dynamic, complex and unpredictable business contexts (Andersen, 2020). Moreover, Dutton and Ashford (1993) posit that issue selling raises awareness of the interrelationships among responses potentially relevant to a single issue, making the activity a critical capability in the organization's decision-making process.

Governance and culture are among the five interrelated components of the COSO (2017) ERM framework. According to COSO (2017), governance establishes the tone within the organization, emphasizing the importance of ERM and assigning oversight responsibilities for it. Culture relates to ethical values, desired behaviours, and understanding of organizational risk. Braumann (2018) argues that risk awareness is an organization's cultural component and integral element, despite the absence of documentation in any policy. However, risk awareness is embedded in the employees' risk thinking and is essential for ERM success (Braumann, 2018).

Risk Monitoring

As outlined in Figure 1, the risk management process includes the systematic application of various elements, such as risk assessment, risk treatment, reporting, communication, and

process review. The risk management guidelines introduced by the International Organization for Standardization (ISO) in 2018 set out principles, a framework, and process elements of the ISO 31000:2018 standard. Similarly, the COSO ERM framework (2017) comprises five principle-supported components. While both frameworks have been updated, the overriding criticism is that the frameworks lack implementation guidance (Almeida, Teixeira, da Silva, & Faroleiro, 2019; Andersen & Sax, 2020; Jean-Jules & Vicente, 2021). Consequently, guidance on how risks are monitored is lacking. Therefore, the conceptual framework includes *risk monitoring* to examine how organizations reconsider risks during a substantial change in the business context.

Once an organization identifies a risk, assesses its severity and impact, and prioritizes that risk, the organization selects from various risk responses to implement (Segal, 2011). Emerging risks require monitoring known risks and performing environmental scanning for unknown risks (Flage & Aven, 2015; Segal, 2011). Scanning for unknown risks is complex and imperfect, especially since sources of potential risks that might materialize are effectively boundless (Andersen, 2020; Flage & Aven, 2015; Segal, 2011). While ERM cannot shield the organization from unknown events that could punish it, it can lead to a better understanding of how organizations make risk decisions and leverage shared knowledge about known risks (Segal, 2011). Thus, risk monitoring helps detect changes related to severity and impact. Second, risk monitoring extends the shared knowledge base and provides additional content for risk (re)assessment (Flage & Aven, 2015). Any discovery of changes from the shared knowledge is passed through to the risk analysis and evaluation step (Segal, 2011; D. Wu & Olson, 2008).

Summary

Figure 6 presents a conceptual framework that provides an overview of how emerging risks are addressed in academic literature and how organizations can adopt or adapt ERM practices to manage emerging risks during a crisis. This forward-looking framework aims to help organizations better prepare for future crises. The development of this conceptual framework has highlighted the need for additional content on emerging risks within existing ERM frameworks, such as COSO (2017) and ISO 31000:2018. Despite being designed to manage all types of risks, frameworks such as COSO (2017) and ISO 31000:2018 are inadequate in addressing emerging risk types (Andersen & Sax, 2020; Bromiley & Rau, 2014). Emerging risks are frequently

overlooked due to their elusive quantification and the unpredictable and complex nature of the risk landscape (Andersen, 2020; Flage & Aven, 2015; Mazri, 2017; Renn et al., 2020).

The COVID-19 pandemic presented a unique opportunity to study ERM in action. The conceptual framework suggests that knowledge accumulation and sharing, risk analysis and evaluation, risk selling, and risk monitoring are essential for organizations operating in the oil and gas industry to manage emerging risks effectively. By gathering and analyzing field data, the conceptual framework can be further advanced to better understand how organizations manage emerging risks and identify areas where ERM practices can be improved.

Overall, the conceptual framework provides a comprehensive understanding of the challenges and opportunities associated with managing emerging risks in the oil and gas industry. It highlights the need to develop more robust ERM frameworks to address emerging risks effectively.

Conclusion

This chapter presents and critically analyzes literature on ERM since 2000. The literature review highlights that a novel 100-year crisis represents an event category that warrants a more thoughtful organizational response and treatment plan (Andersen et al., 2014; Andersen & Sax, 2020; Taleb, 2009). The challenge for organizations is revealed in how traditional risk management frameworks apply principles, guidelines, or tools that are incompatible with handling novel, emerging risk events and the accompanying uncertainty. This challenge is presented throughout the core sections of the literature review: risk domain, risk rationalities and the role of uncertainty, ERM practices, and organizational roles. These challenges highlight the core gap: limited empirical understanding of how risk management processes operate in practice when organizations confront emerging/systemic risks under deep uncertainty. The overarching gap is described in four interrelated dimensions that pinpoint where process knowledge is thin: (1) how emerging risks are perceived and conceptualized; (2) how uncertainty shapes coping and action; (3) which ERM elements are actually critical in practice (as distinct from those emphasized in normative frameworks); and, (4) how roles and cross-functional coordination are configured and mobilized during escalation. These dimensions show that the research gap

concerns the enacted risk management process under conditions of rapid change, limited knowledge, and cascading effects.

For organizations operating in a global, interconnected environment characterized as dynamic and complex, the risk landscape offers "unpredictable conditions with abrupt and potentially extreme outcomes that exceed the response capacity of conventional approaches" (Andersen & Sax, 2020, Chapter 5, para. 1). Scholars and practitioners criticize the ERM frameworks previously discussed for their inability to manage emerging risks and call for the risk field to develop more effective risk management capabilities.

The range of risk sources an organization may encounter is vast, and scholars and practitioners have explored risk management approaches that account for interdependencies and better understand ERM phenomena. While global pandemics are not uncommon (Frankema & Tworek, 2020), the COVID-19 pandemic represented a cascading risk (Srivastava et al., 2022), in which events can unfold in unforeseen ways for organizations (Bryce et al., 2020).

The oil and gas industry represents a particularly compelling empirical context for studying emerging risks due to its rapid change and volatility, influenced by multiple macroeconomic factors (Shuen et al., 2014). First, the global energy landscape continually evolves, shifting towards renewable energy sources and implementing environmental policies that challenge traditional fossil fuel dominance (International Energy Agency (IEA), 2020). This transition exposes the industry to regulatory and market risks as it adapts to meet new demands and emissions targets (Rioux & Winter, 2020). Second, geopolitical tensions, such as trade disputes and regional conflicts (e.g., the Ukraine-Russia conflict), can abruptly disrupt the supply chain and significantly impact global oil prices, creating an environment of uncertainty (Petrov et al., 2023). Lastly, technological advancements, including artificial intelligence and data analytics, are revolutionizing how oil and gas companies operate and introducing cybersecurity risks that must be addressed (Ashraf et al., 2022).

By delving into these dynamics, researchers and scholars can gain valuable insights into the complex, ever-changing nature of the oil and gas sector and contribute to the development of strategies for risk mitigation, adaptation, and sustainable practices. The industry's susceptibility to swift, multifaceted transformations necessitates continuous examination of emerging risks for both academic and practical purposes, fostering a more resilient and informed energy future.

The literature review yields a cautious stance on ERM benefits, which is prudent given the absence of congruent research on ERM benefits. Overall, the signals indicate that additional research into the ERM domain is necessary.

Chapter 3. Methodology

This study adopts a transcendental phenomenological approach to explore how risk managers in the oil and gas industry handle risks during the COVID-19 pandemic. The first chapter introduces the research question, which seeks to understand the experience of risk managers in this context. The second chapter presents a comprehensive review of the relevant literature to highlight the research gap this study aims to address. Chapter 3 describes the research methodology, including the population, data collection, and research design, which supports the transcendental phenomenological approach as the most appropriate for the research problem. This chapter also discusses data analysis, research quality, and ethical considerations.

Research Method and Design Appropriateness

The research approach selected for this study is qualitative. When investigating a qualitative problem, researchers acknowledge the existence of multiple and diverse perspectives on the matter rather than relying on a single, definitive truth (Creswell & Creswell, 2018; Marshall & Rossman, 2016). According to Bansal, Smith, and Vaara (2018), with the rise of "wicked problems in our world" (p. 1189), scholars are progressively embracing and "adopting qualitative methods to unpack these complex challenges" (p. 1189). Qualitative inquiry is appropriate to study participants' lived experiences (Creswell & Poth, 2018; Larsen, 2023; Larsen & Adu, 2022) of managing risk during a global pandemic.

Dealing with emerging risks is complex, and this inquiry developed a composite description of the essence of participants' experiences (Moustakas, 1994). A phenomenological study is the most appropriate method to conduct this study (Creswell & Poth, 2018; Larsen, 2023; Marshall & Rossman, 2016). This inquiry involved interviews with participants to obtain their insights and impressions on ERM in the context of emerging risk events within their organizations. I used participants' experiences as a gateway to understanding who they are or their existence as risk leaders (Adu, 2019; Larsen, 2023; Larsen & Adu, 2022). The School of Phenomenology is transcendental phenomenology, which is appropriate when exploring how participants experience an event such as the COVID-19 pandemic (Larsen & Adu, 2022). This research describes their transcendental experience as "experiences that cut across all people" (Bloomberg & Volpe, 2019, p. 54). These questions imply that the researcher seeks to examine participants' experiences to understand them and to provide a description that captures the

essence (meaning) of the experience (Adu, 2019; Larsen, 2023; Larsen & Adu, 2022). The outcomes of this study provide academics and practitioners with an understanding of the competencies they experienced, which may help them enhance their ERM processes. This is discussed further in Chapter 5.

Research Question

The two main types of research questions are confirmatory and exploratory (Creswell & Creswell, 2018; Larsen & Adu, 2022). Confirmatory research questions are closed-ended in nature and typically used in quantitative research. Exploratory research questions are more open-ended and customarily used in qualitative research (Creswell & Creswell, 2018). This study is informed by transcendental phenomenology, and the "purpose is not about confirming the meaning of the experience but rather exploring the experience to arrive at the underlying meaning of the experience" (Larsen & Adu, 2022, p. 113).

Creswell and Creswell (2018) suggest that the qualitative research process is flexible and emergent, allowing changes to the research plan, including the research question. These changes reflect a deeper understanding of the phenomenon being studied. This approach emphasizes the importance of learning from participants and gathering information that addresses the research problem. From a transcendental perspective, examining participants' subjective first-person accounts with varied experiences allows the researcher to understand a phenomenon's universal meaning (Larsen & Adu, 2022). The research question is:

What was it like to manage the risk management process during the COVID-19 pandemic?

The research question is a psychological research question informed by transcendental phenomenology (Larsen & Adu, 2022). The focus is solely on the experience, and the question implies that the researcher seeks to examine participants' experiences to understand and describe the essence (meaning) of the experience (Adu, 2019; Creswell & Creswell, 2018; Larsen, 2023; Larsen & Adu, 2022).

In a phenomenological inquiry, sub-questions "help establish the components of the essence of the study" (Creswell & Poth, 2018, p. 141) by deconstructing the main research question into its components. In a transcendental phenomenological inquiry, the researcher

should ask participants about experiences in mind, such as conceptualizing, depicting, perceiving and feeling (Larsen & Adu, 2022). Creswell and Poth (2018) recommend five to seven sub-questions to further refine the central research question. The seven research sub-questions used during the interviews were:

1. How do risk managers perceive the effectiveness of ERM in managing risks during the COVID-19 pandemic, and what factors contribute to this perception?
2. How does a risk manager's perception of the COVID-19 pandemic and its impact on the organization influence their use of ERM?
3. What role do communication and collaboration play in a risk manager's use of ERM during the COVID-19 pandemic?
4. How does using ERM during the COVID-19 pandemic influence the relationship between the risk manager and other stakeholders, such as senior management and employees?
5. How can the experience of a risk manager using ERM during the COVID-19 pandemic inform the development and improvement of ERM frameworks and practices?
6. What key lessons do risk managers learn from using ERM during the COVID-19 pandemic, and how do these lessons influence their future risk management strategies?
7. How do risk managers balance the need to act quickly during the COVID-19 pandemic with the need to implement ERM effectively, and what factors contribute to this balancing act?

Key Phenomenological Terms

This study adopts a transcendental phenomenological approach to investigate how risk leaders experienced managing the risk management process during the COVID-19 pandemic. Because this approach relies on a specific language for analyzing and describing lived experience, I briefly define the core phenomenological terms used throughout this chapter. More detailed elaboration and application follow in the sections on data collection and analysis.

Transcendental phenomenology is a form of qualitative inquiry that seeks to describe the meaning of lived experience by returning "to the things themselves" (Moustakas, 1994, p. 90) as they are given in consciousness and by temporarily setting aside prior assumptions (Moustakas,

1994). In this study, the phenomenon is the experience of managing the risk management process under the uncertainty of the COVID-19 pandemic.

A central commitment in transcendental phenomenology is epoché, a disciplined suspension of taken-for-granted beliefs and theories about the phenomenon (Moustakas, 1994). In practice, this is expressed through bracketing, in which I explicitly identified and documented my prior assumptions and professional experiences with ERM so that participants' descriptions could remain the primary basis for analysis.

The analytic process begins with phenomenological reduction, in which I focus closely on what participants describe, treating each relevant statement as a potential window into their experience. Through horizonalization, I initially give equal weight to all significant statements. Through the culling process, all significant statements are reviewed, and irrelevant, unclear, or clearly repetitive material is removed, leaving only those expressions that meaningfully illuminate the phenomenon across cases. The remaining statements are then clustered into meaning units (i.e., invariant constituents) that capture recurring aspects of the experience. These meaning units form the basis for developing textural descriptions (what was experienced) and structural descriptions (how the experience unfolded and under what conditions).

Building on these steps, I used imaginative variation to explore possible structures and conditions underlying the reported experiences, asking what had to be in place for the phenomenon to appear as it did. This process supported the development of composite textural and structural descriptions across all participants and, ultimately, the articulation of an overall essence, a synthesized account of the fundamental nature of managing the risk management process during the COVID-19 pandemic for those who lived it.

A glossary of these and related phenomenological terms is provided on page xviii to help readers follow the subsequent procedural details, adapted from Moustakas (1994) and Creswell and Poth (2018).

Study Design

There are several structured descriptive phenomenological procedures commonly employed in transcendental studies, notably Colaizzi, Giorgi, and Moustakas. They all adhere to a reduction-to-themes approach but differ in emphasis and outcomes. Moustakas' (1994)

transcendental method was chosen because it provides a clear step-by-step process that explicitly emphasizes bracketing and then systematically progresses from horizonalization and meaning units to thematic clustering, culminating in paired textural ("what") and structural ("how") descriptions that are integrated into a composite essence of the phenomenon across participants. The results of this method align directly with the study's aim of describing the experience of managing the risk management process during the COVID-19 pandemic. While Colaizzi's approach is often preferred when the research design involves returning the fundamental structure to participants for validation, and Giorgi's method is used when the goal is to transform meaning units into psychologically meaningful statements to express a general psychological structure, this study's analytical focus was on carefully developing a composite essence rooted in participants' first-person accounts, consistent with Moustakas's textural/structural-essence progression (Adu, 2019; Larsen & Adu, 2022; Moustakas, 1994).

Moustakas' (1994) approach aims to produce a comprehensive description of the shared lived experience among participants. Therefore, it is pertinent to this study's goal to describe what it was like to navigate the risk management process during the pandemic. This approach involves intentionally setting aside presuppositions to stay open to participants' first-person perspectives. Because this approach focuses on essence, the findings in Chapter 4 are descriptive and close to the participants' experiences, with theory, such as ERM and dynamic capabilities, reserved for discussion and implications in Chapter 5. The approach is further elaborated in the sections on data collection and data analysis.

Analytic Foundations and Methodological Alignment

This study is grounded in transcendental phenomenology as articulated by Moustakas (1994). Moustakas' framework provides the central analytic logic for the study, including disciplined reflection to manage my preconceptions, the horizonalization of participant statements, the clustering of meaning units, and the development of textural and structural descriptions that culminate in a composite essence of the phenomenon. The analytic procedures described in this chapter follow Moustakas' sequence of phenomenological reduction and synthesis, with the aim of foregrounding participants' lived experiences of managing the risk management process under conditions of uncertainty. In this sense, the analysis privileges participants' accounts of what was experienced (textural descriptions) and how those experiences

were shaped by situational conditions (structural descriptions), rather than imposing prescriptive or normative ERM frameworks.

To support analytic transparency and manage a large, multi-case dataset, several study-specific analytic tools were introduced, including continuity/novelty markers and staged cross-case consolidation. These tools do not constitute a separate methodological approach; rather, they serve as procedural extensions that enhance auditability and rigour while remaining aligned with Moustakas' phenomenological commitments. All interpretive claims are anchored in explicitly documented meaning units and traceable to participant transcripts.

When cross-case comparison and synthesis are employed, they occur after phenomenological descriptions are developed within cases, preserving the primacy of lived experience before abstraction (i.e., moving from individual experiences to patterns). This sequencing ensures that cross-case patterns emerge inductively from participant accounts and that phenomenological integrity is maintained throughout the analytic process.

Sampling

In a phenomenological study, participants must all experience the phenomenon under investigation, allowing them to express their lived experiences (Creswell & Poth, 2018; Larsen & Adu, 2022). When participants possess diverse characteristics, discerning shared experiences, themes, and the overarching essence of their lived experiences becomes more intricate (Creswell & Poth, 2018); consequently, data adequacy, ensuring that the collected data is sufficiently rich, relevant, and contextualized, is critical for a study's quality (Fusch & Ness, 2015). Staller (2021) underscores the significance of researchers focusing on the richness and quality of evidence while emphasizing the importance of "creating a convincing narrative from your data" (p. 903).

To pursue this objective, Merriam and Tisdell (2015) advocate specifying an approximate sample size, subject to adjustments during the research process. Drawing on an examination of 11 phenomenological studies, Guetterman (2015) determined that the mean sample size across these studies was 21 participants. Guided by their evidence that thematic saturation in purposive interview studies can occur within the first 12 interviews, with core elements emerging as early as six (Guest et al., 2006).

This study identified and interviewed 20 participants to collect data for a detailed and composite understanding of their experiences. Data saturation was monitored iteratively to ensure that the overall essence was sufficiently supported and that variability was adequately captured. A saturation grid was maintained to document the emergence of recurring patterns and to support transparent reporting of adequacy decisions. I further discuss data saturation in the data analysis section.

Sampling Strategy

Several qualitative sampling strategies are available, and researchers may use one or multiple strategies in a given study (Creswell & Poth, 2018; Marshall & Rossman, 2016). With *purposive sampling*, the researcher selects individuals and sites for study to purposefully inform an understanding of the research problem and central phenomenon (Creswell & Poth, 2018). Creswell and Poth (2018) posit a narrow range of sampling strategies for phenomenological studies and argue that *criterion sampling* offers the best approach to identifying participants with firsthand experience. Criterion sampling provides quality assurance in studies (Creswell & Poth, 2018) by targeting participants who meet specific criteria.

For this study, purposive sampling was used, with criterion sampling applied to identify individuals with firsthand experience of the phenomenon who met the inclusion criteria. The criteria include risk leaders who have experienced risk management processes during the COVID-19 pandemic in Canadian oil and gas companies, participants who have at least 5 years of professional experience, are English-speaking, and are over 18 years old.

To identify and select participants to share their unique experiences and perspectives, numerous sources were consulted. These included industry sources such as the member directories of the Canadian Association of Petroleum Producers (CAPP, which represents companies that explore, develop, and produce oil and gas in Canada) and Enserva (formerly the Petroleum Services Association of Canada, representing Canada's energy services, supply, and manufacturing sectors). I also accessed my professional network based in Calgary.

Recruitment drew on a large professional network, enabling the identification of 163 prospective participants over 17 months (with interviews occurring between April 2024 and November 2025), of whom 20 ultimately consented and completed interviews. However,

because most participants were senior executives (e.g., CEOs, Presidents, CFOs), coordinating interview times was often difficult, particularly for public-company leaders, whose quarterly financial closes, reporting cycles, and earnings calls constrained availability, leading to scheduling delays and occasional rescheduling.

Participants

The purpose of phenomenology is to investigate the lived experience of participants to identify the essence of the experience or phenomena described by the research participants (Bloomberg & Volpe, 2019; Creswell & Poth, 2018). All participants must have experience with the phenomenon under study (Adu, 2019; Creswell & Poth, 2018; Larsen & Adu, 2022), namely, managing risk during the pandemic crisis in Canadian oil and gas companies.

Andersen & Young (2020) investigated 93 organizations and individuals and concluded that there are inherent challenges in identifying those responsible for risk leadership. Their analysis revealed that some titles held by the persons responsible for risk management include Chief Financial Officer, Chief Risk Officer, Director of Enterprise Risk Management, Director of Risk Management, Risk Management Officer, Vice President of Risk Services, Vice President, Business Risk Management, and Vice President, Risk Management and Legal Operations, among others. I acknowledge that risk management roles will vary within oil and gas companies, and it was essential to identify the correct individual by considering whether the person is centrally situated within the organization and is placed at or near the senior-level ranking (Andersen & Young, 2020). The participants selected for this study are involved in managing risk at or near the senior levels within their organizations.

Data Collection

In a phenomenological study, collecting information entails conducting in-depth interviews (Creswell & Poth, 2018; Larsen & Adu, 2022; Marshall & Rossman, 2016). In a transcendental phenomenological inquiry, the researcher facilitates participants in describing their experiences across various situations, thereby encompassing diverse perspectives from each individual. The research inquiry focuses on understanding the experience of managing the risk management process during the COVID-19 pandemic. This open-ended query permits the exploration of multiple situations within the sample. Larsen and Adu (2022) suggest that

comprehensive interviews with each participant are essential to cover all aspects of the experience. Particularly when participants share similar demographic backgrounds or situational contexts, Larsen and Adu (2022) emphasize the importance of allowing participants to describe experiences across different situations, thereby ensuring the inclusion of diverse perspectives from each participant.

In this study, personal interviews with participants were the primary method of data collection. The sampling strategies generated a pool of 163 prospective candidates, from which groups of 25 were engaged at a time to manage communication and scheduling effectively. My professional network was the primary source of candidates, and I used my academic email address to extend the invitation to participate (Appendix B), along with the informed consent form (Appendix C). All participants, except for one, returned the signed informed consent form. The one participant who did not sign provided an email acknowledgment of full consent. I returned the signed consent form to them along with a copy of their acknowledgment to support the interview.

Interview questions are often sub-questions within the research study (Creswell & Poth, 2018). The seven sub-questions previously discussed were used in the semi-structured interviews to encourage participants to share their experiences. This series of questions serves as the research instrument for this study (Appendix D). Appendix E outlines the interview guide used during the interviews.

Phenomenological interviewing is a unique form of in-depth interviewing rooted in the philosophical principles of phenomenology. According to Larsen (2023), phenomenology emphasizes exploring individuals' lived experiences and how their perspectives are formed. Within this framework, phenomenological interviewing seeks to reveal the importance of a particular concept or phenomenon by investigating the shared experiences of multiple people (Marshall & Rossman, 2016). This approach is based on the idea that there is a fundamental structure and essence to these collective experiences that can be effectively conveyed through narrative accounts (Larsen & Adu, 2022; Marshall & Rossman, 2016).

Interviews were conducted and recorded via Microsoft Teams® video conferencing. Microsoft Teams® is a web-based communications and collaboration platform (Henderson et al., 2020). Web-based platforms offer unique advantages such as cost and time efficiency relating to

travel and data transcription, time and space flexibility allowing deeper reflection on topics, a comfortable setting for discussing sensitive issues, and an alternative option for participants who are difficult to access (Creswell & Poth, 2018; Marshall & Rossman, 2016). A mobile phone recording application was also used to record audio as a backup and to verify notes, enhancing accuracy.

Marshall and Rossman (2016) raise awareness of the heightened ethical considerations in collecting data through web-based methods. These concerns include safeguarding participants' privacy, navigating potential power imbalances, addressing data ownership, ensuring authenticity, and fostering trust in the data collected. Furthermore, I acknowledge the difficulties associated with web-based methods, including the greater concentration needed to interpret non-verbal signals, the technological processing delays that can lead to a perception of decreased friendliness or attentiveness in the respondent, the moments of silence during video calls that may induce anxiety stemming from the feeling of being observed, and the potential misinterpretation of various cues, personalization, and language nuances (de Villiers et al., 2022).

The Microsoft Teams® platform was effective because participants had access to and actively used web-based communication and collaboration tools due to the COVID-19 pandemic (Henderson et al., 2020). To address the challenges, I personalized each interaction with expressions and acknowledgement tokens (e.g., nod, smile, "that is interesting") to maintain rapport. Before the interview began, I ensured we had a brief discussion about our professional backgrounds. I also included instructions on how to proceed if a technology issue arose (e.g., via email or telephone) to reset the interview. On several occasions, I pre-arranged an introduction call to build rapport and address any questions from participants. I also rescheduled the interview date on multiple occasions to accommodate several participants in executive roles.

I listened to the Microsoft Teams® recording twice after each interview. This allowed me to promptly verify and clarify the transcription. The first listen confirmed that the verbatim transcription matched the audio, while the second listen allowed me to note any potential questions for the participant. Interviews were designed as one-hour semi-structured sessions. Most interviews were completed within this timeframe; however, two interviews were extended at the participants' request. One participant requested two additional 60-minute sessions, and

another participant requested one additional 60-minute session, allowing fuller exploration of complex decision contexts. For three participants, a short preparatory call (approximately 20-30 minutes) was also held before the interview. These conversations focused on professional background and situational context and supported the sequencing of interview questions to elicit detailed accounts of lived experience during the primary interview.

Demographic data were gathered from all participants. Twenty individuals took part in the study, and the following highlights are noted:

- Public company: 14; Private company: 6
- Executive level: 11; Senior or Director-level: 9
    - Of the executive level, 7 were CEOs
    - Of those 7 CEOs, 4 were from public companies
- Risk leaders ranged in age:
    - 30-39: 3
    - 40-49: 6
    - 50-59: 8
    - 60+ : 3
- Gender distribution:
    - Male: 15 (75%)
    - Female: 5 (25%)

After reviewing and validating the transcripts, I imported them into NVivo 14 (which was later upgraded to NVivo 15). The recorded interviews were complemented by field notes used during the interviews and subsequent reflections. During the three preparatory calls, I documented the content in field notes to support my engagement in the interview and to prompt additional open-ended questions. Participants were assigned a unique identifier (e.g., P01, P02, P03, … P20) for reporting, NVivo, and Excel queries to maintain anonymity.

Researcher Positionality and Bracketing Process

Transcendental phenomenology requires the researcher to deliberately set aside or bracket prior knowledge, professional training, and personal assumptions to attend closely to participants' descriptions of lived experience. In Moustakas' (1994) approach, this disciplined

stance supports a return to the phenomenon as described by participants, before it is explained, theorized, or evaluated. Because the phenomenon under study involves managing the risk management processes during the COVID-19 pandemic, with an emphasis on uncertainty and changing knowledge conditions, bracketing is especially important. Pandemic conditions disrupted familiar models of prediction and control, increasing ambiguity. This makes it easier for an experienced risk practitioner-researcher to unintentionally impose normative frameworks about how risk management should work onto participants' accounts of what occurred in practice. Bracketing, therefore, is treated in this study as an ongoing methodological discipline that is documented and auditable.

