



Department of Entrepreneurship

**Sensemaking and Time: The role of functions of subjective
time in prospective sensemaking**

By

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My PhD journey has been punctuated with various emotions, contentions, ups and down, months of anxiety and moments of triumph. I started my PhD in 2020, and thus due to Covid-19 everything was in lockdown. Due to travel restrictions, I couldn't even travel back home, and thus was working alone in my university dorm, with minimum to no in-person meetups with the other PhD colleagues. Moreover, due to the Covid-19, data collection took longer, where I had to complete all of my data collection (semi-structured interviews), via Zoom/Teams.

Particularly, my PhD journey was fraught with chronic ulcerative colitis, which made things extremely difficult and painful for me, as it's controllable and not curable. In the second year of my PhD my health got completely out of order. Due to the frequent flare ups doctors had to go for a colonoscopy again, during which they had to perform minor surgery, to have multiple polyps removed from my colon. I have been on strong anti-inflammatories since then, yet every other day I bleed and struggle to leave bed due to lethargy. Hence, during these past three years, my colitis pushed me to the brink of giving up or taking long breaks from my PhD. Nevertheless, I was adamant and resilient amidst this adversity and consistently worked hard on all the seven days of the week. In addition, throughout the years of my PhD, I also worked as a part-time lecturer at the University of Strathclyde.

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Abstract

Prospective sensemaking can invoke multiple temporalities (past, present, and future), and thus the concept of time and temporality becomes pivotal in its realm. Extant studies have galvanized around the retrospective sensemaking and objective time, while the prospective sensemaking and functions of subjective time have remained undertheorized with a distinct lack of empirical evidence. This thesis examines the influence of the three functions of subjective time (Attending, Preparing and Comprehending), on the way managers at the top-level management make sense of uncertainty and strategize amidst them. A deeper understanding between the sensemaking and three functions of subjective time has been made using 39 semi-structured interviews, which were conducted with the top-level managers in different organizations. This thesis contributes to the theory on sensemaking, by establishing that the three functions of subjective time and the interactions between them, work across past, present, and future temporal zones, in making the prospective sense of uncertainties, where strategies are also enacted.

Keywords: uncertainty, sensemaking, prospective sensemaking, time and temporality, subjective time, functions of subjective time, strategy

Chapter 1: Introduction

Sensemaking signifies a process which encompasses identification, interpretation, and enactment (Tapinos and Pyper, 2018), and where individuals seek to fathom the implications of the contemporary issues or events that are ambiguous, intricate, or novel for their organizations (Christianson and Barton, 2021). Sensemaking is a theoretical perspective that becomes useful in the management of uncertainty and external changes (Maitlis and Christianson, 2014). Uncertainty is created by the lack of information or is attributed to the inability of managers to predict the outcome of certain events, which triggers the sensemaking of managers, who attempt to develop and understanding of uncertainties caused by such events (Gilpin, 2008), so that they can also enact strategies amidst them (Moqaddamerad and Tapinos, 2023). Sensemaking can encompass an ongoing interaction between the past, present, and future (Sandberg and Tsoukas, 2020), but past studies on sensemaking have majorly focused on the retrospective sensemaking (Sandberg and Tsoukas, 2015; Walls, 2017), which is directed at the reconstruction of the past events (Hayden, Mattimoe and Jack, 2021). Hence the dimension of the prospective sensemaking (Konlechner et al., 2019), which can incorporate multiple temporalities of past, present, and future (Gephart, Tople and Zhang, 2010), to directly address the future (Goto, 2022), has remained undertheorized (Bruskin and Mikkelsen, 2020; Kaplan and Orlikowski, 2013). Therefore, the dimension of time and temporality becomes central in sensemaking literature (Dawson and Skye, 2019). Studies on sensemaking have burgeoned, but the concept development and theorization of various approaches to time and temporality has only recently been recognized (Brunelle, 2017). Similarly, the very notion of strategy signify that managers can project themselves into the future via taking decisions in the present, during which they build on the past (Bansal et al., 2022). In addition, perspectives on time have largely remained conceptual, and thus it has become cumbersome to augment