Researcher positionality

I entered this study as a senior finance and risk professional with extensive exposure to formal ERM, governance expectations, and performance management practices. This background shaped my interest in how organizations navigated the COVID-19 pandemic, an emerging systemic risk characterized by incomplete information, rapidly shifting conditions, and second-order effects. It also created predictable risks of interpretation.

Key positionality considerations included:

- Professional socialization into formal risk practices. My training and experience emphasize structured processes (e.g., risk registers, controls, governance routines, reporting cadence). This can bias attention toward systems and away from informal, improvisational, or relational risk work that participants may describe as central during the pandemic.
- Assumptions about what good risk management looks like. Prior exposure to standards and best-practice frameworks can create an implicit evaluative lens (e.g., viewing certain practices as mature or immature), which is inconsistent with the descriptive intent of transcendental phenomenology.
- Industry familiarity and perceived shared language. Interviewing senior and executive risk leaders can foster rapid alignment through common terminology. While useful for building rapport, this approach increases the risk of unexamined insider assumptions and premature meaning-making.

- Personal proximity to the COVID-19 context. As a practitioner who worked through the pandemic, I carried pre-understandings about urgency, constraints, trade-offs, and uncertainty management that could be mistaken for participants' meanings unless explicitly bracketed.

These positionality factors were treated as analytic risks to be managed through explicit reflexive documentation and procedural safeguards, rather than minimized or ignored.

Bracketing as an ongoing methodological discipline

Bracketing in qualitative research is widely described as a method for mitigating the influence of preconceptions and for strengthening rigour through reflexive awareness and documentation. Importantly, contemporary guidance frames bracketing as continuous, occurring before, during, and after data collection and analysis, rather than as a single declaration of neutrality (Adu, 2019; Larsen & Adu, 2022; Moustakas, 1994). In this study, bracketing served three purposes:

- Protect descriptive fidelity. Keep the focus on what participants say it was like to manage risk processes during the pandemic, rather than translating their accounts into framework language too early.
- Surface and manage interpretive drift. Identify moments when my professional instincts (e.g., a preference for governance clarity, metrics, controls, and good practice judgments) could shape coding decisions.
- Create an audit trail to ensure credibility. Provide transparent documentation of how interpretations were constrained, revisited, or revised over time.

Bracketing procedures used in this study

Bracketing was operationalized as an ongoing practice through data collection and analysis. For each participant (P01-P20), and following Moustakas (1994), I prepared a structured bracketing memo before coding to surface expectations and professional assumptions, and then revisited bracketing during horizontalization, culling, and clustering to ensure coding remained grounded in participants' descriptions rather than in ERM best-practice templates. Following each coding cycle, I completed a post-coding bracketing memo and reflexive entry to document how interpretations shifted, where assumptions were challenged by the data, and what

uncertainties remained, thereby creating a consistent audit trail that supports descriptive trustworthiness and credibility. These steps treated bracketing as an explicit risk control within the research design, with the aim of maintaining descriptive integrity in a context where my professional expertise could otherwise dominate meaning-making.

Data Analysis

Moustakas (1994) contends that transcendental phenomenological analysis has four primary stages: bracketing, phenomenological reduction, imaginative variation and meaning synthesizing. Adu (2019) posits that the essence of bracketing is to examine data from a fresh perspective and remain open to multiple interpretations. *Bracketing* could be understood as maintaining awareness but suspending or withholding judgment (Larsen & Adu, 2022) by simply placing ideas in brackets "so that the phenomenologist can have a good mental look at the thinking act" (Larsen & Adu, 2022, p. 62).

The second stage involves conducting a *phenomenological reduction* by obtaining central passages from the data. Based on the selected relevant passages, the researcher develops themes leading to the formation of textual descriptions (Adu, 2019). The third stage involves *imaginative variation*, which involves developing multiple meanings or interpretations founded on prospective connections among the themes and selecting the one that best represents the data (Adu, 2019). According to Moustakas (1994), the selected meaning is a structural description. Creswell and Poth (2018) describe the textual description as "what happened" (p. 199) and the structural description as "how the phenomenon was experienced" (p. 199). The final stage, *meaning synthesis*, involves developing the essence of participants' experiences by integrating textural and structural descriptions across cases to produce a composite account of the phenomenon (Moustakas, 1994).

Data analysis in a phenomenological study differs from a conventional qualitative study. Under a transcendental phenomenology perspective, the researcher analyzes the experience to arrive at its essence. Table 11 summarizes data analysis informed by transcendental phenomenology.

Table 11

Data Analysis Informed by Transcendental Phenomenology

Research question	***What was it like to manage the risk management process during the COVID-19 pandemic?***
Stage 1	Practice bracketing and phenomenological reduction.
Stage 2	Using a description-focused coding strategy to generate codes.
Stage 3	Using an individual-based sorting strategy to create emerging themes.
Stage 4	Applying imaginative variation to arrive at essential themes.
Stage 5	Uncovering the essence of the experience.
Outcome	Essence of the experience.

Note. Reproduced from Larsen and Adu (2022).

Within-case Analysis

The five stages listed in the above table were implemented to align with Moustakas' (1994) method. Data coding and analysis for each participant followed the nine steps (Note: for each step in the process, the NVivo folder structure records each step for validation and to support the audit trail, including the memoing process for each step):

Step 1: Pre-Coding Bracketing Memo. The purpose of this memo is to surface my assumptions before coding. This involved reflecting on positionality, professional biases, and expectations about the participant's account.

Step 2: Horizonalization (significant statements). The purpose is to identify verbatim statements that illuminate the phenomenon. All significant statements, or horizons, were identified and treated as equal at this stage. A line-by-line review of transcripts was conducted, collecting all statements in order, coding them in NVivo using a lived-experience code, and describing them with a phenomenological label. The statements and codes were also captured in an Excel master workbook. Across the 20 participants, 794 significant statements were identified.

Step 3: Culling (Non-Invariant Removal). The goal was to reduce the significant statements from step 1 to invariant statements that convey transferable, phenomenological meaning. The criteria for culling included redundancy, tool or procedure-only details, or background context lacking lived meaning. The NVivo memos on this process include the complete list of participant statements, the decision to retain or cull, and the rationales supporting those decisions. Across the 20 participants, 668 invariant statements (84.1%) were retained and coded into meaning units; 126 non-invariant statements (15.9%) were culled.

Step 4: Clustering of Meaning Units. The purpose was to group retained statements into clusters of meaning, marking textural (what) versus structural (how). The step process included using the invariant statement, phenomenological label, and lived-experience code to develop meaning units (themes). Textural meaning units: 60.5%; Structural meaning units: 39.5%

Step 5: Textural Description (What was experienced). The purpose was to synthesize the 'what' in a participant-faithful narrative grounded in invariant statements.

Step 6: Structural Description (How it was experienced). The purpose was to synthesize the 'how,' such as processes, dynamics, and conditions.

Step 7: Synthesis of Essence. The purpose was to integrate the textural (what) and structural (how) descriptions into a unified synthesis of the participant's lived experience.

Step 8: Post-Coding Bracketing Memo. The purpose of this memo was to reflect on and document the analysis process. I revisited assumptions, noted any surprises, identified interpretive risks related to biases, and recorded any adjustments for future cases.

Step 9: Reflexivity Journal Entry. The purpose of this memo was to record my reflexive stance, tensions, and positionality during and after the analysis. This is separate from bracketing memos for audit clarity.

This nine-step process provides a rigorous, repeatable structure for the transcendental phenomenological analysis.

Cross-case Analysis

For this study, I employed a staged, cohort-based cross-case workflow to move from early, theme-focused sense-making to comprehensive cross-case confirmation across the twenty participants (P01-P20). Throughout the process, I maintained an explicit audit trail from participant-voiced meaning units (MUs) to defensible cross-case claims. The four-stage analytic approach was inspired by Guest et al. (2006), where thematic saturation can occur within the first 12 interviews, with core elements emerging as early as six.

The workflow operationalizes the research question, *What was it like to manage the risk management process during the COVID-19 pandemic?*, by maintaining experiential nuances early on (i.e., through themes and textures), introducing structural perspectives after gaining enough breadth (i.e., establishing domains), and requiring multi-case corroboration along with exemplar model statements for anchoring before proceeding to cross-case claims. This process concludes with an explicit convergence-and-confirmation test.

I established three guardrails for the process to govern the cross-case synthesis:

1. One-to-one mapping between theme and domain.
2. An evidence rule requiring each cross-case claim to cite at least one model statement plus at least two corroborating MUs (preference from distinct participants); and,
3. Boundary transparency through a boundary log for incidents where multi-domain-cued meaning units appeared and required an assignment decision.

The cross-case workflow is presented in Table 12 below.

Table 12

Four-staged cross-case analytic workflow (Stages A-D)

Stage	Cohort	Objective	Key Steps
Stage A: Theme-first intake	P01 to P06	To build clean meaning unit metadata and preserve phenomenological texture by coding to provisional themes (no domains).	• Code clustered MUs to provisional theme codes in NVivo; defer all domain assignments. • Update MU metadata and provisional themes in Excel through P06; run theme-forward queries and quality checks (>=90% single best-fit theme; no orphan MUs).
Stage B: First cross-case sweep	P07 to P12	Introduce domains as groupings after themes stabilize across 12 cases and complete the first cross-case reading.	• Validate one-to-one theme to domain mapping; assign provisional domains in Excel while retaining theme coding. • Implement domains in NVivo (nest themes under domains). • Generate framework matrix (NVivo and Excel), boundary log, and preliminary model statements; clear or justify boundary items; verify domain coverage through the 12-case matrix.
Stage C: Consolidation and cross-case synthesis	P13 to P18	Consolidate and anchor cross-case claims using the dataset through P18 (90% of cases).	• Update the framework matrix; read down matrix columns (domain patterns) and across rows (participant profiles). • Finalize >=2 model statements per domain, prioritizing novelty over continuity and participant diversity; memo and capture statements verbatim with metadata. • Draft 3-5 cross-case claims per domain; each supported by (a) matrix references, (b) one model-statement quotation, and (c) >=2 corroborating MUs (distinct cases where possible). • Conduct coverage checks (e.g., novelty vs. continuity, textural vs. structural, and theme distribution) and resolve outliers; ensure claims are supported by MU-level audit trails and a finalized model-statement table (Excel).
Stage D: Confirmation	P19 and P20	Use the final two cases to test stability/saturation, confirm convergence, resolve mismatches, and lock the audit trail.	• Run confirmation queries (e.g., Domain x Textural/Structural; Domain x Novelty marker) in NVivo and reconcile against Excel pivot outputs. • Spot-check approximately 10-15% of MUs per domain back to transcript sources to verify quotation accuracy and trustworthiness; address discrepancies via reassignment/recoding and regenerate queries as needed. • Produce a confirmation note (i.e., checks performed, discrepancies corrected, and final counts) and create a version snapshot; export model statements to appendices by domain (i.e., D1, D2, D3 and D4).

This study involved interviewing 20 participants to gather detailed insights into their experiences. Data saturation was monitored through an iterative process to ensure the essential themes were well-supported and variability was captured. Achieving saturation involved a staged, cohort-wise accumulation-and-confirmation process. After identifying common patterns and claims across cases, particularly through participant P18 (covering 90% of cases), saturation was formally evaluated in Stage D (P19 and P20) by testing stability and convergence with matrix coding queries (e.g., Domain x Textural/Structural; Domain x Novelty markers) across NVivo and the Excel master workbook. This process also included conducting transcript-level spot checks (covering 10-15% of meaning units per domain) and resolving discrepancies via reassignment, recoding, and regenerated queries. A confirmation memo and a snapshot of the final version were generated.

Trustworthiness

The quality of a qualitative study is determined by the traits that establish the researcher's credibility, which ensures that the interpretations of the data are trustworthy (Marshall & Rossman, 2016). Lincoln and Guba (1985) rely on four criteria or factors to establish the trustworthiness of a qualitative study. These are *credibility, dependability, confirmability*, and *transferability.* According to Creswell and Poth (2018), credibility is established when researchers maintain a prolonged engagement in the setting, perform member checks by sharing data and interpretations with participants, and triangulate data sources and methods. Furthermore, dependability and confirmability are established through auditing the research process, and transferability between the researcher and participants is established through generating detailed, thick descriptions.

In judging the quality of a phenomenological study, Creswell and Poth (2018) refer to van Manen (2014) four questions to test the level of validity:

- Is the study based on a valid phenomenological question?
- Is the analysis performed on experientially descriptive accounts or transcripts?
- Is the study rooted correctly in primary and scholarly phenomenological literature?
- Does the study avoid trying to legitimate itself with validation criteria derived from sources concerned with other non-phenomenological methodologies?

In combination with van Manen's (2014) four-point validity test, the researcher employs Creswell and Poth's (2018, p. 273) standards to assess the quality of a phenomenological study. Figure 7 outlines the five quality standards.

Figure 7

Standards for Assessing the Quality of a Phenomenological Study

Does the phenomenological study do the following:

1. Articulate an evident "phenomenon" to study concisely.
2. Convey an understanding of the philosophical tenets of phenomenology.
3. Use procedures of data analysis in phenomenology.
4. Communicate the overall essence of the experience of the participants.
5. Embed reflexivity throughout the study.

Note. Adapted from Creswell and Poth (2018). Adaptation involved removing the explanatory bullets beneath each numbered item.

Trustworthiness was enhanced through exemplar (model statement) anchoring and multi-case corroboration (credibility), along with regenerable artifacts and versioned snapshots (dependability), boundary logging and mapping rules (confirmability), and transparent cohort-wise accumulation (transferability). Risk and bias were mitigated by deferring domain structuring (to prevent premature fitting), ensuring participant diversity in model statements (to reduce dominant-case bias), and using validation lists and boundary logs to prevent category drift. Additionally, my versioning included an analytical memo outlining the theme-to-domain rules and stages (from 12 to 20 cases), with cross-case memos storing domain claims linked to meaning unit IDs and traceable to model statements. Ethical considerations involved de-identifying model statements and quotations and securely storing NVivo and Excel working files and documentation exports in access-controlled environments.

To establish trustworthiness, interview transcripts were returned to participants for review and clarification or correction of their statements (Appendix C). Eighteen of 20 participants received their transcripts; two opted out because of time constraints related to their executive roles. No participants provided substantive feedback that materially altered the dataset or subsequent analysis; responses primarily confirmed transcript accuracy and reiterated key highlights from the interview, supporting the study's member-checking process as a

trustworthiness measure (Creswell & Poth, 2018). Consistent with Moustakas (1994), member checking of the interpretive framework was not conducted because the transcendental phenomenological essence is the researcher's synthesis, not a participant-validated consensus.

Ethical Considerations

By considering the above quality standards while conducting the study, the researcher can ensure that the data and the interpretations will be sound and credible (Marshall & Rossman, 2016). For any qualitative study, validity and trustworthiness must involve consideration of the participants' sensitivities (Marshall & Rossman, 2016). Consequently, the study design follows the guidelines of Athabasca University's Research Ethics Board (REB). The REB requires responses addressing ethical principles concerning the role, participant access, data collection, storage, and reporting. Additionally, ethical research practice is upheld through the moral tenets of *respect for persons, beneficence, and justice* (Marshall & Rossman, 2016). These principles are integrated into the application responses to the REB. Approval from the REB was received on March 12, 2024 (Appendix F) and successfully renewed on February 25, 2025 (Appendix G) and February 13, 2026 (Appendix H). In addition, I completed the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans Course on Research Ethics* (TCPS 2: Core 2022) and obtained a certificate of completion on July 24, 2023.

Respecting individuals entails recognizing that participants in our studies should not be treated merely as a means to an end. It involves valuing their privacy, anonymity, and right to choose whether or not to participate based on their free consent (Marshall & Rossman, 2016). During data collection, measures to protect participants' privacy and confidentiality, including respecting anonymity, were taken by not linking the data to a participant or capturing identifiable attributes, such as email addresses and company names. Pseudonyms were used to protect participants' anonymity.

Beneficence prioritizes the fundamental principle of 'do no harm.' It entails that researchers take all reasonable measures to safeguard participants from any potential harm associated with their involvement in the study (Marshall & Rossman, 2016). *Justice* considers the distribution of benefits and disadvantages resulting from the study, taking into account which individuals or groups are favoured, and which are not (Marshall & Rossman, 2016). According

to Marshall and Rossman (2016), r*espect for persons* receives the most attention from institutional review boards. The informed consent form serves as a means for the researcher to assure the review board that participants are fully informed regarding the study's purpose, that their participation is voluntary, that they understand the level of their commitment, the protection of their identities, and the minimal risks associated with their involvement (Marshall & Rossman, 2016). Overall, ethical practice in qualitative research is a multifaceted, complex process that goes beyond simple checklists, emphasizing comprehensive engagement with the review board and thoughtful consideration of participants.

Conclusion

In this chapter, the focus is on research design and methodology for collecting and analyzing data. The study adopted a qualitative approach, aligning with the interpretivism philosophy, which best supports the nature of the investigation. A phenomenological study is deemed the most suitable design method for addressing the research question on risk management during the COVID-19 pandemic. The chapter provides a comprehensive overview of the methodology employed to explore the lived experiences of risk leaders. Specifically, this chapter details the population, sampling, and data collection, including NVivo qualitative data analysis and transcription technologies, as well as data analysis. The chapter concludes by discussing how trustworthiness underpins research study quality, emphasizing the importance of maintaining adequate research standards to produce valid scholarly work that contributes to risk management during disruptive events and rapid change.

Chapter 4. Findings

Overview of Cross-Case Findings and Analytic Structure

This study explored what it was like to manage the risk management process during the COVID-19 pandemic in the Canadian oil and gas industry. This chapter presents the cross-case findings on how participants experienced the risk management process during the pandemic. I organized the cross-case patterns into four main domains based on the within-case analysis for twenty participants. The four domains capture complementary aspects of the phenomenon for study:

(1) Governance and structural arrangements (D1).
(2) Informational flows and sense-making (D2).
(3) Emotional climate, strain, and relational dynamics (D3).
(4) Learning, foresight, and professional risk identity (D4).

These domains illustrate how participants described the structures, conversations, emotions, and learning processes through which risk management was experienced and lived during the COVID-19 pandemic crisis.

Outlined in Chapter 3, the analytic process followed a four-stage design (e.g., Stages A to D). Stage A began with a theme-first intake, in which meaning units were coded to provisional themes (for P01 to P06). In Stage A, I deliberately delayed domain assignments to preserve phenomenological texture and minimize premature structuring. In Stage B, I introduced provisional domains as a collection of stabilized categories and conducted an initial cross-case sweep of cases P01-P12. Stage B was supported by Excel-based metadata and NVivo queries. During Stage C, I focused on consolidation and cross-case synthesis for participants up to P18. I selected exemplar, or model, meaning units and prepared theme-level synthesis within each domain. Finally, in Stage D, I used the remaining two cases (P19 and P20) to test the data for stability and for saturation. In the process, I checked for consistency between NVivo and Excel outputs, and I confirmed that no additional domains or themes were required for the study.

The remainder of the chapter is organized by the four domains that emerged from this process. Each domain section begins with an overview and explanation of any domain label refinements that occurred as I progressed through the process and the analysis became more in-

depth. For example, a domain shifted from *Communication* to *Information flow and sense-making.* Then, I introduce the themes within that domain and use the Stage C exemplars as anchors for a brief cross-case synthesis description. These descriptions connect the textural (what it felt like) and structural (how the process was organized) meaning units. I use continuity and novelty markers to reflect the variety of shared and unique experiences of the participants. Each domain section concludes with an integrative summary that highlights the tensions, trade-offs, and variation across the twenty cases and suggests links to the other domains.

This design ensures that findings remain grounded in the participants' lived experiences while making the cross-case patterns analytically visible. In line with the transcendental phenomenological approach, the aim is to articulate the underlying structures and meanings that recur across them (Moustakas, 1994). The four domains and their supporting themes thus serve as the organizational framework for the rest of this chapter and lay the foundation for the cross-domain integration and interpretation developed in Chapter 5. The 20 cases are summarized in Table 13, which includes organizational attributes and years of ERM experience, providing context for the cross-case findings that follow.

Table 13

Study Participants

Participant ID	Role or Title	Organization Attributes		ERM Experience (Years)	Primary Risk Management Positioning
		Type	Size (No. of Employees)		
P01	Chief Executive Officer/President	Private	250+ (large)	20+	Executive risk oversight
P02	Risk Assurance	Public	250+ (large)	20+	Board risk advisory
P03	Risk Advisory	Private	1-50 (small)	6-10	Strategic risk advisory
P04	Chief Financial Officer	Public	250+ (large)	20+	Executive risk oversight
P05	Risk Manager	Public	250+ (large)	16-20	Operational risk focus
P06	Risk Manager	Public	250+ (large)	20+	Strategic risk advisory
P07	Chief Executive Officer/President	Public	250+ (large)	20+	Executive risk oversight
P08	Chief Executive Officer/President	Public	250+ (large)	20+	Executive risk oversight
P09	Risk Manager	Public	250+ (large)	16-20	Operational risk focus
P10	Chief Risk Officer	Public	250+ (large)	20+	Executive risk oversight
P11	Chief Executive Officer/President	Private	51-250 (medium)	6-10	Executive risk oversight
P12	Chief Executive Officer/President	Public	250+ (large)	20+	Executive risk oversight
P13	Chief Executive Officer/President	Private	1-50 (small)	20+	Executive risk oversight
P14	Director	Public	250+ (large)	6-10	Strategic risk focus
P15	Senior VP, Operations	Public	250+ (large)	20+	Executive risk oversight
P16	VP, Supply Chain	Public	250+ (large)	20+	Strategic risk focus
P17	Analyst	Public	250+ (large)	1-5	Operational risk and compliance focus
P18	Chief Executive Officer/President	Private	51-250 (medium)	20+	Executive risk oversight
P19	Chief Operations Officer	Public	250+ (large)	20+	Executive risk oversight
P20	Senior VP, Operations	Public	250+ (large)	20+	Executive risk oversight

Domain 1 (D1): Governance and Structural Arrangements

Domain 1 focuses on the governance and structural arrangements in which participants experienced and managed risk during the COVID-19 pandemic. Domain 1 captures meaning units and participant exemplars related to control assurance and committees, decision rights and decentralization, escalation and approvals, operations-financial trade-offs, and risk appetite and thresholds. In this domain, participants described what it *felt like* to live inside these arrangements while making critical decisions during rapid change and high uncertainty. Within this domain, participants experienced a range of meaning units, including protecting core capabilities (e.g., "I protected a core group of people whose competencies we can't afford to lose" (P15-SMU-6)) and the governance of risk appetite (e.g., "I lived with a hard risk appetite line against permanent value destruction" (P12-SMU-7)). To illustrate these patterns, see Appendix I: Domain 1 Themes and Participant Statements for selected exemplars for this domain. For each theme within the domain, the table displays the lived-experience code from participants, the participant and meaning-unit IDs, and the meaning-unit label. Each participant/meaning unit ID is linked in the master Excel workbook with direct references to NVivo and transcript statements.

The label for this domain evolved during my analysis. During Stage B analysis with participants P07 to P12, I used a working label such as *Governance/Structures* (and a variation of the themes below) to distinguish the risk management experience from communication, emotional, and learning aspects. Stage C exemplar analysis demonstrated to me that this domain was more about specific arrangements that locate and coordinate risk work. This showed me how committees, rules, tools, and financial levers combined to allocate authority, scrutinize risk, and enforce organizational boundaries. The domain name was refined to *Governance and Structural Arrangements* to highlight the interplay between formal governance and the practical arrangements through which risk decisions were made, escalated, and enforced during the pandemic.

Within Domain 1, *Governance and Structural Arrangements*, five categories or themes emerged: control assurance and committees, decision rights and decentralization, escalation and approvals, operations-financial trade-offs, and risk appetite and thresholds. Each theme is discussed.

Theme: Control assurance and committees

Control assurance and committees provided the institutional framework, or scaffolding, as one participant noted, within which COVID-era risk decisions took place. Participants described a cultural fault line: the same ERM and committee structures could be seen either as genuine risk management or as mere box-ticking. In some organizations, committee work and risk reports were closely tied to operational decisions and board discussions (P02-TMU-8). In others, the forms were filled out, but the intent was missing, leading to frustration and cynicism about whether governance was more symbolic than substantive.

Some risk leaders used these structures to unify fragmented practices. One participant demonstrated this by intentionally combining incident management, business continuity, and risk into a single system, allowing committees to review a comprehensive picture rather than three separate streams (P09-SMU-6). Even where integration succeeded, participants sensed a balance between rigour and agility: governance processes and thorough questioning protected the organization but also delayed decisions well beyond usual times (P14-SMU-2). During the pandemic, this tension was intensified by the urgency to make swift decisions regarding health, safety, and finances.

At the front lines, such as in work camps and at site locations, control assurance became personal and visible. Some participants described enforcing strict pandemic rules on site, refusing access to unvaccinated workers, or sending people home when protocols were breached (P20-TMU-2). In these moments, governance was a lived practice of drawing firm lines amid pressure and tension. These accounts show committees and assurance structures as the container within which pandemic or crisis decisions were debated, slowed, hardened, or made real, often with palpable frustration but also a sense of protection.

Theme: Decision rights and decentralization

Decision rights and decentralization determined who held risk decisions in the organization. Participants repeatedly distinguished between facilitation and ownership: risk managers saw themselves as process enablers, insisting that the business unit managers owned the risks and therefore made the final risk management decisions (P02-SMU-11). This distinction became especially clear during the pandemic, when uncertainty and time pressure

could easily tempt both business leaders and boards of directors to centralize everything within a small inner circle or allow decisions to fragment across the organization.

Several examples demonstrate that decision rights are context-dependent rather than fixed. One participant described uneven pandemic responses, with local leaders interpreting public health rules, resource constraints, and cultural norms differently across regions and facilities (P06-SMU-1). In practice, decentralization meant granting autonomy to adapt protocols to local conditions while still expecting them to connect back to a corporate risk framework. In more mature settings, executives each owned risks within their portfolios and brought them into regular cross-functional discussions, creating a *many-eyes* monitoring system that distributed responsibility beyond the central risk team (P17-SMU-2).

Leaders of mid-sized organizations remained ultimately responsible but actively redesigned governance to bring ownership closer to where work happened. One participant described shifting away from heavy, centralized risk meetings toward a system in which departments managed their risks and reported them upward in a structured manner, maintaining executive oversight while avoiding bottlenecks (P18-SMU-4). Across different cases, participants saw decision rights as something that was negotiated and renegotiated in real time: deciding who could act independently, what needed a collective agreement, and when central authority had to override local preferences to manage risk under rapidly changing conditions.

Theme: Escalation and approvals

Escalation and approvals are linked to local judgments and organizational thresholds. Before the pandemic, some participants already relied on formal tools such as the Risk Assessment and Decision-Making (RADM) framework. Major proposals reached the board only after a structured comparison of the risks of acting versus not acting, making escalation traceable and defensible (P02-SMU-42). This tool-based approach shaped how participants viewed high-level approvals: both as a procedural step and a method to ensure careful consideration before decisions were made at a higher level.

When the pandemic struck, this formal infrastructure needed to be paired with simple rules that people could apply in their daily work. One leader described developing clear behavioural triggers: when to send people home, when to cancel an activity, and when to escalate

a decision, so that frontline staff were not overwhelmed by uncertainty or left guessing what leadership would accept (P16-SMU-2). These rules effectively translated escalation thresholds into everyday language, turning board-level risk positions into specific action cues.

The theme directly relates to decision rights and risk appetite: escalation mechanisms only made sense because certain risks were considered unacceptable at specific levels, and because people understood who had the authority to overrule local decisions. Participants' accounts demonstrate escalation as an experience of navigating when one's own judgement was sufficient and when the stakes or ambiguity felt too high to proceed without higher-level approval.

Theme: Governance of operations-financial trade-offs

Operations-financial trade-offs became especially significant and challenging when governance decisions were involved. Participants described unprecedented measures, such as explicitly shutting in production as a risk response to an extreme price collapse, rather than simply making operational adjustments (P03-TMU-20). For some, this was the first time they had shut down revenue-generating assets to protect the balance sheet, an unusual reversal of the typical approach that made the severity of the crisis immediately clear.

Risk leaders emphasized treating working capital as their vital resource, adjusting operations such as projects and maintenance to preserve cash flow and maintain financial covenant headroom (P11-TMU-5). These choices were seen as triage: deciding which parts of the operation to support, which to pause, and which to relinquish to ensure the organization's survival. Organizations that had previously built financial resilience through conservative leverage, hedging, and diversification found the pandemic to be proof that effective risk management begins before a crisis, with pre-emptive discipline providing more flexibility (P14-SMU-4).

The human aspect also stood out. One example highlighted the deliberate effort to safeguard a small group of employees whose skills the organization could not afford to lose, even as broader staffing levels and expenditures were reduced (P15-SMU-6). Here, financial considerations and operations intersected with the need to preserve capabilities and manage risk appetite: leaders were reluctant to compromise core expertise beyond a certain point, even if it

meant sacrificing short-term savings. Participants saw this area as a series of complex, sometimes morally challenging decisions about who and what to protect when uncertainty made future revenues and prices unpredictable.

Theme: Risk appetite and thresholds

Risk appetite and thresholds provided the guiding logic that framed all previous themes in this domain. Several participants worked with clear, board-approved boundaries, such as a strict limit on a permanent decline in value. During the pandemic crisis, these boundaries became active reference points in discussions about acceptable downside risks and when decisive action was necessary (P12-SMU-7).

Others described appetite as a balance between risk and return rather than a caution to minimize risk. One participant used cultural metaphors of *steady singles* to illustrate that the organization aimed for acceptable returns with controlled downside, rather than taking aggressive risks or being overly cautious (P14-SMU-6).

Controllability and fairness also became part of participants' definitions. One leader refused to guarantee outcomes they did not control, even when pressured by customers. They argued that risk should rest with the party best able to manage it (P15-SMU-3). This view influenced contract structures and deal decisions. It shaped which opportunities were pursued and which were rejected. Central to these positions was the mentally demanding task of articulating ERM principles and primary risks (including risk appetite) in advance. It was a challenging process even before the pandemic. One participant described the effort of defining those convictions long before the pandemic emerged and then observing how the pandemic tested whether those statements genuinely guided action under uncertainty (P19-SMU-1).

In practice, participants experienced risk appetite as a negotiated, lived standard rather than a static policy line: a set of boundaries and trade-offs that are repeatedly revisited as new information, shocks, and stakeholder pressures emerge.

Integrative summary for Domain 1

Governance and structural arrangements served as the arena where participants navigated risk management during the pandemic. Control assurance and committees offered formal platforms for raising, challenging, and approving risks. It also became a source of frustration

when scrutiny delayed urgently needed decisions. Decision rights and decentralization determined who could act and when, requiring ongoing adjustments to the balance between central coordination and local autonomy as circumstances changed across jurisdictions and facilities. Escalation and approvals linked local judgments to organizational thresholds, combining established tools with newly developed behavioural rules that clearly indicated when uncertainty required higher-level intervention.

Operations-financial trade-offs were where governance decisions turned into tangible actions, such as shutting down production, conserving cash, cutting or protecting roles, and testing how far pre-crisis financial resilience could go. Risk appetite and thresholds, finally, shaped these actions by defining what kinds of loss were acceptable and where responsibility should lie, including which lines could not be crossed, even under severe pressure. The themes reveal participants navigating tensions and differences: rigour versus agility, central oversight versus local discretion, financial survival versus capability preservation, and formal appetite statements versus real-time judgments.

For those involved in risk management, the COVID-19 pandemic intensified existing tensions rather than creating entirely new ones. Participants saw governance arrangements as both protective and restrictive; structures that sometimes shielded against uncertainty and sometimes heightened its emotional and practical burdens. Domain 1, therefore, demonstrates how it felt to navigate and adapt the governance system while guiding organizations through an evolving, uncertain crisis.

Domain 2 (D2): Informational Flows and Sense-Making

Domain 2 demonstrates how participants experienced the flow of information and sense-making while managing risks during the pandemic. It consolidates themes on cadence and channels, cross-functional alignment, external stakeholders, information artifacts, signal quality, and rumours. Participants described communication as intense, involving gaps, overload, and social effort in building a shared understanding of risk as conditions changed daily. To illustrate these patterns, see Appendix J: Domain 2 Themes and Participant Statements for selected exemplars for this domain. For each theme within the domain, the table displays the lived-experience code from participants, the participant and meaning-unit IDs, and the meaning-unit label. Each participant/meaning unit ID is linked in the master Excel workbook with direct references to NVivo and transcript statements.

In earlier stages of analysis, this domain was temporarily labelled *Communication*. As the cross-case work progressed, it became clear to me that the core phenomenon was how information moved, was filtered, and was interpreted. Themes consistently involved cadence (i.e., how often and with whom), content (i.e., what counted as a meaningful signal), and interpretation (i.e., how people turned fragments into actionable understanding). The domain label was therefore revised to *Informational Flows and Sense-Making* to better reflect that participants were managing the volume, quality, and meaning of information under uncertainty. This revision also clarifies how Domain 2 sits between *Governance and Structural Arrangements* (D1) and *Emotional Climate* (D3). Governance structures dictated what had to be communicated and escalated, while informational flows, in turn, stabilized or unsettled emotional responses during the pandemic crisis.

Theme: Cadence and channels (huddles/war room)

Cadence and channels formed the practical backbone of risk management during the pandemic. Risk leaders reported a sudden shift from pre-pandemic routines to crisis-driven huddles, daily calls, and “war-room” style meetings. In one example, the initial wave of the pandemic prompted improvised yet highly structured daily conversations, supported by weekly executive calls, enabling individuals to align their observations on the ground with their responses (P06-SMU-4). Participants highlighted that when formal playbooks were limited or

unusable, they compensated by increasing the frequency of interactions, using cadence itself as an emergent governance tool.

The scale and structure of this cadence varied. Some organizations held daily town halls for thousands of employees, supplemented by smaller functional meetings to maintain a consistent narrative and reduce confusion (P15-SMU-5). Others relied on a dedicated COVID-19 pandemic response team, weekly executive sessions, and *one-voice* messaging, combined with quick informal conversations in co-located environments (P17-SMU-5). Even in less centralized settings, participants relied on clear, repeated communication with their direct teams and customers, describing this as *steering through risk* and as making them feel less isolated in decision-making (P11-SMU-1). Relational leadership also played a significant role. One participant linked reduced risk to listening more, checking in more regularly, and resisting the impulse to present themselves as the "smartest person in the room" (P13-SMU-5).

Living through this rhythm meant waking up each day knowing there would be another cycle of updates, questions, and sense-making. Participants found this both exhausting and reassuring. It was exhausting because the conversations felt endless but reassuring because the rhythm made uncertainty shareable rather than privately held.

Theme: Cross-functional alignment

Cross-functional alignment was seen as an ongoing process of integrating risk, strategy, and culture. One participant noted that organizational sustainability depends on a clear alignment of risk, strategy, and culture, rather than viewing risk as a separate technical layer added to business decisions (P01-SMU-10). For them, the pandemic revealed how serious the consequences can be when this alignment is weak.

The pandemic also sped up digital communication. Participants described rapid shifts to all-digital channels (e.g., email, Microsoft Teams®, and WhatsApp®), even in large offices (P02-SMU-5). This change in infrastructure made it easier to bring different functions into the same conversation quickly; however, it also increased the amount of information people had to handle. In this environment, risk managers often took on a facilitator role. Instead of owning risks, they brought together cross-functional groups, identified issues, and offered tools and

frameworks, while emphasizing that line leaders remained responsible for decisions and implementation (P02-SMU-37 and P02-SMU-43).

In practice, alignment involved repeatedly translating risk insights into the languages of operations, finance, and culture. This ensured that committees (D1) and teams (D3) responded to the same underlying reality. Participants viewed this as a highly relational task, such as staying in constant contact, noticing when functions pulled in different directions, and using digital channels to realign understanding and action under time pressure.

Theme: External stakeholders (board/regulators/clients/communities)

External stakeholders were seen as active participants in risk sense-making, not just as audiences to inform. Several participants emphasized the importance of local community and First Nations relationships as essential to *license-to-operate* risk: ongoing dialogue and responsiveness were viewed as practical ways to reduce the risk of losing permission to operate (P01-TMU-3). During the pandemic, maintaining these relationships in a physically distanced setting added an extra layer of complexity to risk communication.

Customers frequently acted as quasi-regulators. One example noted that customer standards could be more stringent than government rules, effectively establishing the actual operating limits during crises (P06-SMU-5). Leaders believed that failure to meet customer safety or continuity requirements would result in work stopping. Additionally, participants described the interpretive effort required to translate risk across boards of directors, communities, and Indigenous groups, each with different worldviews and risk concerns. They managed this challenge within inconsistent jurisdictional rules (P10-TMU-7). This process involved continuous adjustments to language and emphasis.

Another participant described external networks and indicators, including vendors, customers, advisory firms, and KPI dashboards, as an early-warning system for emerging risks (P18-SMU-5). They monitored spending patterns, vendor signals, and advisory briefings to assess the environment's future trajectory. Leaders also described negotiated responses with partners and staff, such as contract adjustments and transparent pay cuts, as joint risk management strategies rather than unilateral decisions (P12-SMU-1).

Overall, participants viewed external stakeholders as both constraints and sources of foresight. They provided critical signals and offered relational capital that could be leveraged to anticipate shocks and adjust responses.

Theme: Information artifacts (dashboards/reports)

Information artifacts were consistently described as communication scaffolds. One exemplar showed COSO-aligned ERM matrices and traffic-light reports as ways to translate complex risk profiles into visuals that boards of directors and executives could understand quickly (P12-SMU-5). Instead of expecting the matrix to *decide*, the participant saw it as a tool that framed discussions about risk appetite and priorities.

Another participant discussed quarterly dashboards that track principal risks and trends as dynamic steering tools rather than static documents (P19-SMU-8). Reviewing traffic-light trends helped them identify when specific risks were emerging, leading to reallocation of capital, increased monitoring, or strategic adjustments. They also noted that dashboards serve to challenge or support intuitive judgment, rather than replace it, especially when the pandemic disrupted historical patterns.

In the lived experience of the pandemic, these artifacts anchored informational flows: they shaped what was discussed in executive meetings, what was escalated to the board (linking back to D1), and how people talked about risk trajectories over time. Participants felt relief when they had clear visuals to rely on during conversations and frustration when reports lagged reality or failed to capture emerging risks. Artifacts were, in effect, the visible backbone that supported much of the rhythm, external reporting, and signal-filtering work described in the other D2 themes.

Theme: Signal quality and rumour control

During the COVID-19 pandemic, participants experienced communication as a sustained effort to filter signals and reduce noise. One participant described how simply talking it through helped them and their colleagues stay calm, showing that two-way conversations served as a rumour-control mechanism, helping people think clearly enough to act (P03-SMU-15). Many noted that in the absence of timely, credible information, speculation and anxiety quickly filled the gaps.

Senior leaders described being encouraged to adopt broader and more transparent communication than before. One participant recounted how their organization quickly enabled remote work, held town halls in which diverse opinions about the pandemic were expressed, and remained transparent even when unpopular decisions were made (P07-TMU-1). The goal was to present multiple competing narratives to prevent the organization's response from fragmenting. Middle managers contributed by regularly asking their teams about risks and stressing that having a clear, workable plan was more important than waiting for perfection (P08-SMU-2). This made risk discussion a normal part of conversations and helped prevent rumours driven by anxiety from taking hold.

On a more structural level, one participant described a significant shift in how risks were defined and grouped: re-designing the risk taxonomy to better understand COVID-era information (P09-SMU-13). By offering clearer categories, the new taxonomy reduced informational overload and helped people interpret diverse signals without feeling overwhelmed.

These accounts depict signal quality and rumour control as a blend of emotional labour and technical framing. Leaders needed to speak often and be transparent about what was known and unknown. They needed to offer shared language so that people could navigate rapidly changing information and coordinate actions effectively.

Integrative summary for Domain 2

Across D2 themes, information flows and sense-making form a tightly interconnected system that influenced how risk management was handled during the COVID-19 pandemic. Crisis-driven routines and channels established the timing and relationships through which information circulated: daily huddles, war rooms, town halls, and informal talks created a rhythm for sharing updates and coordinating responses. Cross-functional alignment ensured these flows did not stay isolated; instead, risk, strategy, and culture were actively combined, supported by digital tools and risk managers acting as facilitators rather than sole owners.

External stakeholders (i.e., communities, First Nations partners, customers, boards of directors, and advisors) added additional layers of information and constraints, acting as both early-warning sources and informal regulators of safety, continuity, and legitimacy. Artifacts such as ERM matrices and dashboards provided visual anchors around which this information

could be summarised (and debated) and acted on, especially when historical patterns no longer applied. Efforts to maintain signal quality and manage rumours blended emotional and technical aspects. Leaders used transparency and ongoing conversations to stabilize understanding and prevent anxiety from hindering decision-making.

Participants' accounts highlight tensions and differences. Communication that reassured some stakeholders sometimes fueled disagreement in others. Frequent meetings could feel both grounding and draining. Dashboards made risks visible but never eliminated uncertainty. External standards sometimes conflicted with local realities. Living inside D2 meant navigating these tensions daily, trying to keep information flowing quickly enough to be helpful but carefully sufficient to stay credible. It also meant attempting to maintain a single organizational story while honouring diverse perspectives and fears. In this way, D2 captures the lived experience of managing risk and uncertainty as much through how information was shared and interpreted as through any formal model or plan.

Domain 3 (D3): Emotional Climate, Strain, and Relational Dynamics

Domain 3 focused on the emotional climate, strain, and relational dynamics through which participants managed risk during the COVID-19 pandemic. It includes themes of agency-constraint tensions, fatigue, strain, morale, support and well-being practices, team bonds, conflict management, trust, and psychological safety. Participants described risk management during the pandemic as both a technical task and an emotional experience. They discussed fear, exhaustion, relational strain, solidarity, and trust as key elements that influenced how the risk process unfolded during uncertainty. To illustrate these patterns, see Appendix K: Domain 3 Themes and Participant Statements for selected exemplars for this domain. For each theme within the domain, the table displays the lived-experience code from participants, the participant and meaning-unit IDs, and the meaning-unit label. Each participant/meaning unit ID is linked in the master Excel workbook with direct references to NVivo and transcript statements.

Early in the analysis, I labelled this domain simply as *Emotional*, reflecting an initial grouping of feeling-filled material. As cross-case work deepened, it became clear that the core phenomenon was broader in scope. I recognized it was more than individual emotions. The domain included shared climate and relational work that shaped whether risk processes held or frayed under pressure. Agency-constraint tensions revealed leaders' inner struggle as they made decisions within limits; fatigue and morale showed the ongoing emotional cost of maintaining risk work; support and well-being, team bonds, and psychological safety highlighted the relational and cultural fabric that made difficult conversations and decisions possible. The domain label was therefore refined to *Emotional Climate, Strain, and Relational Dynamics* to better reflect this interaction between individual feelings, collective mood, and the relationships through which risk management was experienced during the pandemic.

Theme: Agency-constraint tensions

Agency-constraint tensions emerged as a struggle between acting decisively and being influenced by the crisis, systems, and others' reactions. Participants described anxiety when carefully crafted risk plans remained untested on paper, creating a sense that the organization appeared prepared but was emotionally vulnerable because no one knew if the plans would succeed in practice (P02-TMU-1). They also observed how the pandemic pushed people toward exaggerated or extreme risk perceptions, making it challenging to recalibrate once the initial fear

subsided. Leaders felt responsible for resetting thresholds and expectations; however, their judgment was hindered by the crisis's emotional toll (P05-SMU-11).

A recurring challenge was balancing methodical analysis with urgent decision-making. Participants expressed a desire to carefully work through scenarios but also recognized that delays could pose risks. The risk management process became a continuous negotiation. Overanalyzing could lead to paralysis, and rushing could result in poor decisions that need re-evaluation (P06-SMU-2). Senior leaders described feeling like they were standing "in the eye of the storm" (P16-TMU-1), acknowledging their own fears while trying to maintain calm and clarity for others. They pushed themselves to consider extreme 'what-ifs' despite emotional resistance and accepted that disagreements with their decisions were inevitable (P16-TMU-1). Emergency response during the COVID-19 pandemic involved disciplined decision-making: choosing, explaining, and learning within constraints, viewing risk both as a threat and as an opportunity for differentiation (P16-TMU-1).

Theme: Fatigue, strain, and morale

Fatigue, strain, and lowered morale were felt as the emotional toll of maintaining the risk process through overlapping shocks. Participants described layered disruptions, such as layoffs, furloughs, and sudden shifts to remote work (sometimes combined with mergers or restructurings), all while they were expected to develop or improve risk systems and manage daily operations (P06-TMU-9). Some mentioned their experience of *constantly racing against time*, trying to install controls and meet daily demands with no buffer in the system (P09-SMU-17). Others highlighted isolated field crews who had to continue operating under increased health risks. At the same time, much of the organization shifted to working from home, creating an uneven workload and a sense of quiet tension (P06-TMU-9).

Risk meetings became exhausting. Several participants recalled endless crisis calls and risk reviews, with little chance for recovery. This created a constant sense of *rebuilding from scratch* as conditions changed (P09-SMU-17). However, the cross-case pattern also showed a clear counterpoint. In some organizations, existing remote work readiness, stable operations, and strong communication meant that the pandemic was experienced as unexpectedly stable and even strengthening. Participants in these settings described feeling informed, organized, and connected. Routines during the pandemic quickly became normal, and management relationships

deepened through shared challenges. In other words, morale was not uniformly drained. It largely depended on how well risk processes (including infrastructure) and communication patterns were put in place before the crisis, and on how effectively risk leaders kept their connection while under pressure (P17-TMU-3).

Theme: Support and well-being practices

Support and well-being practices have shifted from the margins into the heart of risk management efforts. Several participants described mental health as *suddenly* becoming a formal risk, leading to the hiring of wellness coordinators or explicitly including psychological well-being alongside financial and operational risks (P02-SMU-34). For others, the experience was deeply personal. They felt responsible for colleagues' loneliness, stress, and the *stir-crazy* effects of lockdown, especially when employees were confined at home while still expected to deliver (P04-TMU-14).

Leaders responded with a mix of formal actions and improvised practices. Some organized virtual coffees and encouraged people to develop their own routines, actively seeking the positives of working from home to help offset the loss of social contact. Others framed their role as protecting teams from external drama and noise, maintaining steady risk routines while allowing individuals to do what they needed to manage anxiety, if they respected others (P04-TMU-14). In organizations that already practiced remote collaboration, the pandemic was seen as a managed disruption rather than a shock. Keeping familiar routines and promoting a calm, low-drama tone helped people stay grounded. Across cases, support and well-being work was experienced as emotional labour layered on top of technical risk responsibilities. Leaders felt they were supporting both the business and the people through the same crisis (P18-TMU-3).

Theme: Team bonds and conflict management

Team bonds and conflict management proved essential for maintaining risk work under pressure. Participants highlighted that strong bonds formed through crisis intensity, working long hours together, managing tough calls, and sharing hardships increased mutual trust and willingness to support one another (P05-TMU-2). In some cases, hundreds of employees became active risk identifiers, fostering a sense of shared ownership and collective vigilance.

On the other hand, the pandemic exposed and intensified existing fault lines and conflicts. Participants noted tensions between groups with exemptions and those without, between field and office staff, and between rural and urban attitudes toward risk and mandates. Strong, safety-focused cultures acted as a double-edged sword. They fostered collaboration and pride but could also hinder flexibility and increase friction when priorities or entitlements clashed (P07-TMU-4). Leaders shared the heartbreak of layoffs when no alternative jobs were available, along with the moral burden of decisions that hurt individuals while trying to maintain organizational stability. One participant redefined success in terms of legacy and opportunities created rather than only financial outcomes, signalling an effort to carry and heal moral injury (P11-TMU-8).

Divisiveness around pandemic policies was widespread. Participants opted for moderate approaches, aware they would face resentment from certain groups. Moments of reconciliation often depended on trusted influencers. For example, when a respected field leader publicly supported a controversial decision, a tense, divided group moved toward unity. Overall, participants viewed team bonds and conflict management as ongoing relational work. Managing resentment and leveraging culture (e.g., transparency) to keep people united and to turn shared strain into solidarity rather than division (P19-TMU-3).

Theme: Trust and psychological safety

Trust and psychological safety served as the emotional foundation that enabled the rest of the risk process to take place. Participants connected, feeling secure with recognizing risks earlier, voicing concerns, and holding each other accountable. Trust was described as the environment that fosters genuine risk conversations rather than avoiding them (P01-SMU-6).

Vertical trust, especially from boards of directors and executives, was essential. When boards of directors delegated authority and signalled confidence in their expertise, participants felt empowered to act quickly and decisively in the face of uncertainty, without waiting for each approval step (P03-SMU-6). Conversely, some noted that even the best technical systems could still fail if people's mindsets and complacency undermine them or if no one feels ownership in raising a concern. Several leaders emphasized that trust cannot be created in the middle of a crisis: it must be built beforehand through consistent behaviour and visible support (including

working side-by-side) so that risk management feels legitimate rather than imposed (P16-TMU-9).

Psychological safety was also actively fostered through routines and tone. Weekly safety stand-ups, *low-drama* expectations for discussions, and lunch-and-learn sessions that transformed missteps into shared learning experiences all helped normalize risk talk and make it visible across the organization. Leaders also recognized that people experience risk differently. They responded by offering flexible work options and revisiting decisions as comfort levels shifted. In practice, participants perceived trust and psychological safety as both a long-term cultural investment and a series of moment-to-moment choices about how to respond when someone raised a risk or disagreed (or made a mistake) (P18-TMU-6).

Integrative summary for Domain 3

Across the themes, emotional climate, strain, and relational dynamics emerge as the lived backdrop and, at times, the foreground of managing risk during the COVID-19 pandemic. Agency-constraint tensions capture the inner experience of leaders trying to exercise agency within structural, emotional, and contextual limits. Fatigue, strain, and morale show the ongoing cost of sustaining risk processes through layoffs, remote work, and nonstop meetings, with notable variation between depleted and surprisingly stable settings. Support and well-being practices reveal how risk management expanded to include mental health, loneliness, and relational care. Team bonds and conflict management highlight how the same crisis that builds solidarity can also expose inequities and polarization. This requires deliberate relational work to hold groups together. Trust and psychological safety provide the foundation that enables people to surface risks, challenge decisions, and then act quickly without fear.

The themes in this area are closely interconnected. When trust is established and communication is strong (D2), tensions related to agency-constraint issues remain high but are easier to manage. People can discuss and adapt (and act) without breaking apart. When governance structures (D1) are oppressive, and trust is low, participants feel overly scrutinized and insufficiently supported, leading to increased fatigue and conflict. Learning and identity (D4) shape how leaders interpret these emotional experiences, whether as temporary stress, signs of organizational weakness, or opportunities for long-term change.

For participants, managing the risk management process during the COVID-19 pandemic meant dealing with these emotional and relational tensions every day. They carried fear and responsibility, supported others in distress, made morally difficult decisions, and tried to keep teams together despite high uncertainty. D3 captures what risk leaders did and what it felt like to perform risk work in a prolonged, high-stakes crisis, where the emotional climate and relationships were as vital to risk outcomes as any formal framework or tool.

Domain 4 (D4): Learning, Foresight, and Professional Risk Identity

Domain 4 explores how participants learned, anticipated, and reshaped their professional identities as they managed the risk process during the pandemic. This domain highlights five themes: improvisation leading to routine (playbooks); learning loops (AARs, debriefs, retros); professional values and role identity; scenario planning and preparedness; and training and capability building. Throughout these areas, participants described the pandemic as a stress test of current capabilities and a catalyst for new ways of thinking and acting in risk management. To illustrate these patterns, see Appendix L: Domain 4 Themes and Participant Statements for selected exemplars for this domain. For each theme within the domain, the table displays the lived-experience code from participants, the participant and meaning-unit IDs, and the meaning-unit label. Each participant/meaning unit ID is linked in the master Excel workbook with direct references to NVivo and transcript statements.

Initially, I labelled this domain as *Learning*. As the analysis progressed, this domain expanded. In Stage C work, I recognized that participants were reflecting on past events and projecting into the future through scenario planning and foresight, re-articulating who they were as risk professionals and leaders. Learning was inseparable from anticipatory work (e.g., modelling camp outbreaks, horizon scanning, treating the pandemic as a stress test) and from identity claims (e.g., being a trusted advisor, a values-anchored leader, or someone who 'lives ERM' rather than merely referencing a binder). The domain label was therefore refined to *Learning, Foresight, and Professional Risk Identity* to capture how people turned improvisation into routines, converted experience into organizational memory, imagined future risks, and renegotiated their roles and values in the process of managing risk under pandemic uncertainty.

Theme: Improvisation leading to routine (playbooks)

Participants often described starting with improvisation and ending with playbooks. In one organization, early risk work felt like "a cowboy show" (P02-SMU-3) with little formal ERM in place. Risk managers had to invent frameworks and processes while the business was already taking risks (P02-SMU-3). Elsewhere, carefully crafted plans turned out to be unusable or silent on pandemics. When existing emergency plans did not match the reality of the pandemic, participants experienced frustration (P05-SMU-6). They were forced to improvise

new response structures, such as cross-functional “brain trusts” (P05-SMU-7), to address movable risks when line plans ran out of road (P05-SMU-7).