research on time in organizations (Slawinski and Bansal, 2012). In a similar vein, primacy has been given to the objective clock time over the subjective time (Reinecke and Ansari, 2015). Recent studies have identified three functions of subjective time (Branzei and Fathallah, 2023, Shipp and Jansen, 2021): (i) Attending (ii) Preparing (iii) Comprehending. Attending function enable individuals/collectives in drawing an exclusive attention to the past, present or future temporal zones, to analyze and guide the experiences of the present (Shipp and Jansen, 2021). Attending function incorporates the mechanisms of temporal focus (Peltokorpi, Allen and Shipp, 2023), temporal comparison (Zell and Alicke, 2009), temporal influence (Li et al., 2014), learning (Nissley and Casey 2002) and accumulation (Shipp and Jansen, 2011). Preparing is the second function of subjective time and assist individuals/collectives in understanding future in ways that enable planning and actions in the present (Shipp and Jansen, 2021). Preparing function encompass the mechanisms of projection (Kooij et al., 2018), temporal allocation (Mohammed and Nadkarni, 2011), time awareness (Grondin, 2010), and temporal construal (Paine, Byron and Higgins, 2023). Finally, comprehending function is the third function of subjective time, which functions via simultaneous integration of past, present and future temporal zones (Shipp and Jansen, 2021). Comprehending function encompass the mechanisms of narratives (Goldstein, Kielhofner and Paul-Ward 2004), meaning (Staudenmayer, Tyre and Perlow, 2002) and sensemaking (Johnsen and Holt, 2023). Nevertheless, functions of subjective time have largely remained in a black box (Tang et al, 2020), and ample research is required on exploring these three functions of subjective time and interaction between them, in the context of how they facilitate a particular organizational phenomenon (Shipp and Jansen, 2021).

In the light of above gaps in the extant research and acknowledging the significance of time in theory building (George and Jones, 2000), this thesis presents research on the prospective sensemaking, by exploring it through the lens of the subjective time, that incorporates subjective perceptions of time, interpretation of time action or mental time travel (Shipp and Jansen, 2021). More precisely, this thesis has harkened to the call of incorporating a comprehensive view of the subjective time, across all three-time frames (past, present and future) in the sensemaking (Hernes and Obstfeld, 2022; Schultz and Hernes, 2013) of top-level managers, and thus has specifically explored the influence of all the three functions of subjective time (Attending, Preparing, Comprehending) or interactions between them (Shipp and Jansen, 2021), in making sense of uncertainties, to answer the underlying research question and objectives.

1.1 Aims and objectives of research

The main aim of this research is to answer the research question “*How do managers make sense of uncertainties?*”. This research question has been divided into two underlying research objectives:

Objective 1: To explore how the functions of subjective time or interactions between them influence the identification, interpretation and meaning construction of uncertainty.

Objective 2: To explore how the functions of subjective time or interactions between them influence the development of strategies amidst uncertainty (enactment).

This thesis has resorted to the constructivist-interpretivist philosophy (Ganzin, Islam and Suddaby, 2020), and has adopted a qualitative research strategy (Goodell, Stage and Cooke, 2016), to answer the underlying research question and objectives of this study. Semi-structured interviews were conducted with the 39 top-level managers who were working in different industries. Top-level managers were focused because situations of uncertainty require senior managers to augment their capacity to interpret external events via sensemaking, so that they can allot meaning

to a complex reality (Sakellariou and Vecchiato, 2022). More significantly, senior management is considered important, because they have increased authority over middle or lower-level employees, and they control resources and lead and guide others during the enactment of decisions (Grojean et al., 2004). All the 39 semi structured interviews with the top-level managers were analyzed using the thematic abductive analysis (Ganzin, Islam and Suddaby, 2020).