At the operational level, improvisation was highly practical, creating new methods to prevent and detect transmission in camps or building redundancy into crisis committees so leadership could rotate without losing continuity. They also had to figure out how to support clients remotely when travel bans were imposed (P08-TMU-1). Leaders navigated messy technology issues, increased communication, and adjusted expectations, often accepting that initial attempts might fail. As these improvised solutions began to succeed (e.g., remote support outperforming worst-case models, camp protocols demonstrating robustness, cross-industry collaboration stabilizing practices), participants started to see them as emergent playbooks (P15-SMU-7). Afterwards, some explicitly aimed to embed concrete pandemic lessons into future HSE policies so that these hard-won practices would not remain as one-off improvisations (P19-SMU-5). Managing risk during the pandemic thus involved a perceived shift from *making it up under pressure* to deliberately formalizing what worked into routines that could be readily retrieved for future crises.

Theme: Learning loops (AARs, debriefs, retros)

Learning loops were experienced as irregular but essential mechanisms for turning experience into organizational memory. Some participants described deliberate feedback cycles, such as checking months later whether solutions had truly succeeded and merging different risk perspectives into a single comprehensive view. Maintaining ongoing ‘check and learn’ loops also became a critical requirement. Similarly, controls remained active during the pandemic (P02-SMU-12 and P02-SMU-23). In these cases, learning involved revisiting decisions and outcomes over time with perspective, then adjusting the system accordingly.

Others experienced learning at the level of shifts in mental models. The pandemic prompted them to reconsider “what real protection actually is” (P03-TMU-5), moving beyond assumptions that insurance or single-point controls were sufficient (P03-TMU-5). Leadership training and simulation, such as practicing press conferences for media crises and rotating leaders to prevent burnout, were understood as rehearsals that paid off under pandemic conditions (P07-SMU-3). After-action reviews were described as powerful when people were

willing to critique themselves and when reform followed rather than performative documentation (P08-TMU-5).

Participants identified gaps and failure modes in learning. Some noted incidents that generated pages of lessons learned but never resulted in behavioural change, or saw retirements and turnover erode organizational memory. This left newer staff unaware of past crises. Others expressed frustration that incidents did not *travel upward* for senior-level learning (P16-SMU-5). The pandemic, therefore, revealed learning loops as both an asset and a risk. When well-designed and culturally supported, they enhanced organizational effectiveness in managing uncertainty. Unfortunately, when overly bureaucratic or under-resourced, they forced risk management to repeatedly confront the same vulnerabilities, leaving a thicker paper trail (P20-SMU-5).

Theme: Professional values and role identity

The pandemic tested professional identity for risk leaders. Risk practitioners and leaders described their roles expanding beyond technical analysis into psychological support and ethical stewardship. Some felt *half psychologist* offering containment and perspective to clients and colleagues while also providing foresight and risk expertise (P03-SMU-22). Others saw themselves as trusted advisors whose credibility was built on knowledge, foresight (P03-TMU-23), and staying with clients through the crisis's worst phases. The trust established during the pandemic was remembered as lasting well beyond the acute period (P03-TMU-25).

Values played a significant role in these identity accounts. Several leaders highlighted transparency, timeliness, and honesty, recalling how damaging it was when previous leaders concealed financial problems. They chose to share difficult information, even when criticized for saying too much, because they believed that openness maintained trust and united people around a shared goal (P11-SMU-14). Some set clear boundaries with partners whose values no longer aligned or refused to compromise safety and ethics to reduce costs, even when facing significant financial pressure (P11-TMU-15). Risk management was seen as a form of stewardship over clients, employees, shareholders, and communities, with decisions affecting “thousands of employees’ lives” (P15-TMU-11).

Participants also described their identity as being rooted in living within ERM as a culture. They depended on clearly defined values (e.g., collaboration, agility, results, and ethics) and frontline leadership to guide implementation. They noted that they rarely consulted the ERM binder during the pandemic because risk thinking was integrated into everyday judgment. For these practitioners, the pandemic further reinforced an already established identity, as they saw themselves as individuals whose role is to manage risk for others and shoulder project and business risks on behalf of customers. In addition, they used the pandemic crisis as a reference point in future risk discussions (P19-SMU-2 and P19-TMU-7). Professional identity and values thus became part of the infrastructure through which risk management was experienced and enacted during the crisis.

Theme: Scenario planning and preparedness

Scenario planning and preparedness were experienced as the difference between feeling exposed and feeling capable of acting under radical uncertainty. Some participants entered the pandemic with long-standing, systemic habits of readiness, such as studying key risks in depth, building financial strength and flexibility in advance. In addition, several participants described adopting a total systems approach to risk management across finance, operations, and strategy. For them, scenario planning was empowering, especially when the pandemic arrived. They felt able to mobilize quickly, drawing on integrated ERM and continuity practices already in place (P01-TMU-9, P01-SMU-12, P01-TMU-19, P01-SMU-20, P19-TMU-4).

Others navigated the tension between personal foresight and organizational blind spots. Some had modelled pandemics, learned from the SARS crisis, or used horizon scanning and global networks to detect the COVID-19 pandemic early. However, they often found that most organizations had trained or prepared for more familiar incidents, such as spills or explosions, rather than a global health emergency. They experienced shock at the pandemic's magnitude and felt vindicated when early warnings proved accurate (P02-SMU-21, P02-SMU-30, P02-SMU-33, P02-TMU-40, P02-TMU-46, P08-TMU-7, and P10-SMU-3). Leaders who retrieved old pandemic plans and activated Incident Command System (ICS) structures before government mandates reported spending heavily on supplies and pre-positioning assets *just in case*. They later realized these initial, costly actions were crucial (P07-TMU-5).

Scenario thinking also appeared as dynamic, temporal, and architectural work (P08-SMU-3). Participants described treating risk systems as *live and adaptable*, using simulations to identify gaps, and explicitly considering *corporate-killer risks*. They divided their attention across immediate, three-month, and six-month timeframes, employing history and imagination to test extreme scenarios and then determine a reasonable middle ground (P10-SMU-3, P10-SMU-5, and P10-TMU-8). Others designed structural flexibility and optionality into contracts and systems, leaving deliberate degrees of freedom for unknown risks and incorporating clear exit strategies into major decisions. This allowed their organizations to experience less impact than peers when the pandemic struck (P16-SMU-4). The pandemic was widely seen as a real-world stress test of previous preparations. This highlighted the reassurance of what worked (e.g., strong balance sheets, hedging, remote-work readiness, and drills) and the gaps needing attention in future scenarios, such as supply chain fragility and overlapping crises (P16-SMU-7 and P19-TMU-4).

Theme: Training and capacity building

Training and capability building were described as the formal and informal structures that enabled COVID-era risk management. On the formal side, participants discussed training *everyone in risk*, from basic concepts to leading assessments, and implementing structured modules to ensure everyone understood the same process (P02-SMU-16, P02-SMU-44, and P09-SMU-10). They highlighted the importance of framing oversight activities as supportive rather than punitive, avoiding terms like *audit* to keep people receptive to discussing weaknesses, and fostering honest conversations about risk (P01-SMU-11).

Prior disciplines were also applied. One participant relied heavily on military-informed practices, such as the doctrine that risk is managed rather than eliminated, pre-mortems to uncover hidden concerns, and tiered command structures to coordinate responses. They felt this training was advantageous, but they had to adapt it to industrial settings where, for instance, remote oversight could tempt leaders to interfere unnecessarily (P08-SMU-6). Others concentrated on integrating crisis lessons into continuity plans and training, intentionally turning ad hoc pandemic experiences into standard procedures to reduce confusion in future events (P09-TMU-9 and P09-SMU-10).

Informal learning pathways were equally important and were disrupted by remote work. Participants were concerned that new hires could no longer learn complex risk judgment *by osmosis* from sitting beside experienced colleagues and asking constant questions. They observed that newer staff doubted their expertise and defaulted to simple responses (e.g., competing on price) when they lacked confidence in their risk knowledge (P14-SMU-5). Some participants described cultivating *constant mindfulness* about risk as a daily practice that helped sustain effective risk management during the pandemic (P01-SMU-11). These accounts show that training and capability development involve more than technical skills. For example, they aim to create widespread risk literacy and preserve tacit knowledge. In addition, they develop judgment when traditional apprenticeship models are suddenly limited.

Integrative summary for Domain 4

The Domain 4 themes depict managing the risk management process during the COVID-19 pandemic as an ongoing cycle of improvisation, learning, foresight, and identity work. When formal plans failed or were missing, participants improvised structures and practices that, over time, became the foundation for new playbooks and updated policies. Learning loops, when effective, transformed crisis experience into revised systems, mental models, and routines. When they failed, people simply documented rather than changed. Scenario planning and preparedness connect to both the past and the future, enabling some organizations to respond quickly and confidently, while exposing blind spots in others. Training and capacity building supported all of this, influencing who felt capable of participating in risk work and how far risk literacy extended beyond specialist roles.

Professional values and role identity, as described by a participant metaphor, ‘served as the connective tissue’ within the domain. Values and roles influence how improvisation is judged (i.e., reckless versus responsible), what is learned (and what is overlooked), which scenarios are deemed legitimate, and how training is presented (and perceived by some). Participants experienced the pandemic, using another participant's metaphor, as a ‘real-time laboratory’ in which their prior beliefs about risk, preparedness, and professional responsibility were challenged, refined, and sometimes changed. My observation and interpretation of participants' lived experiences was that uncertainty functioned as an ongoing experiential context that shaped

their decisions about what to preserve, what to alter, and whom they aspired to be as risk professionals and leaders.

In relation to the broader analysis, D4 connects directly D1, D2, and D3:

- Governance structures (D1) provide containers for learning and scenario work (D4).
- Information flows and sense-making (D2) feed the content of learning loops and foresight (D4).
- Emotional climate and relational dynamics (D3) shape whether people are willing to reflect, admit mistakes, and try new approaches (D4).

Therefore, D4 acts as a bridge between participants' lived experience of uncertainty and the longer-term transformation of their risk management practices, systems, and identities, which will inform the later discussion of dynamic capabilities.

Cross-Domain Summary and Transition to Discussion

The four domains depict managing the risk management process during the COVID-19 pandemic as a multi-layered practice. This practice was structural, informational, emotional, and developmental. Domain 1 (D1) demonstrated how governance arrangements, decision rights, escalation mechanisms, and risk-finance trade-offs established the formal framework within which participants operated. Domain 2 (D2) emphasized informational flows and sense-making. D2 highlights how cadence, channels, external stakeholders, and information artifacts influenced what people understood about evolving risks. Domain 3 (D3) revealed the emotional climate, strain, and relational dynamics that either supported or hindered risk work under pressure. Domain 4 (D4) captured learning, foresight, and professional risk identity. This domain illustrates how participants transformed improvisation into routines, reflected on crises, and redefined what it meant to be a risk professional or leader during the pandemic.

Across the four domains, I see several common patterns emerging. First, governance and information flows were closely linked. Formal structures (D1) did not operate alone. They relied on frequent communication, multi-directional information sharing, and shared understanding practices (D2) to function under conditions of extreme uncertainty. Committees, decision rights, and risk appetite statements became meaningful when supported by crisis huddles, town halls, dashboards, and active cross-functional and stakeholder translation. Participants felt this connection directly. When governance (D1) and communication (D2) aligned, they could act quickly and coherently; when they did not, decision-making became slow, fragmented, or disputed.

Second, the findings show that emotional climate and trust are essential risk management infrastructure. The ability to voice concerns, accept unpopular trade-offs, and implement strict controls depends heavily on psychological safety, perceived fairness, and the strength of relationships (D3). These factors are influenced by governance choices (D1) and communication strategies (D2). Leaders' efforts to be transparent, acknowledge fear and fatigue, and prioritize mental health and morale are crucial for maintaining honest, action-driven risk conversations. When trust and safety are weak, people report more divisiveness, rumours, and resistance. When trust and safety are strong, the same messages and structures are seen as supportive rather than punitive.

Third, the domains collectively depict risk management as an ongoing process of learning and identity formation:

- Improvisations under pressure were integrated into updated playbooks, scenario practices, and training.
- Learning loops and after-action reviews were attempted (sometimes imperfectly) to ensure COVID-era experiences were not forgotten, similar to previous historic risk events.
- Professional identities and values were both shaped by and influenced through this work. Participants began to see themselves as stewards, trusted advisors, or carriers of culture. These self-conceptions affected how they interpreted governance mandates, communicated during periods of uncertainty, and managed others' emotional stress.
- The level of preparedness and foresight that organizations had before the pandemic (e.g., financially, operationally, and culturally) greatly influenced how fatigue, morale, and tensions related to limits on agency were perceived during the crisis.

Lastly, a recurring experiential theme across all domains is the ongoing balancing of control and adaptability during uncertainty. Participants spoke of:

- Limiting production (e.g., shutting in) to safeguard financial stability.
- Imposing strict restrictions on site access.
- Establishing tighter financial limits.
- Developing new communication routines.
- Viewing mental health as a risk.
- Redesigning governance meetings.
- Trying out modelling, scenario planning and training.

Managing the risk management process during the COVID-19 pandemic was thus seen as navigating shifting tensions:

- between centralized authority and local independence,
- between transparency and division,
- between standard procedures and improvisation, and
- between immediate survival and future resilience.

This cross-domain synthesis lays the groundwork for the discussion that follows. Chapter 5 will examine these empirically grounded domains and themes, engaging with existing scholarship on enterprise risk management, crisis governance, and dynamic capabilities. In doing so, it will develop an integrated understanding of how governance structures, informational practices, emotional climates, and learning processes interact to influence organizations' ability to sense, interpret, and respond to risk and uncertainty during the COVID-19 pandemic, and what this indicates for risk management beyond this crisis.

Chapter 5. Discussion and Implications

Introduction

In this chapter, I interpret the cross-case findings presented in Chapter 4, drawing on existing scholarship on ERM and dynamic capabilities. The research question was: *What was it like to manage the risk management process during the COVID-19 pandemic?* Using a transcendental phenomenological approach, the analysis moved from within-case meaning units and (textural and structural) descriptions to four cross-case domains:

- D1: Governance and structural arrangements
- D2: Informational flows and sense-making
- D3: Emotional climate, strain, and relational dynamics
- D4: Learning, foresight, and professional risk identity

These domains and their themes are grounded in participants' lived accounts and trace how risk management was experienced in practice rather than prescribed by frameworks (e.g., COSO and ISO 31000).

In this chapter, I step back from the domain-level structure to identify five cross-domain integrative themes that address the research question more holistically. These themes span structures and processes (D1), information and sense-making (D2), emotional experience (D3), and learning and adaptation (D4). The integrative themes are:

1. Governance and information as coupled risk infrastructure,
2. Trust, emotional climate, and fairness as preconditions for effective risk work,
3. Preparedness, improvisation, and learning loops shaping adaptive capacity,
4. Professional risk identity and values as anchors under certainty, and
5. Balancing centralized control and local autonomy in dynamic uncertainty.

Each theme is supported by multiple domains and is illustrated through selected participants' model statements from Chapter 4. Table 14 serves as an integrative map of the analysis, showing how the themes developed in the cross-case findings (Chapter 4) roll up into the four domains (D1-D4) and how these domains underpin the five cross-domain integrative themes that organize

the discussion in Chapter 5. The complete mapping of themes to domains and cross-domain integrative themes is provided in Appendix M.

Table 14

Mapping of themes to domains and cross-domain integrative themes

Domain	Themes (cross-case)	Cross-Domain Integrative Themes
D1: Governance and structural arrangements	Control assurance and committees; Decision rights and decentralization; Escalation and approvals; Governance of operations-financial trade-offs; and Risk appetite and thresholds.	Governance and information as coupled risk infrastructure. Trust, emotional climate, and fairness as preconditions for effective risk work. Preparedness, improvisation, and learning loops shaping adaptive capacity. Professional risk identity and values as anchors under certainty. Balancing centralized control and local autonomy in dynamic uncertainty.
D2): Informational flows and sense-making	Cadence and channels (huddles/war room); Cross-functional alignment; External stakeholders (board/regulators/clients/communities); Information artifacts (dashboards/reports); and Signal quality and rumour control.	
D3: Emotional climate, strain, and relational dynamics	Agency-constraint tensions; Fatigue, strain, and morale; Support and well-being practices; Team bonds and conflict management; and Trust and psychological safety.	
D4: Learning, foresight, and professional risk identity	Improvisation leading to routine (playbooks); Learning loops (AARs, debriefs, retros); Professional values and role identity; Scenario planning and preparedness; and Training and capacity building	

I organize the discussion in this chapter around five themes rather than the four domains. This structure reflects the study's focus on how risk management was lived as an ongoing process during the pandemic, rather than on isolated elements of governance, information, emotion, or learning. For each theme, I first summarize the empirical pattern, then place it in dialogue with relevant bodies of literature, including ERM, dynamic capabilities theory, research on risk culture and psychological safety, and high-reliability organization scholarship. Through this process, I show where the findings confirm, extend, or complicate existing understandings of risk management in conditions of high uncertainty. Before introducing each theme, I will discuss

my conceptual framework, which integrates the domains and cross-case themes and helps visualize the cross-domain themes that run through my findings.

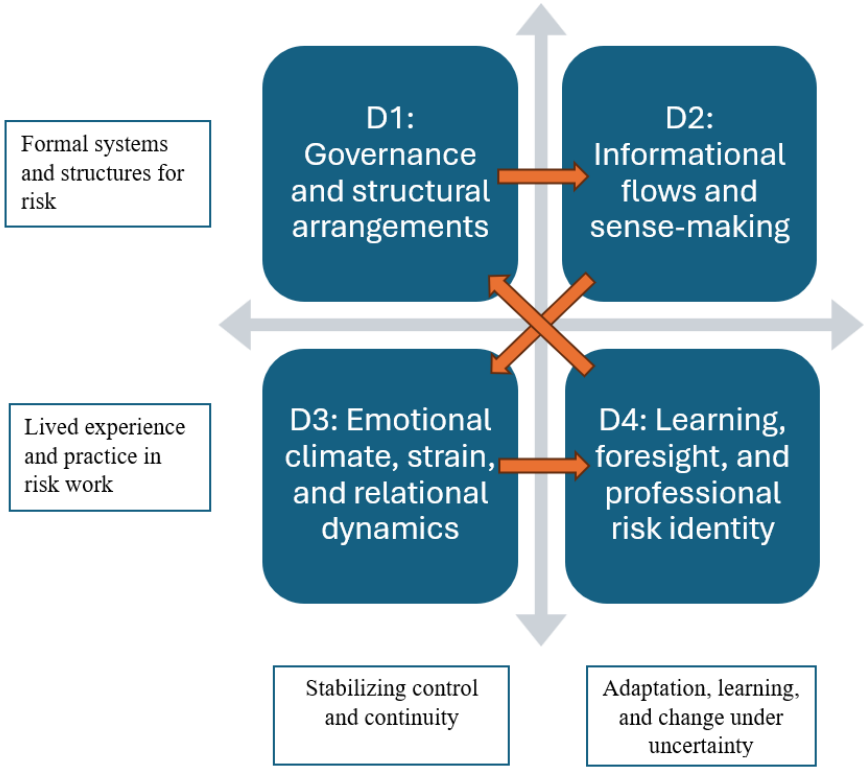
The chapter concludes by synthesizing the study's theoretical and practical contributions, outlining its limitations and directions for future research, and offering my brief reflection. As the final chapter of the dissertation, it integrates the study's empirical and theoretical components into an account of what it was like to manage the risk management process during the pandemic and what this implies for risk management under uncertainty more broadly.

Conceptual framework integrating domains and cross-case themes

The conceptual framework offers a bridge between the domains and the broader contributions I discuss in the following sections. The framework shows how managing the risk management process during the pandemic meant continually rebalancing these four domains. Figure 8 provides a high-level orientation to the four-domain framework; however, the dynamic and experiential relationships among the domains are most fully articulated through the cross-case narratives and theme discussions that follow.

Figure 8

Four-Domain Framework for Adaptive Risk Management in Organizational Crisis



Note. Arrows indicate the predominant directions of the cross-domain relationships. Domains are interdependent and may affect one another directly and bidirectionally, reflecting a dynamic socio-technical system.

Figure 8 synthesizes the cross-case findings into a 2 x 2 framework that organizes the four domains and their themes along two underlying tensions:

- The vertical axis contrasts formal systems and structures for risk (top) with the lived experience and the practice of risk work (bottom).
- The horizontal axis contrasts stabilizing control and continuity (left) with adaptation, learning, and change under uncertainty (right).

As shown in Figure 8, Domain 1 (governance and structural arrangements) anchors the formal, stabilizing quadrant (upper-left). Domain 2 (informational flows and sense-making) represents formal systems under pressure to adapt (upper-right quadrant). Domain 3 (emotional climate, strain, and relational dynamics) foregrounds the lived conditions that stabilize or erode risk work (lower-left quadrant). Domain 4 (learning, foresight, and professional risk identity) captures lived experience as a source of change and capability development (lower-right quadrant).

This framework helps visualize the cross-domain themes that run through my findings. First, participants described managing the risk management process during the pandemic as operating within a single, interdependent socio-technical system rather than a set of isolated tools. Governance structures (D1), information flows, and sense-making (D2), emotional climate and trust (D3), and learning and professional identity (D4) continually shaped one another across the quadrants. Second, the figure makes visible the persistent tension between stabilizing control and adaptive change. Risk leaders were simultaneously trying to hold firm on core standards and appetites while reconfiguring capabilities on the right. Third, positioning D3 and D4 along the bottom row highlights how emotional experience, trust, and values-infused professional identities underpinned both the reliability and the adaptability of formal risk systems.

Figure 8 is animated by orange arrows that indicate these domains form a dynamic, mutually reinforcing system rather than independent components. Governance and structural arrangements (D1) shape which risk signals are monitored, how information is escalated, and whose perspectives are heard in informational flows and organizational sense-making (D2). These informational patterns then influence the emotional climate and relational risk work (D3). The same risk data and messages can foster trust, psychological safety, and shared purpose, or amplify anxiety, divisiveness, and fatigue. Emotional conditions then enable or constrain learning, adaptation, and the evolution of professional identities (D4); this, in turn, affects whether people are willing to surface failures, engage in candid debriefs, and convert

improvisations into routines and playbooks. Learning and capability building in D4 feed back into D1 as organizations refine decision rules, risk appetite thresholds, risk escalation criteria, and role designs, considering lived experiences.

One additional observation I make is that secondary arrows can highlight additional relationships, which are omitted but discussed. I recognize that some relationships can be direct. For example, decisions taken in D1, such as vaccine mandates and production shutdowns, can have immediate effects on morale, perceived fairness, and trust in D3. The design of information systems and taxonomies in D2 directly shapes what is captured and institutionalized as learning and capability development in D4. These further highlight that the four-domain framework depicts a dynamic socio-technical system that continuously co-produces how the risk management process is lived under uncertainty.

The 2 x 2 framework offers a conceptual bridge between the descriptive domain memos and the broader theoretical contributions I discuss later in this chapter. It shows that, in participants' accounts, managing the risk management process through COVID-19-related uncertainty meant continually rebalancing these four domains (i.e., structures, information, emotional climate, and learning) so that the risk management system remained legitimate to those living within it and capable of responding to a dynamic, uncertain environment.

Theme 1: Governance and Information Coupling as Risk Infrastructure

Cross-case pattern

In these cases, participants described governance structures and information flows as a single, coupled infrastructure (versus separate building blocks) through which they managed risk during the pandemic. Boards of directors, committees, decision rights, and escalation rules functioned only when embedded in clear governance routines that specified who could decide what and when. In governance terms (D1), participants recalled risk committees, board reporting cycles, and emergency command structures that were tested and, in some cases, redesigned under crisis pressure. One participant described this succinctly:

> "I had to redesign heavy risk meetings into a system that pushed ownership down but kept my oversight" (P18-SMU-4).

Some leaders described deeply structured pre-COVID tools (e.g., formal risk assessment and decision-making instruments before board papers) and made escalations traceable and disciplined. Participant 02 shares their experience as:

> "Before board papers, we used the Risk Assessment and Decision-Making (RADM) tool to show risks of acting and not acting" (P02-SMU-42).

Others highlighted crisis-specific innovations, such as simple field rules (e.g., when to stop work, when to cancel, when to escalate), that translated abstract governance into concrete behaviour during the pandemic.

Informational flows and sense-making (D2) were experienced as the other half of this infrastructure. Participants described daily or weekly calls, dashboards, and ad hoc war rooms that sought to tame volatile data on infections, commodity prices, supply chains, and government directives. They recalled three kinds of informational work: (a) building channels and cadence (e.g., frequent updates, town halls, incident command briefings); (b) curating clean signals and suppressing rumours; and (c) turning unstructured information (i.e., emails, news, and field anecdotes) into shared interpretations that could drive decisions. One participant offers the following:

> "I felt reassured knowing a COVID response team monitored guidance and sent clear updates; I read the ongoing weekly exec meetings as proof we were prepared and paying attention; and I noticed that big shocks like COVID were actually handled mainly through informal conversations" (P17-SMU-5).

When information and governance were aligned, participants reported feeling anchored and less panicked, even under severe conditions. When they diverged, they experienced frustration, noise, and a sense that the system was either too slow or blind to what was happening on the ground.

The result was a lived sense that managing the risk management process during the COVID-19 pandemic meant continually stitching together governance structures and information flows:

- Making sure that the right issues flowed to the right forums at the right time,
- That committees did not become box-ticking exercises, and

- Escalating a risk included both a narrative/description and supporting evidence.

Participants spoke of reconfiguring standing meetings, redefining thresholds, and tightening the feedback loop between local observations and corporate decision-making. Under conditions of extreme uncertainty, the separation between *doing risk management* and *governing and informing risk management* collapsed.

Links to existing literature

Enterprise risk management frameworks already emphasize that governance and information are tightly linked. The COSO ERM framework, for example, explicitly treats governance and culture, information, communication, and reporting as core components of an integrated approach to managing risk alongside strategy and performance. Likewise, ISO 31000 presents risk management as a set of principles, a framework, and a process in which effective communication, consultation, and the use of information are integral rather than optional extras. Both perspectives stress that risk management must be embedded in organizational decision-making processes and supported by reliable information flows rather than treated as a stand-alone function (Fox, 2018).

The participants' accounts in this study broadly confirm those theoretical expectations but add a phenomenological layer. Participants did not merely describe governance diagrams or reporting lines; they reported what it *felt like* to live with those structures amid high uncertainty and time pressure. They articulated the friction between rigorous committee processes and the need to act quickly, the emotional relief when information channels stabilized anxiety and rumours, and the strain of operating with incomplete, contested, or contradictory data. Several participants also emphasized the importance of pre-crisis work, including developing integrated risk-incident-continuity systems, establishing clear escalation tools, and rehearsing emergency modes, so that when the pandemic arrived, the coupled infrastructure did not have to be invented from scratch.

These experiences resonate with the broader governance and crisis-management literatures, which emphasize the role of structured forums and routines as sites for collective sense-making under conditions of high uncertainty (Weick, Sutcliffe, & Obstfeld, 2005). They also align with research on risk communication and boundary-spanning roles, which suggests

that effective crisis response depends on the formal governance architecture and the quality of information, interpretation, and coordination that flows across organizational boundaries (Renn, 2012; van Asselt & Renn, 2011).