By addressing the underlying research question and objectives of this study, this thesis provides three theoretical contributions to the theory on sensemaking. **First**, advanced the understanding on the sensemaking theory (Sandberg and Tsoukas, 2015), by discussing that the prospective sensemaking process can also be iterative (non-linear), where the stages of identification and awareness take place simultaneously. Moreover, enactment can take place simultaneously with the identification or interpretation stage, via the preparing function of subjective time, and enactment can also take place simultaneously with the identification, interpretation, and the meaning construction stage, via the comprehending function of subjective time (Shipp and Jansen, 2021). **Second**, advanced the understanding on the sensemaking theory (Hernes and Obstfeld, 2022), by establishing the influence of (a) the attending function, (b) comprehending function, and (c) the interactions between attending and comprehending function of subjective time (Shipp and Jansen, 2021), in enabling the divisible and indivisible present, which facilitates the prospective sensemaking. **Third**, advanced the theory on sensemaking (Kaplan and Orlikowski, 2013, Maitlis and Christianson, 2014), by discussing that the enactment phase of prospective sensemaking has eight stages, which are influenced by (a) the preparing function (b) the interaction between different mechanisms of preparing function, (c) interaction between attending and preparing function, and (d) the comprehending function of subjective time (Shipp and Jansen, 2021).

1.2 Thesis Overview

The remainder of this thesis is as follows; **Chapter 2** explores the existing literature on uncertainty, sensemaking, time and strategy. **Chapter 3** discusses the philosophical and methodological approach, where adoption of the interpretivist philosophy is justified. Later this chapter discusses data collection via 39 semi-structured interviews, and data analysis via thematic abduction in detail, which is concluded with the discussion on research ethics. **Chapter 4 and 5** discusses the analysis and findings that emerge as a consequence of the thematic abductive analysis. **Chapter 6** elaborates on the discussion of analysis and findings, and thus also discusses the three theoretical contributions to the theory on sensemaking. **Chapter 7** concludes this thesis with the reiteration of the three major theoretical contributions to the theory on sensemaking, and also discusses the managerial implications, and the limitations and directions of for the future research.

Chapter 2: Literature Review

2.0 Introduction

This chapter presents literature on sensemaking and other concepts that are relevant to this study. The chapter starts with the literature on sensemaking, followed by a section on the prospective sensemaking, to give an overview of the current state of research on sensemaking. Next, the literature on uncertainty is presented, followed by its intersection with the sensemaking literature. Then, this chapter discusses the literature on sensemaking and strategy. Consequently, this chapter discusses the importance of time in the sensemaking literature, followed with the literature on time and temporalities, mental time travel, distinction between the subjective and objective time, and finally the subjective time and its three functions. This chapter finishes with a concluding paragraph, that presents the justification of the research question and objectives of this study.

2.1 Sensemaking

Sensemaking has been defined as the process of social construction that takes place when unexpected events interrupt the ongoing activity of the individuals, where they create retrospective sense of plausible meanings (Weick, 1995; Weick, Sutcliffe and Obstfeld, 2005), to create an ongoing reality that materializes from attempts to generate order (Weick, 2010), so that they can understand what is going on (Sturges et al., 2019). More precisely, sensemaking is considered to be a social process in which different individuals form observations and communicate with each other to understand the world surrounding them, so that they can act accordingly (Stieglitz, Mirbabaie and Milde, 2018; Taylor and Robichaud, 2004). Generally sensemaking has been associated with the three steps (Jeong and Brower, 2018): (i) identification, (ii) interpretation and (iii) enactment. There is a wider consensus that these three phases characterize sensemaking (Tapinos and Pyper, 2018). Nevertheless, certain studies have accentuated the fact that sensemaking process can also encompass identity construction, continued or ongoing meaning,

extracted cues, and plausibility in addition to accuracy, social process, and enactment (Lundberg, 2000). Weick (2010), has also associated enacted sensemaking with self-fulfilling prophecy, expectations, and capacity of commitment. In addition, sensemaking is considered a linear process in which one stage precedes the other (Ann Glynn and Watkiss, 2020). Conversely, it is also considered a cyclical process, where enactment is intertwined with the identification and interpretation (Sandberg and Tsoukas, 2015).