Theme 2: Trust, Emotional Climate, and Fairness as Preconditions for Effective Risk Work

Cross-case pattern

In the cases, participants described trust, emotional climate, and fairness as conditions that determined whether risk work could occur at all during the COVID-19 pandemic. For participants, managing the risk management process under uncertainty meant managing fear and fatigue. It meant managing perceived injustice alongside health and infection curves. It also meant managing commodity prices and regulatory change. In sharing their experience related to calm and courageous leadership, one participant shared:

> "I tried to stand in the eye of the storm, creating calm so we could actually talk and find better solutions; I felt that managing risk in COVID meant being openly scared yet courageous and authentic in my decisions; I noticed my own fear made it hard to imagine true extremes, and I had to force myself to test the 'what ifs;' I learned that if I stayed in fear, I stopped seeing what the crisis could teach me; I had to accept that people would disagree with me and still make the call; and I tried to see risk as a path to growth and differentiation, not just something to fear" (P16-TMU-1).

In the emotional domain, I observed that risk leaders recounted experiences of fatigue, strain, and shifting morale:

- Living through overlapping crises,
- Navigating layoffs and restructuring, and
- Holding together organizations that felt constantly on edge.

For some participants, pre-existing stability and remote readiness made the pandemic a manageable disruption. Others, especially those who experienced mergers, restructurings, or sharp downturns during the pandemic, felt the crisis as a cumulative strain. "Rebuilding everything from scratch" (P09-TMU-2) while racing against time described one participant's

experience. These emotional states shaped how open people were to discussions of risk, how willing they were to surface emerging issues, and how they interpreted leadership decisions.

Participants also described support and well-being practices as part of risk management. Several viewed mental health as a newly formalized risk (e.g., "felt responsible for others' mental well-being and aware of their loneliness" (P04-TMU-14)). This was reflected in the introduction of wellness coordination, virtual social practices, and explicit attention to loneliness and confinement. I also observed others framing their role as shielding teams from external drama and maintaining steady routines so people could continue operating. These efforts appeared as compassionate gestures and were necessary to sustain attention and collaboration on risk work throughout the pandemic.

The dynamics of team bonds and conflict management further illustrated how the emotional climate shaped risk processes. I observed several examples. Participants described strengthened bonds through shared adversity, but also divisions among field and office staff, between those with exemptions and those without, and between urban and rural attitudes toward restrictions. Risk leaders recalled using town halls and open dialogue to address layoffs and policy tensions. They carried the emotional weight of decisions that disrupted livelihoods. Where culture and values held firm, divisive moments could be turned into renewed commitment. Unfortunately, where they did not, conflict and mistrust undermined alignment on risk choices.

Lastly, trust and psychological safety emerged as key. Participants emphasized that effective risk management depended on people feeling able to raise concerns without fear of backlash, admit uncertainty, and question assumptions. This applied to senior leaders as well. Trust was described as structural and relational. One participant shared their experience relating to trusting, valuing, and reading people in a crisis as:

> "I worked to create psychological safety so anyone could raise looming risks without fear of backlash; I expected calm, low-drama discussions that focused on what we could realistically control in any situation; Our Monday safety stand-ups made talking about risk feel routine, visible, and shared across the whole company; and I turned project missteps into organization-wide learning through lunch-and-learns and a living lessons matrix" (P18-TMU-6).

Structurally, it was tied to the legitimacy of the risk function, delegated authority, and visible support from boards of directors and executives. Relationally, it was linked to confidence that leaders were transparent, that burdens were shared fairly, and that voices would be heard. For me, the cornerstone was that several participants insisted that trust could not be invented in the middle of a crisis; it had to be built beforehand through consistent behaviour and alignment between words and actions.

These accounts suggest to me that the emotional and relational climate was experienced as a precondition for governance, information, and learning to function. Said differently, D3 underpins and plays an essential supporting role. Under uncertainty, participants were constantly working with emotions and perceptions of fairness that either enabled or blocked risk conversations, escalations, and decisions. I am reminded here that risk leadership is not about running frameworks.

Links to existing literature

The patterns in this theme align with work that portrays psychological safety, trust, and perceived fairness as central to engaging with risk, speaking up about issues, and learning from experience. Existing research indicates that individuals are more likely to report problems and challenge assumptions when they believe they will not be punished or dismissed (Edmondson, 2019). Discussions of risk culture emphasize leadership transparency, consistency between stated values and actual behaviour, and visible concern for people as critical to the practical enactment of risk policies (Bockius & Gatzert, 2024).

The participants' accounts align with these ideas but frame them as crisis-specific experiences. I found that participants did not discuss culture and psychological safety in abstract terms. Instead, they described concrete situations, such as disclosing bad news to investors during a market freefall; holding town halls on layoffs; enforcing contentious site access rules; or balancing different comfort levels with health through flexible work options. In these moments, trust and fairness were lived as painful trade-offs and difficult conversations. They were repeated demonstrations of values under pressure. My findings position the emotional and relational climate as an integral dimension of the risk management process under uncertainty. This reinforces the argument that technical and structural risk capabilities are inseparable from the interpersonal conditions in which they are enacted.

Theme 3: Preparedness, Improvisation, and Learning Loops as Adaptive Risk Capacity

Cross-case pattern

In twenty cases, participants viewed preparedness, improvisation, and learning as a single, evolving skill. During the pandemic, managing risk meant toggling between pre-planned responses and on-the-spot improvisation. This process also involved integrating these experiences into more stable routines and playbooks. Several participants highlighted years of prior efforts, including building resilience on balance sheets, stress testing, risk management, business continuity planning, pandemic preparedness, and emergency drills. These efforts provided calm and operational flexibility when the crisis hit. Others uncovered significant blind spots; for instance, they had trained for fires, spills, explosions, and cyberattacks but not for a pandemic. Emotional reactions ranged from relief, due to effective hedging, systems, and remote work, to shock and regret over unplanned health and pandemic scenarios and the ensuing scramble.

Even when formal plans were in place, improvisation was common. Participants recalled relying on outdated or unusable playbooks, which led them to form "brain trust" teams (P05-SMU-7), develop COVID-19-specific pillars, create camp protocols, or set temporary decision rules to halt work, send employees home, or escalate issues. Others described quickly adapting work processes through remote collaboration tools, cross-industry partnerships, or new committee structures to ensure continuity and support for clients. Over time, some of these improvisations evolved into routines, such as new communication schedules, clearer escalation thresholds, and crisis management structures that were later formalized into policies. On preparedness and imagination, one participant shared:

> "I saw risk and crisis as inseparable parts of managing uncertainty; I believed imaginative planning helped reduce the chance of being surprised; I felt early awareness of COVID's spread and knew we had to prepare before others did; I turned to modeling to understand how an outbreak in camps might unfold; and I relied on horizon scanning and global contacts to anticipate COVID early" (P08-TMU-7).

Participants discussed learning loops with a mix of pride and frustration. Some cited formal methods, including regular after-action reviews, injury trend analyses, and follow-up

evaluations every six months, to assess the effectiveness of changes and improve systems. Others highlighted informal learning approaches, such as reflecting on past crises, leveraging external expertise, and mentally rehearsing extreme scenarios to clarify the ‘reasonable middle.' Nonetheless, gaps were reported, including lengthy lessons-learned documents that failed to influence behaviour, retirements and staff turnover that disrupted continuity of learning, and ineffective upward sharing of incident insights. The pandemic was seen as a lasting benchmark that would shape future risk discussions. One participant shared: “I rarely opened the ERM binder, but risk thinking was ingrained in my everyday decisions during COVID,” and “I know COVID will sit in the back of my mind every time we discuss major risks” (P19-TMU-7). Participants recognized that without deliberate efforts to embed lessons, much of their hard-earned knowledge might fade over time.

These accounts show that adaptive capacity involves a dynamic interplay among prior preparation, improvisation during the crisis, and learning afterward. I understand that, amid uncertainty, participants continuously tested the limits of their existing frameworks. They also created workarounds when faced with failures, aiming to turn these experiences into stronger strategies for future shocks.

Links to existing literature

Working within this theme, I recognize that the patterns closely align with dynamic capabilities. Dynamic capabilities refer to the ability to integrate, build, and reconfigure competencies in response to rapidly changing environments (Teece et al., 2016). The sensing, seizing, and reconfiguring logic maps onto participants' descriptions. For example, sensing emerging threats through scanning and scenario planning, seizing by rapidly improvising responses, and reconfiguring by embedding new routines, structures, and guardrails after the fact (Andersen, 2025a; Joussen et al., 2025).

The patterns also align with risk management standards that emphasize continuous improvement and learning as core principles. ISO 31000, for example, frames risk management as an iterative process in which practices should be regularly improved through knowledge and experience. I acknowledge that the commentaries on the ISO risk framework highlight communication, training, and organizational awareness as the starting point for improving risk management over time.

Participants' accounts of after-action reviews (AARs), debriefs, and post-incident discussions align with research on AARs and high-reliability organizations (Amici & Farnese, 2024). AARs, a military tool later adopted in other high-risk sectors, are structured opportunities to share retrospective learning and make tacit expertise explicit. A key feature of AARs is their promotion of reliability through collective reflection. This study's cases illustrate both the potential benefits and challenges of these practices. When AAR-like routines were embedded, they supported adjustment and improvement. When they were ad hoc or documentary, learning stalled.

Theme 4: Professional Risk Identity and Values as Anchors

Cross-case pattern

Participants consistently framed their professional identity and sense of what was right as central to managing the risk management process during the pandemic. Professional identity and values served as anchors when information was ambiguous, models were unstable, and outcomes were deeply uncertain. Several participants described a shift in risk-role identity. Some risk managers and finance leaders moved from being perceived as technical specialists to trusted advisors. One participant shared this view: "I earned my place as a trusted advisor through foresight and knowledge" (P03-TMU-23). Boards of directors, executives, and clients actively sought their foresight and presence. They described earning that role by staying close to clients and operational teams, explaining complex risk dynamics in accessible terms, and standing with stakeholders through prolonged volatility. Supporting clients built enduring trust and were framed by one participant as:

> "By sticking with clients, I built trust that lasted," and "The trust I built in COVID still stays with me today" (P03-TMU-25).

In these accounts, risk management appeared relational and interpretive and often felt like "being a psychologist" (P03-SMU-22) as well as a risk expert.

Participants also reported relying heavily on personal and organizational values to guide difficult decisions. Risk leaders emphasized transparency, fairness, and care as non-negotiable, even when these commitments drew criticism or complicated negotiations in the short term. One participant embodied the values, transparency, and trust as anchors:

> "I told employees the truth instead of pretending everything was fine; I shaped my leadership around trust, transparency, and timeliness; I remembered how it felt when leaders hid financial problems, and I refused to do that; I saw how openness pulled people together around a shared goal; and I got criticized for saying too much, but I believed honesty kept trust alive" (P11-SMU-14).

Some refused to downplay financial risks or covenant pressures to employees and investors. Others declined deals in which parties would bear risk without real control. Many framed their decisions as acts of stewardship, prioritizing livelihoods, safety, and the organization's long-term viability over short-term performance.

Prior experience and worldview further shaped how participants made sense of the pandemic. Those who had lived through previous downturns, market crashes, or personal hardship often interpreted the pandemic as another episode in a cyclical pattern of shocks. For them, volatility felt normal and survivable, and their risk processes changed in form rather than in intensity. Others, especially those new to their roles or sectors, experienced the pandemic as a defining professional crucible, a period in which they learned what it meant to lead, trust their judgement, and act on imperfect information.

Professional role identity was intertwined with accountability and scope. Regional or corporate leaders described feeling ultimately responsible for risk outcomes in their area, even when they did not directly control every decision. They viewed risk management as balancing the interests of employees, clients, and shareholders while staying within boundaries. One participant describes this as:

> "I feel ultimately accountable for regional risk and results, no matter who owns each piece; I manage risk knowing we must stand on our own revenues while staying true to our values; I experience risk management as constantly balancing clients, employees, and shareholders while protecting safety and ethics; I feel bound by our values not to sacrifice safety or ethics even when cutting costs; and I feel the weight of risk decisions because they touch thousands of employees' lives" (P15-TMU-11).

By contrast, engineering and safety professionals often saw their identity as shouldering risk for others, translating abstract frameworks into practical safeguards and acceptable criteria. Across

these variations, participants drew on their sense of role and values to decide which risks to accept, which to transfer or decline, and how to communicate those choices.

These accounts suggest that professional values and role identity served as stabilizing reference points amid unstable external conditions. Under conditions of high uncertainty, participants repeatedly returned to questions about their professional identity, what they owed others, and the kind of organization they wanted to lead.

Links to existing literature

These patterns align with research on professional identity and sense-making, which holds that individuals interpret ambiguous situations through the lens of *who they are and what someone like them does in that situation*. They also resonate with ethical and values-based leadership, in which transparency, integrity, and care for stakeholders are framed as central to sound decision-making, especially under pressure (Andersen, 2025b).

In a risk-management context, the literature typically focuses on structures and tools, such as frameworks, policies, risk appetite statements, and control systems. When values and identity are discussed, they often appear under the leadership of tone at the top or risk culture. The accounts in this study support those emphases but bring them down to the level of lived experience. I observed that participants did not speak in an abstract tone. They described specific choices, such as telling people the truth about financial peril, refusing to guarantee outcomes they did not control, or walking away from partners whose behaviour violated their own convictions. This suggests that professional identity and values are not peripheral to risk management. They are part of what I call the internal compass by which practitioners navigate uncertainty and interpret what risk frameworks mean in practice.

Theme 5: Balancing Centralized Control and Local Autonomy

Cross-case pattern

Participants experienced centralized control and local autonomy as a continually renegotiated balance that shaped how risk management operated during the pandemic. Managing the risk management process under uncertainty meant deciding, often under time pressure, what must be standardized and enforced centrally and what must be adapted and owned locally.

On the centralizing side, many participants described corporate-level risk frameworks, board oversight, and crisis structures that set non-negotiable boundaries. Examples included ERM policies, corporate pandemic or emergency response plans, central decisions on capital structure, hedging, and liquidity. In addition, during the pandemic, uniform rules were established on vaccination, site access, and travel. These mechanisms provided a sense of coherence and fairness and ensured that existential risks (e.g., insolvency, health and safety catastrophes, and reputational damage) were handled consistently. In this sense, I consider this a one-rule-for-all application.

Participants repeatedly stressed that local conditions varied widely. For example, regulatory regimes differed across jurisdictions, facilities and workforces faced distinct exposure profiles, and community attitudes toward restrictions could diverge sharply between urban and rural settings. Divisional and site leaders reported having to adapt protocols to local public-health rules, infrastructure constraints, workforce composition, and client demands (e.g., adaptive, context-contingent protocols as: “Experienced uneven pandemic responses shaped by local jurisdictions and divisional autonomy” (P06-SMU-1)). They described ongoing translation work, interpreting central guidance, aligning it with local realities, and deciding when local circumstances justified stricter measures or, conversely, when rigid application would be counterproductive.

Participants also highlighted models of distributed ownership in which executives and managers at all levels were expected to own risks within their domains and surface them in collective forums. Weekly risk discussions, cross-functional meetings, and matrixed escalation paths were seen as mechanisms that enabled many eyes to watch for issues while feeding an integrated view to the centre. Leaders in mid-sized firms described redesigning heavy, central risk meetings into systems that pushed ownership down to departments while preserving their oversight and accountability (e.g., “As risk managers, we facilitated the process, but the business owned the risks” (P02-SMU-11)).

I observed that tensions were common. Some participants noted friction when central governance requirements slowed decisions in fast-moving local situations, or when field staff perceived head office policies as detached from on-the-ground realities. Others recalled pressure from clients or regulators to interpret rules, requiring local leaders to balance contractual

obligations, safety concerns, and corporate standards. In most cases, across different organizational roles and contexts, participants described effective risk management during the COVID-19 pandemic as maintaining a dynamic equilibrium. Strong enough central control to protect the whole, yet flexible enough local autonomy to remain legitimate and workable in specific contexts.

Links to existing literature

These lived experiences align with the literature on organizational and risk management, which emphasizes the balance between centralization and decentralization in complex, uncertain environments (Andersen, 2025a). In ERM guidance, boards of directors and senior management are expected to set risk appetite, approve key policies, and oversee enterprise-level risks. (Committee of Sponsoring Organizations of the Treadway Commission (COSO), 2017). Operational managers identify, assess, and manage risks within their areas of responsibility. ISO-based approaches similarly call for embedding risk management across the organization, with clearly defined roles and accountabilities at multiple levels.

More broadly, research on dynamic capabilities and organizational design suggests that firms operating under high uncertainty benefit from ambidextrous structures that integrate central coordination with local flexibility, enabling them to sense and respond to diverse, rapidly changing conditions (Andersen, 2025a). High-reliability organization research likewise highlights the importance of decision migration, which shifts authority closer to the front line when local expertise and timely action are critical, while retaining control and oversight of systemic risks (Amici & Farnese, 2024).

The accounts in this study broadly confirm these perspectives but add detail about how the balance was experienced and enacted during a global, multi-dimensional shock. I found that participants were not speaking abstractly about decentralization. Instead, they described specific acts of redesign, such as changing meeting formats, clarifying escalation rules, and renegotiating decision-making authority amid unprecedented constraints and time compression.

Integrated Synthesis and Phenomenological Essence

In this section, I provide an integrated synthesis that provides the platform for the remainder of the chapter. First, I discuss an integrated cross-domain synthesis that draws on the four domains and the five cross-domain themes, and how the participants' accounts converge on managing the risk management process during the pandemic, an event described as an unknown unknown with deep uncertainty. Then, from a transcendental phenomenological perspective, I present the essence of the risk management process. Said differently, I describe what it was like for risk leaders and what it means to manage the risk management process and navigate uncertainty.

Integrated cross-domain synthesis

Across the four domains and five cross-domain themes, participants' accounts converge on managing the risk management process during the COVID-19 pandemic as inhabiting and continually tuning a living system. Governance structures, informational flows, emotional climate, and learning processes were experienced as interdependent elements of a single risk infrastructure that had to function under sustained, high uncertainty.

From a governance and information perspective, participants operated within coupled loops of decision-making and sense-making. Committees, board oversight, emergency command structure, and escalation rules made sense only when timely, credible signals were available. In turn, those signals became actionable only when channelled through forums where authority and accountability were clear. In the pandemic, this coupling was stress-tested. Some found reassurance and coherence in integrated ERM-Business Continuity-Incident Command Systems (ERM-BC-ICS) and pre-existing plans. Others, however, experienced gaps, overload, or friction, prompting the redesign of meetings, the simplification of rules, and renewed attention to who owned which decisions.

Emotionally and relationally, participants experienced risk management as deeply human work. Fear, fatigue, and strain coexisted with solidarity, pride, and renewed commitment. Leaders carried the weight of layoffs, health risks, and divisive policies while trying to maintain morale and fairness. Trust and psychological safety emerged as enabling conditions. When people believed leaders were transparent, values-consistent, and attentive to well-being, they

were more willing to surface emerging risks, tolerate trade-offs, and stay engaged in risk routines over time. When trust and fairness wavered, risk processes became noisier, more contested, or more fragile.

Preparedness, improvisation, and learning loops formed a dynamic capability cycle. Years of pre-crisis work (e.g., strong balance sheets, stress tests, integrated systems, and rehearsed emergency modes) shaped how improvisation felt. It was experienced as either a structured adaptation or a crisis scramble. In turn, improvisations (e.g., new committees, rules of thumb, and remote practices) needed to be captured and tested. If effective, they were translated into updated playbooks. Participants saw the pandemic as a real-time stress test of existing risk processes and as a generator of new routines and guardrails. They were aware that without intentional learning mechanisms, those hard-won gains could erode as memories faded and staff turnover occurred.

Professional values and role identity serve as internal anchors. Amid rapidly shifting data and contested narratives, participants repeatedly returned to questions of who they were as professionals and what they owed to employees, clients, investors, and communities. They also asked what kind of organization they wanted to lead. Decisions about shutting down production, protecting core capabilities, disclosing financial peril, or walking away from misaligned partners were framed as scenarios and guided by fairness, stewardship, and integrity. For some participants, the pandemic crystallized a shift from a technical specialist to a trusted advisor and organizational steward.

The balance between centralized control and local autonomy was experienced as a reset, a continuous act of calibration. Central rules and oversight (i.e., risk appetite, non-negotiable safety standards, corporate financial decisions) provided coherence and protection against existential threats. Local autonomy allowed adaptation to jurisdictional rules, site conditions, and community attitudes. Effective risk management during the pandemic meant constantly redrawing this boundary. It meant deciding when one rule for all was necessary and when local variation was legitimate and required. This balancing act depended heavily on information quality, trust, and learning. Local leaders needed channels to surface issues and innovations. Central leaders needed feedback on how policies were landing on the ground.

In sum, across cases and domains, managing the risk management process during the COVID-19 pandemic was experienced as holding together an interlocking set of structures, relationships, and practices amid conditions of uncertainty, high stakes, and a pace of change that outstripped the initial design of formal systems.

Phenomenological essence: What it was like

From a transcendental phenomenological perspective, the essence of managing the risk management process during the COVID-19 pandemic is as follows.

Participants described managing the risk management process as living in a state of heightened, ongoing vigilance, with risk a constant backdrop to every decision. They felt simultaneously constrained and enabled by the infrastructures they had built before the crisis. Past choices about governance, culture, and systems either gave them room to manoeuvre calmly or left them feeling exposed and improvisational. The pandemic primarily uncovered and heightened existing risk management practices rather than creating them from scratch.

Day to day, it felt like working at the edge of what was knowable and controllable. Risk leaders had to act on incomplete and sometimes contradictory information, knowing their decisions affected people's health, livelihoods, and organizational survival. They moved repeatedly across time horizons (e.g., today's safety and cash, next quarter's resilience, and the long-term viability of strategy and culture) without stable benchmarks or precedents. In this context, they often experienced their frameworks less as prescriptive manuals and more as structures or scaffolds that needed periodic adjustment.

Emotionally, participants carried a dual burden of technical responsibility and human stewardship. They were accountable for risk metrics, covenants, and compliance, as well as for the morale, trust, and well-being of the people behind those numbers. Many described the pandemic as a period that tested their professional identity. They learned what it meant to lead under sustained strain, to speak candidly about risk without paralyzing others, and to make choices that aligned with their values when all options entailed loss.

Managing the risk management process during the COVID-19 pandemic was experienced as a continuous cycle of learning amid uncertainty. For example, sensing weak signals, adjusting structures and behaviours, seeing what held and what failed, and attempting to institutionalize

those lessons before attention moved on. The crisis became a reference point. It was like a mental test that participants expected to carry into future risk conversations. They came away with a sharpened appreciation that risk management is about building and sustaining the organizational conditions (e.g., governance, information, trust, and learning routines) that allow people to navigate uncertainty together. I would say it is far from eliminating uncertainty.

Bridging to Contributions and Implications

This integrated synthesis lays the foundation for the rest of the chapter. It moves from descriptions to clear contributions and implications. First, it places these findings within current theories of ERM and dynamic capabilities. Next, it translates them into practical guidance for boards of directors, executives, and risk leaders. Finally, I discuss the study's limitations and suggest directions for future research. Throughout the chapter, I emphasize that managing the risk process during the pandemic and periods of uncertainty is best viewed as designing and maintaining an interdependent socio-technical system, rather than simply using a set of tools or checklists.

Theoretical Contributions

This study offers several interconnected insights into ERM and how organizations respond to crisis and uncertainty. It emphasizes the lived experience of managing risk during the COVID-19 pandemic, rather than treating risk management solely as a technical or structural task.

ERM as an interdependent socio-technical system (not a discrete framework)

The findings extend ERM scholarship by conceptualizing risk management as an interdependent socio-technical system rather than a discrete framework or checklist. Much existing guidance and research emphasize formal components, such as governance structures, risk appetite statements, policies, and processes that support integrated risk oversight across the enterprise. While these elements were evident in participants' accounts, especially in Domain 1 (e.g., governance, control, decision rules) and Domain 2 (e.g., informational flows, communication, sense-making), the lived experience of managing risk during the pandemic was not reducible to formal structures.

The cross-case analysis shows that governance, information, emotional climate, and learning processes co-instituted one another. For example, committee structures and escalation rules (D1) worked as intended only when signal quality, cadence, and cross-functional alignment (D2) were sufficient and when trust and psychological safety (D3) made it acceptable to surface bad news or dissenting interpretations. Similarly, learning loops and scenario practices (D4) relied on governance support and an emotional climate that made reflection and critique safe. In other words, ERM's effectiveness stems from the alignment of structures, informational flows, relational conditions, and adaptive routines, rather than from any single component alone.

This systemic framing refines traditional ERM models, which often segment discussion into governance, risk assessment, and monitoring pillars. It suggests that evaluating or designing ERM capabilities under uncertainty requires attention to how those dimensions interact in practice. For example, how quickly information moves across levels, how legitimate decisions feel to those who must implement them, and how easily improvisations are converted into formalized routines.

Dynamic capabilities in risk management as identity- and emotion-laden practice

Second, this study refines perspectives on dynamic capabilities by showing that risk-related dynamic capabilities are deeply identity- and emotion-laden. Dynamic capabilities research has emphasized a firm’s abilities to sense, seize, and reconfigure in response to change, often focusing on strategic and structural mechanisms. The cross-domain themes in this study show that, in practice, the capability to adapt the risk management process during the COVID-19 pandemic hinged on how risk leaders experienced their roles, values, and emotional responsibilities.

Across cases, the ability to sense emerging risk was tied to professional identity and trust. Participants who saw themselves as stewards or trusted advisors deliberately maintained horizon scanning, cross-industry networks, and imaginative scenario planning. Their willingness to raise uncomfortable possibilities depended on perceived psychological safety and legitimacy from the executive board. Similarly, the ability to seize and reconfigure (e.g., by redesigning risk meetings, rewriting risk appetite guardrails, or moving quickly into emergency modes) was experienced as a structural choice and a test of values and leadership identity (e.g., how

transparent to be about financial peril, what trade-offs to make between cost-cutting and protecting core capabilities).

By situating dynamic risk capabilities within the emotional, relational, and identity dimensions captured in Domains 3 and 4, the study offers a more human-centred view of dynamic capabilities. It suggests that investments in formal sensing mechanisms, analytics, or governance reforms may fall short if they are not accompanied by deliberate attention to professional identity formation, trust-building, and emotional support for those responsible for operating the risk system under stress.

Centralized-decentralized balancing as an ongoing judgment practice

The findings also contribute to debates about centralization versus decentralization in risk governance by framing this as an ongoing judgmental practice rather than a static structural decision. Existing work often contrasts centralized ERM functions with more decentralized, line-owned risk management approaches, sometimes prescribing hybrids in which the second line sets standards and the first line owns implementation. Participants' accounts during the pandemic show that, amid high uncertainty, the balance between central control and local autonomy was continually renegotiated over time and across contexts.

Risk leaders described specific actions to reconfigure decision rights. For example, they redesigned heavy, centralized risk meetings into systems that pushed ownership down while preserving oversight. Another was establishing simple escalation rules that translated abstract governance into concrete behavioural triggers. A third was clarifying when site-level leaders could tailor protocols to local regulations and attitudes. These shifts were made and remade as the pandemic evolved, as regulatory environments changed, and as organizations learned what worked and what did not.

Importantly, participants evaluated central versus local decisions on efficiency, legitimacy, and fairness. Factors included whether rules were perceived as equitable across sites, whether local adaptations aligned with core values and safety standards, and whether those adaptations posed genuine risk. These factors suggest that the right level of centralization in risk management is a moving equilibrium that must be actively maintained through explicit guardrails and feedback loops.

By framing central-local balancing as a lived, iterative judgement process, my study extends beyond more structural accounts. It stresses the need to equip leaders with design tools (e.g., clear decision-rights matrices and escalation pathways) and interpretive resources (e.g., values, fairness principles, and stakeholder narratives) to recalibrate that balance under uncertainty.

Phenomenological contribution: Bring lived experience into ERM and crisis-risk debates

At the methodological and epistemological level, my study contributes to the ERM and crisis-risk literature by bringing lived experience, in a transcendental phenomenological sense, into conversation, a domain often dominated by normative and prescriptive approaches. By structuring the analysis through meaning units, themes, domains, and cross-domain themes, and by focusing on how participants described what it felt like to manage the risk management process during the COVID-19 pandemic, my study shows that practitioners' inner perspectives (e.g., fear, responsibility, pride, doubt, and conviction) are fundamental to risk management rather than incidental.

I argue that this phenomenological lens both confirms and complicates existing risk management frameworks. It confirms the importance of governance, information flows, culture, and learning. However, it complicates these frameworks by showing how they are selectively taken up, resisted, or repurposed in practice. It also surfaces aspects less visible in conventional ERM frameworks, such as the emotional weight of layoffs and divisive policies, and the identity shift from technical expert to steward and translator of uncertainty. In doing so, it offers a richer account of what it takes, structurally and experientially, to manage risk under sustained, multi-dimensional uncertainty.

Conceptual refinement: From a literature-derived risk process to an empirically grounded dynamic capability architecture

Figure 6 (Conceptual *Framework for Managing Emerging Risks Under Uncertainty During the COVID-19 Pandemic)* proved useful as an initial framework for the study. It offered a literature-derived map of how risk work should progress under uncertainty (e.g., building a knowledge base, evaluating risk and uncertainty, deciding, and monitoring). Empirically, however, the lived experience of managing risk during the COVID-19 pandemic did not follow a

discrete set of process steps. Instead, the analysis substantially revised the conceptualization into Figure 8's four-domain framework. The four-domain framework is an interdependent *capability architecture* that better captures what participants had to hold together in practice (i.e., governance/decision architecture; information flows and sensemaking; emotional/relational dynamics; and learning/foresight and professional risk identity). In this way, Figure 6 functioned as a testable set of sensitizing concepts, while Figure 8 represents the empirically refined model of how ERM was enacted under deep uncertainty.

Rather than presenting the risk work primarily as four process components, the findings showed that managing the risk management process during the pandemic was experienced as a continual *rebalancing of a socio-technical system* across four interdependent domains (Figure 8). Viewed through a dynamic capabilities lens, Figure 6 largely captures *activity-level* sensing and seizing (e.g., monitoring, analysis, and escalation), whereas Figure 8 surfaces the capability architecture and microfoundations (Teece, 2007) through which ERM operated as an adaptive capability, enabling sensing, seizing, and reconfiguration under deep uncertainty. Domain 2 most directly supports sensing (e.g., scanning, interpretation, and rapid updating of what counts as credible risk information). Domain 1 enables seizing (e.g., governance stabilizes seizing and legitimacy). Domain 4 anchors reconfiguring/transforming (e.g., learning and professional identity converting improvisations into new routines, updating governance expectations, and reconfiguring the risk function's role after shocks). Domain 3 adds an important capability insight. Emotional climate and relational dynamics acted as an enabling or constraining microfoundation that determined whether sensing signals were voiced, trusted, and acted upon. This shaped whether sensing translated into seizing under crisis pressure.

These combinations argue for understanding ERM in crisis as a dynamic, multi-level practice. I contend that it is technically structured yet emotionally and relationally mediated. I contend that it is formally governed yet continuously renegotiated. I contend that it is always experienced by real people whose identities and values shape how they navigate uncertainty.

Practical Implications for Risk Practitioners and Leaders

My findings have several implications for how boards of directors, executives, and risk leaders can design and operate the risk management process under conditions of deep uncertainty. Rather than advocating wholesale adoption of a particular framework, these implications focus on strengthening the interdependent system of governance, information, emotional climate, and learning that participants described as decisive during the COVID-19 pandemic.

Designing governance as a living risk architecture

The first implication is to treat governance arrangements (e.g., committees, decision rights, escalation rules, and risk appetite) as a living architecture that must be periodically stress-tested and adjusted. For boards of directors and executive teams, this implies:

- Clarifying who owns what and when.
  Make explicit which risks are owned by line leaders, which are facilitated by risk functions, and which require collective deliberation. During a crisis, revisit and temporarily adjust these allocations to avoid central bottlenecks and ambiguous local autonomy.
- Embedding escalation rules for frontline staff to use.
  Translate abstract appetite and policy language into simple, behaviour-level triggers (e.g., "if X, stop/leave/escalate") so that people 'on the line' know when to pause work or call for help.
- Periodically reviewing operations-financial trade-offs and risk appetite in light of lived experience.
  Use 'near-miss' or crisis episodes to revisit thresholds for shutting in production, protecting core capabilities, and drawing hard lines against permanent value destruction. Formal statements should reflect how leaders actually made decisions under strain, not an idealized version of practice.

Overall, governance is most effective when it is explicit, revisited, and grounded in experience. Risk leaders should expect to redraw some lines in the next crisis and can make that adaptation easier by documenting the rationale now.

Strengthening informational flows and organizational sense-making

A second implication is that organizations should invest in risk information and communication as a sense-making infrastructure. This is more than reporting channels.

For boards of directors, executives, and risk functions, this includes:

- Designing cadence and channels with uncertainty in mind.
  Regular, predictable updates (e.g., town halls, cross-functional risk huddles, and brief written summaries) helped stabilize emotions and reduce rumours. In practice, this means establishing routines that can be switched to crisis mode (e.g., higher frequency and a broader audience) without having to invent them from scratch.
- Prioritizing signal quality over volume.
  Use dashboards, taxonomies, and registers to simplify and synthesize information, while maintaining the ability to interrogate how data are produced and what is missing. Precise categorization and a shared language for risks reduce confusion between issues and risks, supporting faster decision-making.
- Connecting external and internal narratives.
  Participants were influenced by boards of directors, regulators, clients, investors, and the media. They also had to translate that noise into local realities. Risk leaders can help by explicitly articulating how external developments map onto the organization's risk profile and strategy, and by providing consistent talking points for leaders at all levels.

In effect, managing the risk management process also means managing the organizational conversation about risk, including how it is framed, updated, and competing interpretations reconciled.

Attending to emotional climate, trust, and fairness

A third implication is that emotional climate and trust are prerequisites for risk processes to function under pressure. For executives and line leaders, this means:

- Treating trust and psychological safety as risk infrastructure.
  When people felt safe raising concerns, challenging assumptions, and admitting uncertainty, early warning signals were more likely to surface. Risk leaders can reinforce

this by modelling candid talk about risk, explicitly welcoming dissent, and avoiding punitive responses when people flag uncomfortable information.

- Acknowledging and managing divisiveness and strain.
  Pandemic-related policies, layoffs, and workload pressures created tensions among groups (e.g., field versus office, exempt versus non-exempt, and remote versus on-site). Risk leaders who acknowledged these tensions, explained rationales transparently, and took fairness seriously were better able to maintain engagement in risk routines.
- Building visible support and well-being practices into a crisis response.
  Recognizing mental health as a formal risk, providing structured support (e.g., wellness resources and flexible norms for managing anxiety), and shielding teams from unnecessary drama helped sustain performance and learning over time.

Practically, this means that crisis risk planning should explicitly include emotional and relational components. For example, it should specify how risk leaders will communicate bad news, support staff through prolonged uncertainty, and monitor morale and fatigue as part of risk oversight.

Institutionalizing learning, scenarios, and capability building

A fourth implication is to strengthen learning and capability-building loops so that improvisations and hard-won lessons do not dissipate once a crisis fades from attention. For risk leaders, human resources and organizational development, and functional executives, this suggests:

- Treating crises as structured stress tests.
  After major events, conduct targeted after-action reviews that ask: Which parts of our governance, information, and culture held up? Which failed? Which improvisations worked well enough to formalize? Link findings directly to policy, playbook, and training updates.
- Normalizing scenario thinking beyond finance.
  Participants found value in scenarios and stress tests but also identified blind spots (e.g., pandemics and cyber events). Organizations can institutionalize simple scenario routines, such as short, focused exercises that probe what-if questions across operational, people, and supply-chain domains outside financial models.

- Investing in risk literacy and distributed capability.
  Training front-line staff, managers, and professionals to understand basic risk concepts, appetite boundaries, and escalation expectations fosters distributed competence. Pairing formal training with mentoring, peer discussion, and reflective practice embeds risk thinking as a habit.
- Supporting the development of risk-related professional identities.
  The shift from technical specialist to steward or trusted advisor was central to many accounts. Organizations can recognize and develop this identity by clarifying expectations for risk-related roles, providing forums for cross-functional learning, and valuing behaviours that balance analytical rigour with ethical and relational sensitivity.

The practical message is that capabilities must be built before the next shock, and that this work includes tools, processes, and, importantly, the people who will use them.

Clarifying role-specific responsibilities

Finally, the findings point to distinct yet complementary responsibilities for different actors within the risk management system.

- Boards of directors and their committees
  - Set and periodically revisit risk appetite and key thresholds, informed by both quantitative metrics and qualitative experience from recent shocks.
  - Ensure that governance structures, escalation routes, and information flows are designed to be usable under stress and compliant in practice.
  - Ask explicitly about the emotional climate, trust, and learning mechanisms when reviewing risk reports.
- CEOs and executive teams
  - Act as *integrators* across the four domains, ensuring alignment among governance decisions, communication strategies, people practices, and learning initiatives.
  - Sponsor cross-functional risk forums that bring together operations, finance, health and safety, human resources, and information technology, especially during crises, to ensure risk is treated as shared work.

    - Model values-consistent decision-making and transparent communication, particularly when trade-offs involve jobs, safety, and long-term viability.
- Chief Risk Officers (CROs), Chief Financial Officers (CFOs) and risk leaders
    - Curate and maintain the risk architecture: decision-rights matrices, escalation criteria, and risk reporting structures that can flex between *steady-state* and *emergency* modes.
    - Lead the design of scenario-based exercises, after-action reviews, and risk-training programmes that connect technical concepts to lived organizational realities.
    - Serve as *translators* between external risk narratives (e.g., from markets, regulators, and investors) and internal decision-making, helping leaders interpret and prioritize signals.
- Operational and functional leaders
    - Own risks in their domains within clear guardrails, promptly surface issues, and actively participate in cross-functional forums.
    - Adapt central guidance to local contexts while respecting core safety and ethical standards, and document effective local variants so they can inform future practice.
    - Pay attention to how divisiveness, fatigue, and morale are affecting adherence to risk controls, and escalate when conditions deteriorate. Consistent with high-reliability organization principles, leaders should treat signs of strain, fatigue, and disengagement as early warning signals and respond by activating mechanisms, such as workload rebalancing, role rotation, peer support, or access to well-being resources.

These implications position risk management under uncertainty as a shared, multi-level practice. My study suggests that organizations will be better prepared for future shocks when they view risk management as maintaining a framework and continuously aligning governance, information, emotional climate, and learning in ways that remain both effective and legitimate for those who live within them.

Limitations and Boundary Conditions

As with any qualitative phenomenological study, the findings and framework presented should be interpreted within its limitations and boundary conditions.

Design and sample

The study draws on a semi-structured, in-depth interview design with a purposive sample of 20 participants directly involved in managing risk or overseeing organizations with formal risk responsibilities during the COVID-19 pandemic. The focus on senior and executive roles provides rich insight into how the risk management process was experienced at the strategic and enterprise levels, including how participants interpreted operational pressures and trade-offs. However, this focus necessarily privileges elite perspectives and limits direct visibility into how the process was experienced by front-line employees, middle managers, and other organizational actors whose accounts may have emphasized different forms of uncertainty, communication breakdown, improvisation, or emotional strain. The sample was also skewed toward participants from sectors with relatively mature risk practices (e.g., the oil and gas industry). As such, the findings are most applicable to organizations with at least some formal risk structures and may be less transferable to very small firms or sectors with minimal or highly informal risk management.

A related sample limitation is the possibility of selection effects, including survivorship bias. Participants were recruited from organizations that remained operational and accessible after the acute phases of the pandemic, which means the study necessarily privileges the perspectives of leaders and organizations that endured the disruption. As a result, the findings may more readily capture experiences of continuity, adaptation, and learning than experiences associated with organizational collapse, severe contraction, leadership turnover, or the breakdown of risk management routines. Organizations that did not survive the crisis or became inaccessible before data collection may have yielded different accounts of uncertainty, governance failure, resource constraints, and the limits of adaptive capacity.

The study's transcendental phenomenological design prioritizes depth of lived experience over breadth or statistical generalizability. The goal is to explicate the structures and meanings of what it was like to manage the risk management process during the COVID-19 pandemic, rather

than to estimate the frequency or prevalence of specific experiences in a broader population. Readers should therefore treat the findings as offering conceptually and practically useful insights that may be transferable to similar contexts, rather than as probabilistically generalizable claims.

Context and scope

The empirical material is anchored in a specific time and context. The COVID-19 pandemic unfolded for these organizations within distinct jurisdictions, regulatory regimes, and market conditions. Participants often operated in Canadian or Western contexts, with associated governance norms, legal requirements, and industry structures. The dynamics of governance, information flows, emotional climate, and learning may differ across jurisdictions with varying regulatory expectations, cultural norms around uncertainty, or levels of political and social polarization.

In addition, the study deliberately focuses on managing the risk management process rather than on all aspects of crisis management or operational response. While participants frequently raised operational, human resources, and supply chain issues, these are analyzed only to the extent they intersect with governance, information, emotional climate, and learning within the risk management system. The findings should therefore be read as partial, as they illuminate a critical slice of organizational life in crisis rather than offering a comprehensive account of all crisis-management activity across all organizational levels or outcomes.

Methodological and interpretive choices

The analysis is guided by explicit methodological choices, including meaning units, textural and structural descriptions, cross-case domains, and staged cross-case synthesis (e.g., Stages A-D). These choices offer strengths, such as systematic attention to continuity and novelty, and a transparent audit trail of coding and model statement development. However, they also impose a particular lens on the material.

Alternative qualitative approaches (e.g., grounded theory, critical discourse analysis, narrative analysis, or content analysis) might have highlighted various aspects of the data, such as power relations, rhetorical strategies, or longitudinal identity narratives. Even within a transcendental phenomenological frame, other researchers might cluster meaning units

differently, use different domain labels, or emphasize alternative cross-domain themes. While multiple rounds of within- and cross-case checking, matrix queries, and Stage D confirmation reduce the risk of idiosyncratic interpretation, they do not eliminate the researcher's interpretive role in shaping the final synthesis.

Temporal and retrospective limitations

The accounts analyzed in this study are retrospective narratives in which participants look back on their experiences of the COVID-19 pandemic with the benefit of hindsight. This approach offers advantages. Participants can identify patterns and consequences that were not apparent at the time, but it also introduces recall bias and retrospective sense-making. Certain emotions, tensions, or uncertainties may be downplayed, reorganized, or reinterpreted in light of subsequent outcomes (e.g., organizational survival, career progression, or policy changes).

Moreover, the pandemic itself evolved through phases (e.g., initial shock, subsequent waves, and partial normalization), and participants often collapsed these phases or re-sequenced them in their recollections. The study attends to temporal sense-making where it emerges explicitly, but it does not reconstruct a precise timeline of each organization's pandemic trajectory. Nor does it employ a longitudinal design capable of tracing how risk perceptions, governance arrangements, emotional dynamics, and learning routines changed across successive stages of the crisis. Repeated interviews or real-time process-oriented designs may have surfaced additional insights into how the experience of managing the risk management process evolved over time. Future crises with different temporal profiles or triggers may also evoke different experiences, even if some structural insights remain relevant.

Researcher position and reflexivity

The findings are shaped by the researcher's background, interests, and reflexive stance. The study is conducted by a researcher with professional expertise in risk management, finance, and governance, and with a stated interest in dynamic capabilities and organizational responses to uncertainty. This brings sensitivity to technical and governance nuances, but it also risks privileging specific categories (e.g., ERM, dynamic capabilities, and risk appetite) and interpretations.

Bracketing memos, reflexivity journals, and staged cross-case procedures were used to surface and mitigate these influences, but they cannot eliminate them. The resulting framework should therefore be understood as a situated interpretation, rigorously developed and transparently documented, yet unavoidably shaped by who asked the questions, how they were framed, and how meaning was constructed in the analysis.

Medium effects

Interviews were conducted virtually. Although this format enabled access to geographically dispersed participants, reduced access to contextual cues, embodied interaction, and rapport dynamics may have shaped the depth of disclosure, the expression of emotion, or the interpretation of pauses, tensions, and emphasis during the interview process.

Gender distribution

Of the 20 participants, 15 were male, and 5 were female (75% male; 25% female). This gender distribution represents a limitation because it may under-represent how risk management is experienced and enacted by women in senior risk and executive roles.

These limitations do not undermine the value of the findings. Instead, they clarify the conditions under which the findings and framework should be interpreted and applied. The framework and implications are most appropriate for organizations with formal or relatively mature risk structures, operating in complex and uncertain environments, and interested in understanding the design of risk systems and the lived experience of operating them during crises.

Future Research Directions

This study opens several avenues for further research into risk management, crisis response, and organizational uncertainty. Because the findings derive from a qualitative, phenomenological exploration of twenty cases, future work can build on and extend this foundation in multiple ways.

Extending to other sectors, jurisdictions, and crisis types

First, future research could replicate and extend this study across different sectors, jurisdictions, and crisis types. The present sample is mainly anchored in organizations with

relatively formal risk structures and from specific regulatory and cultural contexts. Studies in other settings, for example, small and medium-sized enterprises with minimal formal ERM, public-sector organizations, or firms in emerging markets, could test how far the four-domain framework (i.e., governance, informational flows, emotional climate, and learning) extends and where it requires adaptation.

Similarly, examining other forms of crisis, such as cyber incidents, geopolitical shocks, or climate-related disruptions, could reveal which aspects of *managing the risk management process* are crisis-generic (e.g., disease-related health protocols). Comparative designs that contrast COVID-19 with other crises would be especially valuable for refining the framework's boundary conditions.

Longitudinal and process-oriented studies of risk management in crisis

Second, the retrospective design underscores the value of longitudinal, process-oriented research that follows organizations through crises in real time rather than reconstructing experiences after the fact. Prior research highlights that process approaches are particularly well suited to complex, high-uncertainty contexts because they capture how practices, interpretations, and organizational arrangements unfold, stabilize, or break down over time, rather than treating them as static conditions (Langley, 1999; Pettigrew, 1990). Longitudinal designs, such as ethnographic studies, diary methods, or repeated interviews, could track how governance arrangements, information flows, emotional climate, and learning routines evolve across a crisis lifecycle (e.g., onset, acute phase, partial stabilization, and post-crisis consolidation), providing a richer account of how risk management is enacted as an ongoing process.

Such work could deepen understanding of temporal dynamics that were visible yet not fully traceable here, for example, when and how decision rights are reconfigured, how trust is maintained or eroded through specific episodes, or when improvisations are formalized (or lost) as playbooks. It would also enable more fine-grained analysis of how risk-related practices are sustained or diluted once formal crisis mode is declared over.

Mixed-methods and quantitative tests of the framework

Third, future research could employ mixed-methods or quantitative designs to examine selected elements of the framework at scale. Survey-based studies could operationalize key

constructs suggested by the findings (e.g., perceived legitimacy of risk governance, trust in risk processes, quality of risk communications, or perceived learning from crisis) and explore their relationships with outcomes such as perceived preparedness, decision-making speed, or post-crisis performance.

Multi-level designs could also examine how alignment (or misalignment) across the four domains relates to outcomes: for example, whether organizations that combine clear decision rights and escalation rules (D1), high signal quality (D2), strong psychological safety (D3), and robust learning routines (D4) report better crisis-handling capability than those with strengths in only one or two domains. These studies would not replace phenomenological work but could provide corroborating evidence and boundary tests for the conceptual model.

Deepening the emotional and identity dimensions of risk work

Fourth, there is scope for further qualitative and interpretive work on the emotional and identity dimensions of risk practice. This study identified themes of agency-constraint tension, moral and emotional load, and evolving professional identities (e.g., from technical specialist to steward and trusted advisor). Future research could focus more explicitly on these themes, drawing on the literature on emotions in organizations, identity work, and ethics.

For example, in-depth case studies could examine how risk leaders construct and negotiate their identities over time, reconcile competing obligations to shareholders, employees, and communities, and cope with the emotional toll of divisive policies and difficult trade-offs. Such work could inform the design of support structures, development pathways, and reflective practices for those in risk-related roles.

Front-line and middle manager perspectives

Fifth, this study centred on senior and executive risk leaders responsible for enterprise-level risk oversight. Future research should examine how front-line staff, site supervisors, and middle managers implemented and managed COVID-19 risk protocols through their daily operational decisions. Special attention should be given to information exchanges (e.g., communication cascades, feedback loops, and escalation channels) and to emotional factors (e.g., fear, fatigue, moral tension, and psychological safety when raising concerns). Gaining insight into how formal risk guidelines were enforced, challenged, or modified at the ground level, and

how front-line workers experienced conflicts between centralized mandates and local circumstances, would complement the senior-level perspective discussed here. This would provide a more comprehensive understanding of risk management as a lived experience across organizational levels.

Methodological innovation in phenomenological and ERM research

Finally, the staged cross-case approach used here (i.e., Stages A-D) suggests possibilities for methodological innovation in both phenomenological and ERM research. Future studies could explore variations of this approach. For example, integrating digital trace data (e.g., emails, meeting minutes, and risk registers) with interview-based meaning units or using collaborative coding with practitioners to co-construct domains and cross-domain themes.

Research could also examine how phenomenological methods might be integrated with design-oriented approaches (e.g., action research or design science) to both understand and shape risk management systems in situ. In such designs, the four-domain framework could serve as both an analytical lens and a practical diagnostic tool for organizations seeking to strengthen their risk management process under uncertainty.

These directions suggest that the present study is a starting point rather than an endpoint. By bringing lived experience into view and articulating the interplay among governance, informational flows, emotional climate, and learning, my research invites further inquiry into how organizations can better design, inhabit, and adapt their risk management systems amid persistent and evolving uncertainty.

Concluding Reflections

This study set out to explore *what it was like to manage the risk management process during the COVID-19 pandemic.* Using a transcendental phenomenological design and a staged cross-case analysis (i.e., Stages A-D), the research progressed from individual meaning units and within-case essences to four cross-case domains (i.e., governance, informational flows, emotional climate, and learning) and a set of cross-domain themes. The analysis showed that participants experienced risk management as an ongoing struggle to keep a complex socio-technical system functioning amid volatility, ambiguity, and moral strain.

The findings revealed a pattern of interdependence across four domains. Governance, control, and decision architecture (D1) provided formal structure through committees, decision rights, escalation rules, operations-financial trade-offs, and risk appetite boundaries. Informational flows, communication, and organizational sense-making (D2) shaped how signals were produced, interpreted, and contested across levels and among stakeholders. Emotional climate, trust, and relational work (D3) determined whether people felt safe enough to surface bad news, challenge assumptions, and sustain engagement despite fatigue and divisiveness. Learning, adaptation, and professional identity (D4) captured how improvisations became routines, how crises were converted into organizational memory, and how leaders' risk-related identities and values were tested and reshaped. The integrated 2 x 2 framework positioned these domains along the tensions between formal systems and lived practice, and between stabilizing control and adaptive change, illustrating that effective risk management in crisis depends on balancing all four.

On this basis, my study makes several theoretical and practical contributions. Theoretically, it advances understanding of ERM as an interdependent socio-technical system, refines dynamic capabilities perspectives by foregrounding identity- and emotion-laden risk work, and reframes centralization-decentralization debates as an ongoing judgement practice rather than a static structural choice. Methodologically, it demonstrates how a phenomenological approach, supported by structured cross-case procedures and explicit confirmation checks, can surface the lived structures of risk management practice and link them to conceptual models. In practice, my study offers guidance for boards of directors, executives, risk leaders, and operational managers on designing governance as a living architecture, strengthening sense-making infrastructure, attending to emotional climate and fairness, and institutionalizing learning and capability-building before the next shock event.

From a reflexive standpoint, my study also became a site of my own learning and development as a risk scholar-practitioner. I entered the study with substantial professional experience in risk, finance, and governance, yet participants repeatedly challenged and surprised me. They described the emotional and ethical load of their decisions, their shifting professional identities, and how they made sense of uncertainty over time. I was especially grateful for the generous engagement of senior executives, including one with deep military experience, whose

accounts of command structures, improvisation, and disciplined learning significantly enriched my understanding of crisis risk management. These influences, and how my assumptions were questioned and reworked, are documented in detail in my reflexivity journal entries and bracketing memos, which form part of the broader audit trail for this research.

At the same time, my study's limitations and boundary conditions underscore the need for the findings to be used contextually and critically. The sample is anchored in specific sectors and jurisdictions and reflects the perspectives of those with significant responsibility for risk management. The analysis is interpretive and retrospective, shaped by participants' sense-making and the researcher's methodological choices. Future research can extend, test, and refine the framework in other settings using longitudinal designs, mixed methods, and deeper attention to identity, power, and emotion in risk practice.

Overall, the thesis argues that managing the risk management process during crises such as the COVID-19 pandemic is best understood as relational, systemic, and deeply human work. Formal frameworks and tools matter, but they become effective only when aligned with trustworthy governance, credible information flows, emotionally sustainable climates, and robust learning capabilities. By making visible how leaders experienced and navigated these interdependencies, my study provides a foundation for organizations seeking to withstand future crises and evolve their risk management systems to be both more resilient and more responsive to the uncertainties that define contemporary organizational life.