Since the first conceptualization of Weickian sensemaking (Weick, 1995), sensemaking has been explored by various scholars in copious fields, like psychology (Salvatore et al., 2021), education studies (Ganon-Shilon, Schechter, 2017), marketing (Beverland, Micheli and Farrelly, 2016), and especially organizational studies (Gioia et al., 2013, Liu and Maitlis, 2014; Maitlis, Vogus, and Lawrence, 2013). Sensemaking is pivotal in the context of strategy and organization (Colville and Murphy, 2006), due to its properties of action (enactment), in a certain context (social) in which there is generation of palpable outcomes (cues), that assists people in discovering (retrospect) occurrences (ongoing), regarding what needs to be explained (plausibility), and what ought to be done next (identity enhancement). Sensemaking of these ambiguous events is contingent upon the context, knowledge and experience of the individuals who are trying to interpret the situation to take an action accordingly (Maitlis and Christianson, 2014).

In the early research, sensemaking was predominantly linked with cognition-action processes of scanning environment, interpretation, and associated responses, where these cognition-action processes were linked with the organization performance (Thomas, Clark, and Gioia, 1993). In addition, sensemaking has been explored in conjunction with sense-giving (Gioia and Chittipeddi, 1991). Sense-giving is defined as the process of influencing the sensemaking of others to gain their support (Hill and Levenhagen, 1995). Corvellec and Risberg (2007), have accentuated the fact that

despite the ample research on the sensemaking and sense-giving processes, there is minimum understanding of how organizational actors generate, diffuse, and settle meaning in between and around organizations. Moreover, certain studies have deemed research on sensemaking to be largely conservative, and thus there are still various uncharted topics that needs further exploration (Brown, Colville, and Pye, 2015). For instance, it has been argued that extant research hasn't delved deeper into how senior managers construct meaning during their sensemaking process (Balogun, Bartunek and Do, 2015). Nevertheless, studies on sensemaking had begun to augment, to consider issues of its embodied nature (Cunliffe and Coupland, 2012; Harquail and King, 2010), mood/emotion (Cristofaro, 2022; Holt and Cornelissen, 2014), metaphor (Cornelissen et. al., 2008; Patriotta and Brown, 2011), moral awareness (Parmar, 2014), and the politics of power (Brown, 2005). Moreover, critical sensemaking has also been introduced as an alternative to the traditional Weickian sensemaking (Aromaa, Eriksson and Montonen, 2020), where former focuses more upon macro-social aspects of sensemaking such as power rules and culture of an organization (Long and Mills, 2010).

Most importantly, Weickian sensemaking can be both retrospective and prospective (Villamil and Pringle, 2023). Therefore, now the literature that has drawn distinction between the retrospective and prospective sensemaking is reviewed.

2.1.1 Retrospective vs Prospective sensemaking

Predominantly, primacy in the previous literature on sensemaking has been repeatedly given to retrospective sensemaking, in which individuals just focus on past experiences to simplify a particular problem (Ligon, Hunter and Mumford 2008). This is because of the early applications of the sensemaking theory, in which the main idea of sensemaking, is contingent upon the fact that reality is an ongoing accomplishment, that stems from the attempts to generate order, where

retrospective sense of what occurs is made (Weick, 1995). Studies that have drawn convergence, with these early applications of sensemaking theory, highlights that individuals counter the cues that disturb the standard, foreseeable flow of experiences, and suggest a discrepancy between this altered reality and how they anticipated it to be (Barr, 1998). These cues then prompt conscious efforts to interpret unanticipated occurrences retrospectively, to understand ambiguous realities, which are open to copious interpretations (Stigliani and Ravasi, 2012). Where retrospective sensemaking has been linked with existing mental models and knowledge structures (Rydén, Ringberg and Wilke, 2015), other stream of literature has delved deeper into situations in which individuals/groups, respond to uncertain situations, that necessitates the unique understanding of these circumstances, by engaging in forward-looking thinking, where some desirable (although ill-defined) future state is envisaged, to craft possible actions for the future (Gioia and Mehra, 1996). This distinct type of sensemaking has been characterized as prospective sensemaking (Gioia, 1986), or future-oriented sensemaking (Tapinos and Pyper, 2018).