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Appendix A: Recent Empirical Studies

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
Bailey (2022)	Quantitative	196 firm-year observations of publicly listed insurance companies between 2006 and 2012.	Examine whether the expertise of the CRO is associated with ERM quality and, further, leads to greater firm performance and value.	Find key CRO attributes driving ERM quality and, thus, firm performance and market value.
Ahmed, Yuantao, and Bhutta (2021)	Quantitative	73 insurance companies from the United States, United Kingdom, China, and Pakistan from 2016 to 2017.	Examine the relationship between risk management processes and different risk management-related capabilities.	Different risk management-related capabilities play significant roles in determining the effectiveness of a firm's risk management process and further enhance its capability to create and modify its resource base to align with a dynamic environment.
Dupire, Haddad, and Slagmulder (2021)	Quantitative	59 European financial institutions from 2005 to 2015.	Examines the relationship between board risk oversight methods and systemic risk during a crisis.	Find firms with stronger board risk oversight before the crisis were less exposed to the impact of the crisis.
Jurdi and AlGhnaimat (2021)	Quantitative	80 publicly listed insurance companies were headquartered in 20 European countries from 1995 to 2018.	Examine the effect of ERM on firm performance and risks.	Find ERM significantly and positively affects firm performance while reducing firm total and systematic risks and, to a larger extent, idiosyncratic risks.
González, Santomil, and Herrera (2020)	Quantitative	162 nonfinancial firms listed on the Spanish	Examine the effect of ERM on the performance and	Find ERM is not associated with a change in firm performance, nor

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
		Stock Exchange from 2012 to 2015.	financial stability of firms.	does it reduce the probability of bankruptcy.
Malik et al. (2020)	Quantitative	260 firm-year observations of FTSE350 firms listed on the London Stock Exchange from 2012 to 2015.	Examine the impact of ERM on firm performance (measured by Tobin's Q) and whether the relationship is strengthened or weakened by adopting a board-level risk committee.	Find that ERM significantly and positively affects firm performance and that strong board-level risk committee governance complements this relationship and enhances the firm performance effects of ERM.
Bohnert et al. (2019)	Quantitative	41 publicly listed European insurance companies from 2007 to 2015.	Investigate the impact of ERM on the firm's value using S&P's ERM rating to identify the insurers' ERM activities.	Find the significant positive impact of ERM on firm value.
Sax and Andersen (2019)	Quantitative	260 firms representing various industries in Denmark in 2013.	Test hypotheses that ERM and strategic planning are associated with higher profitability and lower financial leverage and further test the effect of ERM practices on profitability mediated by strategic planning.	ERM is associated with higher profitability and lower financial leverage, and strategic planning enhances these positive outcomes.
Ai, Bajtelsmit, and Wang, (2018)	Quantitative	76 insurance companies based in the U.S. with S&P ERM quality ratings from 2006 to 2013.	Examine the independent and combined effects of ERM and diversification on firm performance,	Finding a firm's ERM quality is a significant factor in firm performance. For firms with high-quality ERM programs, product

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
			measured by ROA and Tobin's Q.	line diversification significantly and positively impacts performance.
Berry-Stölzle and Xu (2018)	Quantitative	132 publicly listed insurance companies from 1996 to 2012.	Test the hypothesis that ERM reduces a firm's cost of capital.	Find ERM adoption significantly reduces a firm's cost of capital.
Lechner and Gatzert (2018)	Quantitative	The first sample comprised 160 publicly listed firms on the German stock indices in 2013. The second multi-period sample includes 149 publicly listed firms on the German stock indices from 2009 to 2013.	To study the impact of firm characteristics on an organization's decision to implement ERM as well as the impact of ERM on firm value for the German stock exchange market.	Find that firm size, international diversification, and industry sector (including oil and gas) positively influence ERM adoption, whereas financial leverage is negatively associated with ERM engagement. Further, the study confirms a significant positive impact of ERM on firm value.
Callahan and Soileau (2017)	Quantitative	162 non-financial firms (427 firm-year observations) in a broad industry sample of U.S.-based publicly listed companies from 2006 to 2008.	Test the hypothesis that firms with mature ERM processes achieve greater operational performance than those with less mature risk management processes.	Find support for the linkage between enhanced operating performance and the maturity of ERM processes.
Beasley et al. (2015)	Quantitative	645 survey responses from members of the American Institute of	Examine the extent risk management processes at the board of directors and senior	Organizations with greater ERM maturity are significantly more likely to involve the

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
		Certified Public Accountants across various industries during 2011 and 2012.	management levels are related to levels of ERM maturity and whether the perception that ERM is a vital strategic capability.	board and senior management in specific risk oversight activities. Certain risk management practices are related to the perception that ERM provides a strategic advantage.
Farrell and Gallagher (2015)	Quantitative	225 publicly listed firms across various industries from 2006 to 2011.	To explore whether firms with more mature ERM programs experience greater firm value and which ERM attributes contribute the most to firm value.	Revealed that companies that reach mature levels of ERM exhibit a significant and positive relationship with firm value, as measured by Tobin's Q. The higher firm value is attributed to (1) incorporating a risk culture and integration of ERM processes within the firm; and (2) the extent to which ERM is viewed as an essential component in the firm's strategic planning activities.
Grace, Leverty, Phillips, and Shimpi (2015)	Quantitative	532 U.S. insurance companies between 2004 and 2006.	Examine the effect of ERM initiatives on firm performance, proxied by cost and revenue efficiency.	Find ERM practices result in economically and statistically significant cost and revenue efficiency increases.

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
Sax and Torp (2015)	Quantitative	Focus on 593 large Danish companies, measured by the number of employees, across a broad set of industries during 2013.	Examine the relationships between ERM, participative leadership style and psychological safety on risk performance.	Find that a positive interaction exists between ERM and participative leadership style that leads to increased risk performance. A safe 'speak-up' environment precedes a participative leadership style.
Eckles et al. (2014)	Quantitative	Focus on 69 unique publicly-traded insurance companies that adopted ERM between 1995 and 2008.	Test hypothesis that practicing ERM reduces firms' cost of reducing risk.	Find that firms adopting ERM experience a reduction in stock return volatility and that, over time, this reduction becomes stronger. Further, find that operating profits per unit of risk increase after ERM is implemented.
Nair et al. (2014)	Quantitative	60 publicly traded U.S. insurance companies during and after the 2008 financial crisis.	Test the hypothesis that companies with enhanced ERM capability will perform better during and after a crisis.	Find that organizations with superior ERM capability were associated with a smaller decline in stock price during the market collapse and superior profitability during the market recovery.
Baxter et al. (2013)	Quantitative	165 financial services firms with ERM quality ratings provided by S&P from 2006 to 2008.	Examine the proposition that high-quality ERM programs enhance firm performance and value.	Find that ERM quality is positively associated with operating performance; however, there was no relation between

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
				ERM quality and market value around the 2008 Global Financial Crisis. However, find a positive association of ERM quality market value during the market rebound from the crisis.
Aebi et al. (2012)	Quantitative	372 North American banks in 2006.	Examines whether risk-management-related corporate governance mechanisms in 2006 are associated with better bank performance during the financial crisis of 2007-2008.	Find that banks whose CRO reports directly to the board of directors perform better (i.e., exhibit significantly higher stock returns and ROE) in the crisis. However, those whose CROs report to the CEO perform worse than other banks.
Gates et al. (2012)	Quantitative	150 cross-industry member firms of The Conference Board implemented or maintained ERM in 2004.	Test the hypothesis that ERM has a practical value side for firms and that a positive relationship exists between ERM and performance.	ERM leads to improve company management, including better-informed decisions, greater consensus, enhanced communications, and greater accountability.
Quon et al. (2012)	Quantitative	156 non-financial firms listed on the S&P's Toronto Stock Exchange Composite Index between 2007 and 2008.	Test the hypothesis that ERM information is predictive of firm performance.	ERM information did not predict or have any noticeable effect on business performance.

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
Lin et al. (2012)	Quantitative	85 publicly traded U.S. insurance companies from 2000 to 2007.	Test the hypotheses on (1) how the levels of various individual risk management (IRM) strategies motivate ERM adoption; (2) how ERM influences IRM reconfiguration; and (3) firm value effects of ERM.	Find that certain insurers (i.e., greater reinsurance purchase and greater geographic diversification) are more likely to adopt ERM. After ERM implementation, the extent of certain IRM adjustments is significant. The market responds negatively to ERM adoption, and ERM reveals a strong negative correlation with firm value, measured by Tobin's Q and ROA.
McShane et al. (2011)	Quantitative	82 publicly traded U.S. insurance companies in 2008.	Describe the impact of the S&P corporate risk management rating as a proxy for ERM and other firm variables on the firm value measured by Tobin's Q.	Significant and positive relationship with shareholder value, but only in the case of an increasing level of traditional risk management; moving beyond traditional risk management to the ERM realm reports no additional increase in firm value.
Hoyt and Liebenberg (2011)	Quantitative	117 publicly listed U.S. insurance companies from 1998 to 2005.	To estimate the relation between ERM and firm value.	ERM's positive and highly significant impact on shareholder value is approximately 17% to 20%.
Arena et al. (2010)	Qualitative, longitudinal	Three non-financial, private	Examine organizational variations of ERM.	Find ERM differs across firms due to existing practices;

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
	multiple case study.	companies, consisting of 41 interviews over seven years, from 2002 to 2008.		ERM effectiveness and success depend on experts and their power.
Pagach and Warr (2010)	Quantitative	106 U.S. firms from 1992 to 2004 across a broad set of industries.	Study the impact of ERM implementation (proxied by a CRO appointment) on a firm's key financial variables (e.g., earnings and stock price volatility, among others).	Results fail to find evidence for the proposition that ERM creates firm value.
Gordon et al. (2009)	Quantitative	112 U.S. publicly listed companies from 22 industries, including the energy sector, from 2005.	It investigates whether the relation between ERM and firm performance is contingent upon a fit between ERM and five firm-specific factors.	Find that ERM-firm performance relation is contingent upon a proper fit between ERM and the following factors: environmental uncertainty, industry competition, firm size, firm complexity, and monitoring by the board of directors.
Mikes (2009)	Qualitative	A field study involving 75 interviews at two banks.	Classifies ERM types and how these types realize the organizational significance.	Suggest two ERM models: (1) shareholder value imperative model adhering to quantitative enthusiasm, (2) risk-based internal control imperative adhering to quantitative skepticism.
Beasley et al. (2008)	Quantitative	120 unique announcement	Investigate the impact of firm-	Generally, find no significant market

Author(s)	Quantitative, Qualitative	Research Focus	Research Topic	Primary Findings
		s from 1992 to 2003 from publicly listed U.S.-based companies, divided into financial and nonfinancial firms (including the energy sector).	specific characteristics on the equity market response to announcements of CRO appointments (a proxy for ERM adoption).	reaction to the hiring of CROs. However, find a significant positive market reaction for only nonfinancial firms for firm-specific attributes, including size and earnings volatility, and a negative reaction for leverage and cash ratio.
Beasley et al. (2005).	Quantitative	123 organizations that were members of the Global Audit Information Network in 2004.	Examines factors associated with ERM implementation.	Find the stage of ERM implementation is positively associated with board independence, top management support, presence of a CRO, Big Four auditor involvement, firm size, and regulated industries.

Appendix B: Invitation to Participate

INVITATION TO PARTICIPATE

Uncovering The Essence of Enterprise Risk Management During The COVID-19 Pandemic: A Qualitative Study

[Date]

Principal Investigator (Researcher):
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My name is Andrew Burgess, and I am a Doctoral Candidate in the Faculty of Business at Athabasca University. As a requirement to complete my degree, I am conducting a research project about understanding the experiences and lessons learned by risk managers in managing risk during the recent pandemic through interviews with experienced risk management leaders of oil and gas companies in Canada. I am conducting this project under the supervision of Dr. Kam Jugdev.

I invite you to participate in this project because you have been identified as your organization's senior risk management leader who managed risk during the COVID-19 pandemic.

This research project aims to understand the experiences and lessons learned by risk managers in managing the risk management process during the recent pandemic. A better understanding of how risks are managed during a crisis will allow for potential enhancements to risk management practices to help organizations be better prepared for future disruptive events.

Your participation in this project would involve a 60-minute video interview. The interview will involve the researcher asking you a limited number of questions about your lived work experience managing the risk management process during the COVID-19 crisis. The interview's primary purpose is to allow you to relate your experience in your own words.

The interview will be conducted over Microsoft Teams and arranged at a date and time convenient to your schedule. The interview will be recorded and later transcribed for data analysis. The video recordings of the interview will be deleted after the analysis is completed. You will receive a copy of the transcript for review. You may offer any revisions or clarification to any comments you made.

All information you provide during the study will be kept confidential, including safeguarding your identity, personal information, and data from unauthorized access, use or disclosure. All data collected will be stored on the researcher’s password-protected computer with a copy of the data on a secure cloud-based server. Any video recordings of the interview will be deleted after the analysis is completed. Transcriptions will be retained for five years per Athabasca University policy, after which they will be destroyed. Hard copy documentation will be stored in a locked filing cabinet.

Your anonymity during the interview will be assured, with your identity being known only to the researcher. Your name, initials and your organization's name will not appear in the study. Pseudonyms will be used in the study in place of your name and your organization. Potential identifiers will be removed.

The research should benefit enterprise risk management and executive leaders within oil and gas firms by understanding how to respond to the complexity of implementing or modifying a risk management program during rapid change and prepare for the next crisis or disruptive event. I do not anticipate you will face any risks as a result of participating in this research.

Thank you for considering this invitation. If you have any questions or would like more information, please contact me, (the principal investigator) by e-mail at aburgess1@learn.athabascau.ca or my supervisor, Dr. Kam Jugdev, by e-mail at kamj@athabascau.ca.

Thank you for your assistance in this study.

Sincerely,

Andrew Burgess, MBA, CPA

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns about your treatment as a participant, the research, or ethical review processes, please contact the Research Ethics Officer by e-mail at rebsec@athabascau.ca or by telephone at 780.213.2033.

Appendix C: Letter of Information / Informed Consent Form

LETTER OF INFORMATION / INFORMED CONSENT FORM

Uncovering The Essence of Enterprise Risk Management During The COVID-19 Pandemic: A Qualitative Study

[Date]

Principal Investigator (Researcher):
Andrew Burgess
aburgess1@learn.athabascau.ca

Supervisor:
Dr. Kam Jugdev
kamj@athabascau.ca

You are invited to participate in a research project entitled 'Uncovering The Essence of Enterprise Risk Management During The COVID-19 Pandemic: A Qualitative Study.'

This form is part of the process of informed consent. The information presented should give you a basic idea of what this research is about and what your participation will involve, should you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks, benefits and what it requires of you to make an informed decision. This is the informed consent process. Take time to read this carefully, as it is important that you understand the information given to you. Please contact the principal investigator, Andrew Burgess, if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part or if you decide to withdraw from the research once it has started, there will be no negative consequences for you now or in the future.

Introduction

My name is Andrew Burgess, and I am a Doctoral Candidate in the Faculty of Business at Athabasca University. As a requirement to complete my degree, I am conducting a research project about understanding the experiences and lessons learned by risk managers in managing the risk management process during the recent pandemic through interviews with experienced risk management leaders from oil and gas companies in Canada. I am conducting this project under the supervision of Dr. Kam Jugdev.

Why are you being asked to take part in this research project?

You are being invited to participate in this project because you have been identified as a senior risk management leader in your organization who managed risk during the COVID-19 pandemic.

What is the purpose of this research project?

This qualitative study aims to understand the experiences and lessons learned by risk managers in managing the risk management process during the recent pandemic. A better understanding of how risks are managed during a crisis will allow for potential enhancements to risk management practices to help organizations be better prepared for future disruptive events.

What will you be asked to do?

Your participation will involve a 60-minute video interview. The interview will involve the researcher asking you a limited number of questions about your lived work experience managing the risk management process during the COVID-19 crisis. The interview's primary purpose is to allow you to relate your experience in your own words.

The interview will be conducted over Microsoft Teams and arranged for a date and time convenient to your schedule. The interview will be recorded and later transcribed for data analysis. The video recordings of the interview will be deleted after the analysis is completed. You will receive a copy of the transcript for review within ten days. You may offer any revisions or clarification to any comments you made. As a courtesy, a reminder will be sent for any feedback you may have.

What are the risks and benefits?

Risks associated with the study are minimal. Any risks are about the same as you might encounter when discussing your lived work experience with anyone else.

Although there may be no direct benefit to you, a possible benefit from participating in this study will provide lessons learned in managing risk during the COVID-19 pandemic crisis that may help organizations prepare for the next disruptive event.

Do you have to take part in this project?

As stated earlier in this letter, involvement in this project is entirely voluntary. You may terminate your involvement by submitting a written notice to me by email. You can decide whether to be part of this study or not. Once you start, you can withdraw from the study at any time without any penalty or loss of benefits. If you withdraw after the data collection has ended, your data can be removed from the study at your request up to the stage while the analysis is still in progress.

How will your privacy and confidentiality be protected?

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use or disclosure. All data collected will be stored on the researcher's password-protected computer. Any video recordings of the interview will be deleted after the analysis is completed. Transcriptions will be retained for five years per Athabasca University policy, after which they will be destroyed. Hard copy documentation will be stored in a locked filing cabinet. All information will be held confidential except when legislation or a professional code of conduct requires that it be reported.

How will my anonymity be protected?

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance. Your anonymity during the interview will be assured, with your identity being known only to the researcher. Your name, initials and your organization's name will not appear in the study. Pseudonyms will be used in the study in place of your name and your organization. Potential identifiers will be removed.

How will the data collected be stored?

This study will use the Microsoft Teams platform to collect data, which is an externally hosted cloud-based service. When information is transmitted over the internet, privacy cannot be guaranteed. There is always a risk that a third party may intercept your responses (e.g., government agencies, hackers). Further, while the researcher will not collect or use IP address or other information which could link your participation to your computer or electronic devices without informing you, there is a small risk with any platform such as this of data that is collected on external servers falling outside the control of the researcher. If you are concerned about this, I would be happy to make alternative arrangements (where possible) for you to participate, perhaps via telephone. Please contact me for further information.

Please note that it is the expectation that participants agree not to make any unauthorized recordings of the content of a meeting/data collection session.

Data will be stored on the researcher's password-protected computer with a copy of the data on a secure cloud-based server. Any video recordings of the interview will be deleted after the data analysis. Transcriptions will be retained for five years per Athabasca University policy, after which they will be destroyed. Hard copy documentation will be stored in a locked filing cabinet.

Access to the data will be limited to the researcher, the research supervisor and authorized representatives of Athabasca University. The anonymized data from this study might be used in a future research project, subject to Research Ethics Board approval.

Who will receive the results of the research project?

The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room, and the final research paper will be publicly available.

Personally identifying information will not be reported. Audio or video recordings will not be used to disseminate the research.

After completing the research project, an executive summary is available upon request by contacting the principal investigator.

Whom can you contact for more information or to indicate your interest in participating in the research project?

Thank you for considering this invitation. If you have any questions or would like more information, please contact me, (the principal investigator) by e-mail at aburgess1@learn.athabascau.ca or my supervisor, Dr. Kam Jugdev, by email at kamj@athabascau.ca. If you are ready to participate in this project, please complete and sign the attached Consent Form and return it by email to aburgess1@learn.athabascau.ca.

Thank you.

Andrew Burgess, MBA, CPA

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns about your treatment as a participant, the research, or ethical review processes, please contact the Research Ethics Officer by e-mail at rebsec@athabascau.ca or by telephone at 780.213.2033.

Informed Consent

Your signature on this form means that:

- You have read the information about the research project.
- You have been able to ask questions about this project.
- You are satisfied with the answers to any questions you may have had.
- You understand what the research project is about and what you will be asked to do.
- You understand that you are free to withdraw your participation in the research project without having to give a reason, and that doing so will not affect you now, or in the future.
- You understand that if you choose to end your participation **during** data collection, any data collected from you up to that point will be destroyed.
- You understand that if you choose to withdraw **after** data collection has ended, your data can be removed from the project at your request up to the stage while the analysis is still in progress.

	YES	NO
I agree to be audio-recorded	◯	◯
I agree to be video-recorded	◯	◯
I am willing to be contacted following the interview to verify that my comments are accurately reflected in the transcript.	◯	◯

Your signature confirms:

- You have read what this research project is about and understood the risks and benefits. You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction.
- You understand that participating in the project is entirely voluntary and that you may end your participation at any time without any penalty or negative consequences.
- You have been given a copy of this Informed Consent form for your records; and
- You agree to participate in this research project.

_____ _____

Signature of Participant Date

Principal Investigator's Signature:

I have explained this project to the best of my ability. I invited questions and responded to any that were asked. I believe that the participant fully understands what is involved in participating in the research project and any potential risks and that he or she has freely chosen to participate.

_____ _____

Signature of Principal Investigator Date

Appendix D: Interview Questions

Creswell and Poth (2018) recommend five to seven sub-questions to refine the central research question further. Seven research sub-questions and one concluding question represent the research instrument for the study:

1. In your experience as a risk manager, could you please share your perceptions on the effectiveness of Enterprise Risk Management (ERM) in managing risks during the COVID-19 pandemic? Additionally, I am interested in understanding the factors that you believe influence this perception.

2. From your perspective as a risk manager, I am curious to know how your perception of the COVID-19 pandemic and its impact on the organization influences your utilization of Enterprise Risk Management (ERM). In other words, how do your views on the pandemic shape your decision-making and approach toward using ERM?

3. In your experience as a risk manager, I am interested in understanding the significance of communication and collaboration in your utilization of Enterprise Risk Management (ERM) during the COVID-19 pandemic. Could you please elaborate on the role that communication and collaboration play in facilitating the use of ERM strategies during the pandemic?

4. In your role as a risk manager, I would like to explore how the utilization of Enterprise Risk Management (ERM) during the COVID-19 pandemic affects the relationship between you and other stakeholders, including senior management and employees. Can you please share your observations and insights on how using ERM in such situations influences the dynamics and interactions between you as the risk manager and these key stakeholders?

5. Based on your firsthand experience as a risk manager utilizing Enterprise Risk Management (ERM) during the COVID-19 pandemic, I am interested in understanding how this experience can contribute to developing and enhancing ERM frameworks and practices. Could you please share your insights and observations on how the lessons learned and challenges faced from using ERM during the pandemic can inform the ongoing improvement and refinement of ERM frameworks and practices in organizations?

6. In your experience as a risk manager, I am interested in exploring the key lessons you have learned from using Enterprise Risk Management (ERM) during the COVID-19 pandemic. Specifically, I want to understand how these lessons shape and influence your future risk management strategies. Could you please elaborate on the valuable insights

gained through your experience with ERM in pandemic situations and how these insights influence your approach toward managing risks in the future?

7. When faced with a pandemic, such as the COVID-19 pandemic, risk managers often find themselves balancing the urgency to take swift action and the necessity to implement Enterprise Risk Management (ERM) effectively. From your perspective as a risk manager, I am interested in understanding how you navigate this balance. Could you please share your insights on managing the need for quick decision-making while ensuring the effective implementation of ERM? Additionally, what factors do you believe contribute to this balancing act?

8. Throughout our discussion, we have covered several aspects of risk management and Enterprise Risk Management (ERM) use during the COVID-19 pandemic. At this point, I would like to allow you to share any additional insights, experiences, or perspectives that you believe are important on this topic. Is there anything else you would like to add that could contribute to a deeper understanding of the topic?

Appendix E: Interview Guide

Opening remarks: Thank you for participating in this qualitative study.

Industry:

Job title:

Approximate age: 20-30, 31-40, 41-50, 51-60, 60+

Years of experience in Enterprise Risk Management roles: 1-5, 6-10, 11-15, 16-20, 20+

Years of experience in current: (a) role:

(b) company:

Do you report to "The Business" or the "Enterprise Risk Management" function groups?

The Committee of Sponsoring Organizations of the Treadway Commission (COSO) defines **enterprise risk management (ERM)** as "the culture, capabilities, and practices that organizations integrate with strategy-setting and apply when they carry out that strategy, with a purpose of managing risk in creating, preserving, and realizing value."

With the ERM definition in mind, the questions listed below have been developed to use as a guide to facilitate the interview process. Please express your experiences openly as you feel comfortable; there are no right or wrong answers.

1. In your experience as a risk manager, could you please share your perceptions on the effectiveness of Enterprise Risk Management (ERM) in managing risks during the COVID-19 pandemic? Additionally, I am interested in understanding the factors that you believe influence this perception.

2. From your perspective as a risk manager, I am curious to know how your perception of the COVID-19 pandemic and its impact on the organization influences your utilization of Enterprise Risk Management (ERM). In other words, how do your views on the pandemic shape your decision-making and approach toward using ERM?

3. In your experience as a risk manager, I am interested in understanding the significance of communication and collaboration in your utilization of Enterprise Risk Management (ERM) during the COVID-19 pandemic. Could you please elaborate on the role that communication and collaboration play in facilitating the use of ERM strategies during the pandemic?

4. In your role as a risk manager, I would like to explore how the utilization of Enterprise Risk Management (ERM) during the COVID-19 pandemic affects the relationship between you and other stakeholders, including senior management and employees. Can you please share your observations and insights on how using ERM in such situations influences the dynamics and interactions between you as the risk manager and these key stakeholders?

5. Based on your firsthand experience as a risk manager utilizing Enterprise Risk Management (ERM) during the COVID-19 pandemic, I am interested in understanding how this experience can contribute to developing and enhancing ERM frameworks and practices. Could you please share your insights and observations on how lessons learned and challenges faced when using ERM during the pandemic can inform ongoing improvement and refinement of ERM frameworks and practices in organizations?

6. In your experience as a risk manager, I am interested in exploring the key lessons you have learned from using Enterprise Risk Management (ERM) during the COVID-19 pandemic. Specifically, I am interested in understanding how these lessons shape and influence your future risk management strategies. Could you please elaborate on the valuable insights gained through your experience with ERM in pandemic situations and how these insights influence your approach toward managing risks in the future?

7. When faced with a pandemic, such as the COVID-19 pandemic, risk managers often find themselves balancing the urgency to take swift action and the necessity to implement Enterprise Risk Management (ERM) effectively. From your perspective as a risk manager, I am interested in understanding how you navigate this balance. Could you please share your insights on managing the need for quick decision-making while ensuring the effective implementation of ERM? Additionally, what factors do you believe contribute to this balancing act?

8. Throughout our discussion, we have covered several aspects of risk management and Enterprise Risk Management (ERM) use during the COVID-19 pandemic. At this point, I would like to allow you to share any additional insights, experiences, or perspectives that you believe are important on this topic. Is there anything else you would like to add that could contribute to a deeper understanding of the topic?

Appendix F: Research Ethics Approval (2024-2025)

Athabasca University

CERTIFICATION OF ETHICAL APPROVAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

Ethics File No.: 25633

Principal Investigator:
Mr. Andrew Burgess, Doctoral Student
Faculty of Business\Doctor of Business Administration (DBA)

Supervisor/Project Team:
Dr. Kam Jugdev (Supervisor)

Project Title:
Navigating Uncertainty: A Qualitative Study Of Enterprise Risk Management In The Oil And Gas Industry During The COVID-19 Pandemic

Effective Date: March 12, 2024 **Expiry Date**: March 11, 2025

Restrictions:

Any modification/amendment to the approved research must be submitted to the AUREB for approval prior to proceeding.

Any adverse event or incidental findings must be reported to the AUREB as soon as possible, for review.

Ethical approval is valid *for a period of one year*. An annual request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

An Ethics Final Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date: March 12, 2024**

Marta Massi, Chair
Faculty of Business, Departmental Ethics Review Committee

Athabasca University Research Ethics Board
University Research Services Office
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.213.2033

Appendix G: Research Ethics Approval (2025-2026)

Athabasca University

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

Ethics File No.: 25633

Principal Investigator:
Mr. Andrew Burgess, Doctoral Student
Faculty of Business\Doctor of Business Administration (DBA)

Supervisor/Project Team:
Dr. Kam Jugdev (Supervisor)

Project Title:
Navigating Uncertainty: A Qualitative Study Of Enterprise Risk Management In The Oil And Gas Industry During The COVID-19 Pandemic

Effective Date: March 11, 2025 **Expiry Date**: March 11, 2026

Restrictions:

Any modification/amendment to the approved research must be submitted to the AUREB for approval prior to proceeding. Any adverse event or incidental findings must be reported to the AUREB as soon as possible, for review.

Ethical approval is valid ***for a period of one year***. A request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

An Ethics Final Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date: February 25, 2025**

Katie MacDonald, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca Telephone: 780.213.2033

Appendix H: Research Ethics Approval (2026-2027)

Research
Athabasca University

Certification of Ethical Approval

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (REB) has reviewed and approved the research project noted below. The REB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2) and Athabasca University Policy and Procedures.

Ethics PURE ID: 14952097

Principal Investigator/Faculty: Andrew Burgess, Faculty of Business

Supervisor: Kam Jugdev, Faculty of Business

Project Title: Managing Enterprise Risk Under Pandemic Uncertainty: A Transcendental Phenomenological Study

Effective Date: 2/13/2026 **Expiry Date**: 2/13/2027

Restrictions:

Any modification/amendment to the approved research must be submitted to the AUREB for approval prior to proceeding. Any adverse event or incidental findings must be reported to the AUREB as soon as possible, for review.

Ethical approval is valid ***for a period of one year***. A request for renewal must be submitted and approved by the above expiry date if a project is ongoing beyond one year.

An Ethics Final Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date: 2/13/2026**

Katie MacDonald, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca

Appendix I: Domain 1 Themes and Participant Statements

D1: Governance and structural arrangements

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"For some, ERM was real life; for others, it was just ticking boxes." (P02-TMU-8)	ERM cultural divide	Control assurance and committees
"I took ownership of connecting incident management, business continuity, and risk into one system." (P09-SMU-6)	Framework Integration	
"I experienced the risk process bogging down in questions and scrutiny, stretching decisions far beyond normal timelines." (P14-SMU-2)	Governance, process friction, and whole-system risk thinking	
"I had to draw a hard line; no vaccination meant no access and no work on our sites." (P20-TMU-2)	Experiencing COVID risk escalation and controls on projects and sites	
"As risk managers, we facilitated the process, but the business owned the risks." (P02-SMU-11)	Facilitator role boundaries	Decision rights and decentralization
"Experienced uneven pandemic responses shaped by local jurisdictions and divisional autonomy." (P06-SMU-1)	Adaptive, context-contingent protocols	
"I trusted our risk process more knowing many people, not just one, were watching for issues." (P17-SMU-2)	Distributed risk ownership and internal expertise with many eyes monitoring	
"I had to redesign heavy risk meetings into a system that pushed ownership down but kept my oversight." (P18-SMU-4)	Governance and ownership at the top	
"Before board papers, we used the Risk Assessment and Decision-Making (RADM) tool to show risks of acting and not acting." (P02-SMU-42)	Structured decision-making	Escalation and approvals
"I created simple, consistent rules so people knew when to go home, when to cancel, and when to escalate." (P16-SMU-2)	Creating order, communication, and rules in an acute crisis	
"For the first time, I experienced shutting in production as a risk response." (P03-TMU-20)	Production shutdowns emerged as a risk response	Governance of operations-financial trade-offs
"I treated working capital as my lifeline to survive the storm." (P11-TMU-5)	Financial vigilance: Cash as thermometer and discipline	
"I experienced COVID as proof that real risk management starts before a crisis, not when it arrives." (P14-SMU-4)	Pre-crisis preparation and financial resilience as the foundation	
"I protected a core group of people whose competencies we can't afford to lose." (P15-SMU-6)	Protecting core (and future) capabilities through workforce decisions	
"I lived with a hard risk appetite line against permanent value destruction." (P12-SMU-7)	Governance of risk appetite/tolerance	Risk appetite and thresholds
"I believed we should aim for the best risk–return balance rather than simply minimizing risk." (P14-SMU-6)	Risk culture and appetite under uncertainty	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"I refuse to guarantee outcomes I don't control, even under customer pressure." (P15-SMU-3)	Keeping risk where it can be controlled and fairly borne	
"I found it mentally tough to spell out our convictions, principal risks, and appetite long before COVID appeared." (P19-SMU-1)	Constructing ERM convictions, core risks, and scenario thinking pre-COVID	

Appendix J: Domain 2 Themes and Participant Statements

D2: Informational flows and sense-making

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"Experienced nonstop daily conversations about risk during the first COVID wave," and "Felt the urgency of weekly executive calls to align crisis responses." (P06-SMU-4)	Crisis-driven communication cadence	Cadence and channels (huddles/war room)
"I ran daily town halls to meet three thousand people's need for information," and "I rely on a layered cadence of meetings to keep alignment across the organization." (P15-SMU-5)	Practicing intensive, multi-level communication to hold the organization together	
"I felt reassured knowing a COVID response team monitored guidance and sent clear updates;" "I read the ongoing weekly exec meetings as proof we were prepared and paying attention;" and "I noticed that big shocks like COVID were actually handled mainly through informal conversations." (P17-SMU-5)	Governance, communication, and escalation routines in uncertainty	
"I leaned on clear communication to steer us through risk," and "I knew the harder things got, the more I needed to talk with my team." (P11-SMU-1).	Communication and Information Flows as Risk Tools	
"I lower risk by not acting like the smartest person in the room and by really listening to people." (P13-SMU-5)	Relational leadership and communication as risk management	
"Felt alignment of risk, strategy, and culture was essential to sustaining the organization." (P01-SMU-10)	Alignment of risk, strategy, and culture	Cross-functional alignment
"We shifted to all-digital communication; email, Teams, WhatsApp, even in big offices." (P02-SMU-5)	Digital communication shift	
"During COVID, my role was just to bring people together and surface issues, not to own them." (P02-SMU-37)	Risk manager as facilitator	
"In crises, I gave tools and support, but I never owned the actions." (P02-SMU-43)	Supportive role in crises	
"Felt community and First Nations engagement reduced license-to-operate risk." (P01-TMU-3)	Community and First Nations Relationships	External stakeholders (board/regulators/clients /communities)
"Lived customer-imposed standards as stricter than government rules," and "Experienced customer demands are decisive conditions for continuing work." (P06-SMU-5)	Customer requirements as a controlling condition	
"I noticed boards understood risk management well, but communities often saw risks differently;" "I had to adjust risk communication when working near Indigenous communities;" and "I struggled with inconsistent rules across jurisdictions and built systems to track them." (P10-TMU-7)	Navigating Divergent Stakeholder Perspectives	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"I relied on vendors and industry contacts as early feelers for where technology and risk were heading;" "I routinely asked customers about next year's spending so I could anticipate revenue drops before they landed;" "I drew on major advisory firms to stretch my view of economic and systemic risks beyond our niche;" and " I experienced our KPIs and dashboards as an early-warning radar, helping us steer before trouble grew." (P18-SMU-5)	Looking ahead through networks and indicators	
"I lived counterparty renegotiations to avoid permanent value loss;" and "Experienced company-wide pay cuts and managed with transparency." (P12-SMU-1)	Counterparty/workforce negotiations	
"I used a traffic-light ERM matrix used for board communication;" "I anchored my thinking in COSO elements;" and "I lived with ERM as a communication tool, not a decision driver." (P12-SMU-5)	ERM as a communication scaffold (COSO)	Information artifacts (dashboards/reports)
"I routinely reviewed risk trends each quarter to keep shifting risks visible and discuss them explicitly;" "When I saw a risk trending upward, I felt compelled to reallocate capital and attention toward it;" "I depended on traffic-light dashboards and data to support or challenge my gut sense of risk trends;" and "I used our risk mindset to rethink where we put capital and people when assets underperformed." (P19-SMU-8)	Monitoring principal risks, trends, and capital via dashboards and scenarios	
"Talking it through helped me, and others stay calm." (P03-SMU-15)	Ongoing communication stabilized emotions	Signal quality and rumour control
"The pandemic forced me to communicate far more widely than in past crises;" "We rapidly equipped employees to work from home, showing strong early communication;" "I led town halls where employees voiced polarized perspectives, from denial to fear;" and "I knew some employees would always be unhappy, but I stayed transparent in communication." (P07-TMU-1)	Communication and Transparency	
" I regularly asked managers about risks to normalize risk conversations;" "I observed that people feared uncertainty itself more than actual threats;" and "I believed it mattered more that we had a plan than whether it was perfect." (P08-SMU-2)	Communication and leadership in uncertainty	
"I experienced a major shift in how we defined and grouped risks, which helped make sense of the chaos." (P09-SMU-13)	Risk Taxonomy	

Appendix K: Domain 3 Themes and Participant Statements

D3: Emotional climate, strain, and relational dynamics

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"It felt dangerous when risk plans just sat on paper, never tested." (P02-TMU-1)	Anxiety about untested plans	Agency-constraint tensions
"Felt the pandemic made people exaggerate risks and think in extremes." (P05-SMU-11)	Shifting perceptions of risk and the challenge of recalibration post-crisis	
"Felt torn between methodical thinking and the urgency for quick decisions." (P06-SMU-2)	Balancing methodical vs. urgent decision styles	
"I tried to stand in the eye of the storm, creating calm so we could actually talk and find better solutions;" "I felt that managing risk in COVID meant being openly scared yet courageous and authentic in my decisions;" "I noticed my own fear made it hard to imagine true extremes, and I had to force myself to test the 'what ifs;'" "I learned that if I stayed in fear, I stopped seeing what the crisis could teach me;" "I had to accept that people would disagree with me and still make the call;" and "I tried to see risk as a path to growth and differentiation, not just something to fear." (P16-TMU-1)	Calm, courageous leadership in the storm	
"Lived the downturn with layoffs and a shift to remote work," and "Saw field crews carry on, often in isolation, despite the pandemic." (P06-TMU-9)	Disruption of the workforce and operations	Fatigue, strain, and morale
"I was constantly racing against time, trying to build systems while managing acquisitions and daily demands." (P09-SMU-17)	Time Constraint	
"I felt surprisingly stable through COVID because the company's operations still felt normal when I joined;" "I came to see us as stronger after COVID because it pushed us to communicate and coordinate more;" "I felt positive during COVID because I was kept informed about what was happening;" "I didn't feel chaos; things felt streamlined and organized as COVID unfolded;" "I saw COVID actually strengthen management relationships through more communication and shared challenge;" and "I didn't feel like I'd joined in a crisis; COVID ways of working quickly felt normal." (P17-TMU-3)	Experiencing stability, positivity, and strengthened relationships through COVID	
"Mental health suddenly became a formal risk, and we brought in wellness coordinators." (P02-SMU-34)	Recognition of mental health risks	Support and well-being practices
"Felt responsible for others' mental well-being and aware of their loneliness." (P04-TMU-14)	Recognition of mental-health impacts of crisis	
"I carried an awareness that my team was juggling home confinement and childcare while still expected to deliver;" "I consciously looked for the upside in working from home that I would never have had in investment banking;" "I literally wrote myself a list of things I could do because of COVID to offset what I was missing;" "It weighed on me to send highly social, client-facing teams to work alone in their basements for months;" "We experimented with virtual coffees and	Emotional and relational load of leading people and clients remotely	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
happy hours to keep spirits and connections alive;" "I saw people needing to invent their own routines to stay whole and mentally well;" and "I experienced COVID as a moment where people either leaned in to find value or revealed their true colours in how they treated relationships." (P14-TMU-1)		
"Because we already practiced remote collaboration, the COVID shift felt like an adjustment, not a shock;" "During COVID, I tried to keep our risk routines steady, believing the crisis would eventually pass;" "I followed COVID rules but deliberately refused to let external drama dominate how we ran the business;" "I saw it as my job to shield the team from pandemic noise so we could stay agile and focused;" "I set a "you do you" norm so people could handle COVID anxiety differently while still respecting others;" and "I felt a duty to show up as essential support for critical infrastructure, even during pandemic restrictions." (P18-TMU-3)	Experiencing COVID as a managed disruption	
"Formed strong bonds by working long hours together during the crisis." (P05-TMU-2)	Crisis intensity deepened relational bonds and team trust	Team bonds and conflict management
"Being in an essential service meant we already lived with a strong risk culture;" "I saw collaboration across divisions, but also friction between different business priorities;" "I experienced tension between groups with exemptions and those without;" "I watched tensions grow between field staff and office staff during remote work;" "I felt proud of a deeply risk-oriented organizational culture;" and " I knew our strong culture reduced agility, but it was necessary for safety." (P07-TMU-4)	Organizational friction and culture	
"I carried the heartbreak of laying people off when no other jobs existed," and "I measured success by the legacy I created and the opportunities I gave others, not just money." (P11-TMU-8)	Human toll: Layoffs, emotional burden, and legacy	
"I felt our culture and values under strain as COVID's divisiveness made alignment on risk decisions difficult;" "I chose a middle-ground COVID policy, anticipating resentment from field crews and feeling the weight of that decision;" "I watched a respected field leader's endorsement transform a tense moment into unified commitment to move forward," and "I experienced divisiveness as an unavoidable part of crisis, with culture and collaboration holding the boat together." (P19-TMU-3)	Experiencing divisiveness, emotional weight, and alignment challenges	
"Felt emotional safety enabled risk awareness and accountability." (P01-SMU-6)	Emotional safety and collaboration	Trust and psychological safety
"When boards trusted me and delegated authority, I felt empowered to act;" and "When I was delegated authority, I felt free to act quickly." (P03-SMU-6)	Delegation and trust enabled an agile response	
"I had to assume people were smart and still accept that losing them was a leadership risk I had to own;" "I relied on people who could ignore hierarchy, think globally, and lead with kindness, because you can't teach attitude in a crisis;" "I realized you can't invent trust in the middle of a crisis; you either built it beforehand or you didn't;" "Watching how my own family handled COVID gave me a microcosm for how different people manage risk, which I tried to scale up to the organization;" and "I had to remember that people don't feel	Trusting, valuing, and reading people in crisis	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
the same level of risk, so we needed to revisit things as we moved forward." (P16-TMU-9)		
"I worked to create psychological safety so anyone could raise looming risks without fear of backlash;" "I expected calm, low-drama discussions that focused on what we could realistically control in any situation;" "Our Monday safety stand-ups made talking about risk feel routine, visible, and shared across the whole company;" and "I turned project missteps into organization-wide learning through lunch-and-learns and a living lessons matrix." (P18-TMU-6)	Low-drama transparency and shared risk talk	

Appendix L: Domain 4 Themes and Participant Statements

D4: Learning, foresight, and professional risk identity

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"It felt like a cowboy show when I started; I had to build risk management from nothing." (P02-SMU-3)	Creating a formal ERM from an informal culture	Improvisation leading to routine (playbooks)
"Experienced frustration with unusable plans, had to improvise a response." (P05-SMU-6)	Improvisation was required when formal plans were unusable	
"Felt innovative by creating a brain trust team to tackle COVID risks." (P05-SMU-7)	Innovation in response structures to address novel risks	
"I worked on practical innovations to prevent and detect transmission in camps;" "I recognized I needed to rely on experts in areas I wasn't qualified;" "I created backups in crisis committees so leadership continuity was always ensured;" "I found COVID easier to manage because everyone faced it simultaneously;" and "I experienced cross-industry collaboration as essential during COVID." (P08-TMU-1)	Collaboration and industry practices	
"I responded to travel bans by pouring more into communication instead;" "I worked through messy tech issues to get people collaborating remotely from home;" "I went into remote support expecting our first attempts might fail;" "I was relieved when our actual performance beat the worst-case we had modeled;" and "I felt our real lifeline was combining tech, key people, and communication, more than government aid." (P15-SMU-7)	Reconfiguring work and client support through remote technology	
"I want our future HSE policies to carry concrete lessons from how we handled testing and safety in COVID." (P19-SMU-5)	Integrating COVID lessons into health and safety governance	
"We checked six months later if our fixes actually worked." (P02-SMU-12)	Feedback loops and testing	Learning loops (AARs, debriefs, retros)
"We took everyone's view of risk and stitched them together into one picture." (P02-SMU-23)	Integrating diverse perspectives	
"I learned to rethink what real protection actually is." (P03-TMU-5)	Crisis redefined what counts as protection	
"I practiced handling media crises through simulated press conferences;" "I saw firsthand the need to rotate leaders to prevent burnout in long crises;" "I acted when small injury trends showed a bigger safety issue that needed change;" and "I leaned on my wife's medical expertise for informal insights, which proved valuable." (P07-SMU-3)	Leadership and resilience	
"I experienced after-action reviews as powerful when people critiqued themselves," and "I found that crisis management wasn't taken seriously until I pushed for reform." (P08-TMU-5)	Learning and after-action reviews	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
"I tried to learn from others' risk experiences instead of needing to live every crisis myself;" "I saw that retirements and turnover after COVID made our learning cycle choppy and became a risk in itself;" and "I saw that carving out time and teamwork to think about 'left-field' risks made us much more effective." (P16-SMU-5)	Learning from crises and building organizational memory	
"I want incidents to travel upward so the whole organization can actually learn from them;" "I'm frustrated that we write pages of lessons learned and then don't change what we do;" and "I see us rush to our paperwork after something goes wrong, knowing we should have taken those risks more seriously beforehand." (P20-SMU-5)	Institutionalized learning gaps and over-reliance on documentation	
"I felt like half my job was being a psychologist, not just a risk manager." (P03-SMU-22)	Risk managers also provided psychological support	Professional values and role identity
"I earned my place as a trusted advisor through foresight and knowledge." (P03-TMU-23)	Risk managers became trusted advisors through foresight	
"By sticking with clients, I built trust that lasted," and "The trust I built in COVID still stays with me today." (P03-TMU-25)	Supporting clients built enduring trust	
"I told employees the truth instead of pretending everything was fine;" "I shaped my leadership around trust, transparency, and timeliness;" "I remembered how it felt when leaders hid financial problems, and I refused to do that;" "I saw how openness pulled people together around a shared goal;" and "I got criticized for saying too much, but I believed honesty kept trust alive." (P11-SMU-14)	Values, Transparency, and Trust as Anchors	
"I had to walk away from a partner when our values no longer aligned," and "I anchored every decision to my values, no matter who laughed at me." (P11-TMU-15)	Values, Transparency, and Trust as Anchors	
"I feel ultimately accountable for regional risk and results, no matter who owns each piece;" "I manage risk knowing we must stand on our own revenues while staying true to our values;" "I experience risk management as constantly balancing clients, employees, and shareholders while protecting safety and ethics;" "I feel bound by our values not to sacrifice safety or ethics even when cutting costs;" and "I feel the weight of risk decisions because they touch thousands of employees' lives." (P15-TMU-11)	Values-anchored accountability to stakeholders	
"I experienced culture as the engine that allowed us to move quickly on risk decisions when we needed to;" "I leaned on CARE, collaboration, agility, results, ethics, to guide high-stakes COVID decisions under time pressure;" and "I anchored our COVID response in the conviction that people, not frameworks, drive success when everyone rows together." (P19-SMU-2)	Culture, values, and frontline leadership as implementation infrastructure	
"I rarely opened the ERM binder, but risk thinking was ingrained in my everyday decisions during COVID," and "I know COVID will sit in the back of my mind every time we discuss major risks." (P19-TMU-7)	Living ERM as an ingrained mindset and lasting COVID reference point	
"Described preparedness from studying reservoir risks in advance." (P01-TMU-9)	Preparedness Through Diverse Mechanisms	Scenario planning and preparedness

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
“Felt strength must exist before crisis to endure uncertainty,” and “Felt prepared to mobilize quickly when COVID hit.” (P01-SMU-12)	Preparedness before a crisis	
“Felt empowered by scenario planning during uncertainty.” (P01-TMU-19)	Scenario planning in uncertainty	
“Saw risk management as a total systems approach, not compartmentalized.” (P01-SMU-20)	Systemic thinking	
“We sat down with everyone, from leaders to field staff, to map out future risks.” (P02-SMU-21)	Inclusive foresight practices	
“SARS had taught me to plan, but in Canada no one remembered those lessons.” (P02-SMU-30)	Organizational memory vs. forgetting	
“We drilled for spills and explosions, but never once for a pandemic.” (P02-SMU-33)	Preparedness blind spots	
“We practiced for outbreaks, but nothing prepared us for COVID’s scale.” (P02-TMU-40)	Shock at pandemic scale	
“They thought I was crazy for flagging pandemic risk, but it paid off when COVID hit.” (P02-TMU-46)	Vindication of foresight	
“I pulled out our old pandemic plan and updated it before government orders came;” “I stood up an ICS framework early to prepare and protect employees;” “I felt reassured by having a plan and clear communication channels;” “I spent millions early, unsure if needed, but it proved to be essential preparation;” “In extreme cold, I pre-positioned trailers even though they weren’t used; readiness mattered;” and “I realized we should communicate risks before crises, not just during them.” (P07-TMU-5)	Preparedness and planning	
“I experienced risks as either always present or dynamic, requiring real-time attention,” and “I saw that boards should focus on dynamic, changing risks instead of static ones.” (P08-SMU-3)	Dynamic risks and governance	
“I saw risk and crisis as inseparable parts of managing uncertainty;” “I believed imaginative planning helped reduce the chance of being surprised;” “I felt early awareness of COVID’s spread and knew we had to prepare before others did;” “I turned to modeling to understand how an outbreak in camps might unfold;” and “I relied on horizon scanning and global contacts to anticipate COVID early.” (P08-TMU-7)	Preparedness and imagination	
“I relied on our strong balance sheet as the bedrock of resilience during COVID’s commodity shocks;” “I felt vindicated that our proactive hedging cushioned the COVID price crash in ways late hedging never could;” “I felt incredibly fortunate that our remote-work capability was ready just in time for COVID;” “I drew confidence from years of drills and systems that felt like rehearsal for crisis events like COVID;” “I experienced COVID as a real-world test of whether our ERM thinking actually helped us survive;” and “I learned to treat supply chain as a core risk so we wouldn’t panic next time things jammed up.” (P19-TMU-4)	Feeling supported, vindicated, and less panicked by prior preparations	
“I experienced the organization switch into full emergency response mode;” “I saw remote capabilities get enabled almost overnight during the pandemic;” “I faced a crisis no one had ever drilled for, hitting every site and the head office	Crisis escalation and emergency mode	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
at once;" and "I had to restart emergency response centres when new COVID waves hit." (P10-SMU-3)		
"I treated risk systems as live and adaptable, not static documents;" "I experienced risk management and business continuity as inseparable practices;" "I learned to act big quickly and scale down later if needed;" and "I used scenario planning and simulations to test gaps and close them." (P10-SMU-5)	Embedding learning and continuity	
"I asked whether external developments could become corporate killer risks," and "I split resources across immediate, three-month, and six-month risks." (P10-TMU-8)	Strategic scanning and anticipation	
"In the pandemic, I leaned on flexibility and optionality to manage uncertainty;" "Because we had built flexibility and options into our contracts and systems, we were spared some of the pain others felt when COVID hit;" "I tried to design flexibility and emergency responses for the risks we didn't even know about yet;" "I prepared for the knowns and deliberately left degrees of freedom for the unknowns, and I told people that;" and "I approached big risk moves incrementally, with flexibility and clear exit ramps built in." (P16-SMU-4)	Designing flexibility and optionality into structures	
"I mentally went to extreme scenarios so I could understand what a reasonable middle looked like;" "I used both history and imagination in scenario testing to get a feel for emerging risks;" "I needed people with different perspectives around the table to spot emerging risks I couldn't see alone;" and "I treated COVID as a stress test that exposed pockets of risk we'd have to reinforce later." (P16-SMU-7)	Scenario thinking and sensing emerging risk	
"Felt that constant mindfulness sustained effective risk management through the pandemic." (P01-SMU-11)	Mindfulness as continuity	Training and capacity building
"We never called it an audit; we made it sound supportive so people stayed open." (P02-SMU-16)	Framing for openness	
"We trained everyone in risk, from the basics to leading assessments." (P02-SMU-44)	Training and capability building	
"In the military, I learned we manage risk, not eliminate it, and feared the unanticipated;" "I used pre-mortems to draw out risks hidden in people's minds;" "I applied the bronze-silver-gold system to ensure command levels supported each other;" "I saw how remote oversight tempted leaders to interfere, worsening situations;" and "I felt advantaged by military training, but had to learn differently in industry." (P08-SMU-6)	Military-informed practices	
"I made sure the lessons from our crisis responses became part of our continuity and risk processes." (P09-TMU-9)	Learning integration	
"I experienced progress as we rolled out structured training modules that helped everyone understand the same process." (P09-SMU-10)	Organizational learning	
"A year in, I found myself managing a more leveraged mid-market book entirely from home amid rolling shutdowns;" "I found it feasible to maintain existing relationships online but extremely challenging to build new ones remotely;" "I worried that new hires couldn't learn risk by osmosis when they weren't sitting beside someone asking constant questions;" and "I saw some newer people doubting their	Remote work, relationship maintenance, and onboarding-related competence risks	

Lived-experience Code (with Participant ID)	Meaning Unit	Theme
knowledge and defaulting to competing on price because they didn't feel expert." (P14-SMU-5)		

Appendix M: Mapping of Themes to Domains and Cross-Domain Integrative Themes

Cross-Case Themes	Domains	Cross-Domain (Integrative) Themes
What was it like to manage the risk management process during the COVID-19 pandemic?		
Control assurance and committees	D1: Governance and structural arrangements	**Theme 1:** Governance-information coupling as risk infrastructure
Decision rights and decentralization		
Escalation and approvals		
Governance of operations-financial trade-offs		
Risk appetite and thresholds		
Cadence and channels (huddles/war room)	D2: Informational Flows and Sense-Making	**Theme 2:** Trust, emotional climate, and fairness as preconditions
Cross-functional alignment		
External stakeholders (board/regulators/clients/communities)		
Information artifacts (dashboards/reports)		**Theme 3:** Preparedness, improvisation, and learning loops shaping capacity
Signal quality and rumour control		
Agency-constraint tensions	**D3:** Emotional Climate, Strain, and Relational Dynamics	
Fatigue, strain, and morale		**Theme 4:** Professional risk identity and values as anchors
Support and well-being practices		
Team bonds and conflict management		
Trust and psychological safety		
Improvisation leading to routine (playbooks)	**D4:** Learning, Foresight, and Professional Risk Identity	**Theme 5:** Balancing centralized control and local autonomy
Learning loops (AARs, debriefs, retros)		
Professional values and role identity		
Scenario planning and preparedness		
Training and capacity building		