Therefore, now the next section reviews literature on prospective sensemaking.

2.1.2 Prospective sensemaking

Prospective sensemaking is defined as the “*sensemaking processes where the attention and concern of people is primarily directed at events that may occur in the future*” (Konlechner et al., 2019, p. 710). Prospective sensemaking utilize current (or prior) beliefs and knowledge, to contrive a vision of the future (Reid, 2021). In addition, where retrospective sensemaking has been defined as the reconstruction of past events, prospective sensemaking has been defined in the context of both future perfect (Weickian) and future-oriented thinking (post- Weickian) (Tapinos and Pyper, 2018). Future perfect prospective sensemaking, perceives future to be something that has already taken place in the past, which consequently limits the perceived open-endedness of the future (Fuglsang and Mattsson, 2011). Conversely, future oriented prospective sensemaking

makes sense of the future, by looking ahead into it in a future-oriented way (Tapinos and Pyper, 2018). Moreover, future-oriented prospective sensemaking is linked with creating intersubjective images, schemes and meaning in the conversation, where these meanings and comprehensions generate or project images of the future phenomenon (Gattringer et al., 2021). It has also been discussed that to effectively use the envisioned futures while making prospective sense of uncertainties, organizations need to provide interpretive flexibility to the managers, by allowing them to incorporate multiple perspectives of different managers, so that they can increase the comprehension of these envisioned futures, and thus use this harnessed understanding of envisioned futures to reduce uncertainty (Meyer, 2019). Research on prospective sensemaking, has explored prospective sensemaking, in relation to strategy making (Patvardhan, 2015), innovation (Moqaddamerad, and Tapinos, 2023), entrepreneurship (Hoyte et al., 2019), to examine the construction of novel comprehension of a particular environment, and how to respond to it (Stigliani and Ravasi, 2012). In comparison to the studies on crises, such studies show a comparatively slow-paced process, in which the emerging interpretation are refined as a consequence of iterations of sensemaking and sensegiving (Hill and Levenhagen, 1995).

Extant literature on sensemaking has majorly focused on the retrospective sensemaking (Holt and Cornelissen, 2014; Walls, 2017), where the concept of prospective sensemaking has been considered under-researched and undertheorized (Bruskin and Mikkelsen, 2020; Degirmenci and Recker, 2023; Frandsen, Svane and Maria-Humle, 2023; Friesl, Ford and Mason, 2019; Moqaddamerad and Tapinos, 2023; Rosness et al., 2016). Future-oriented sensemaking has been considered undertheorized (Sandberg and Tsoukas, 2015), because of which there is a burgeoning trend of contemporary studies towards understanding the role of prospective sensemaking in the organizations (Dortland, Voordijk and Dewulf, 2014). Such focus on the future has also been

considered pivotal due to the rising future uncertainties (Kwakkel and Pruyt, 2013). Similarly, very few studies have explored the different temporal orientations (past, present, and future) in prospective sensemaking, using which elaborated models of sensemaking can be created (Kaplan and Orlikowski, 2013). Others have deemed prospective sensemaking significant in the times of change, where using past to manage future may not serve well (Colville, Pye and Carter, 2013). Therefore, future studies have been directed to unpack prospective sensemaking (Molloy et al., 2020), that conceptually “*goes beyond a derivative of the retrospective sensemaking*” (Brown, Colville and Pye 2015, p.272). Moreover, studies have also challenged the preferential treatment of disruptive episode at the expense of everyday sensemaking, that takes place during the routine activities (Sandberg and Tsoukas, 2015). Therefore, such studies have indicated a shift towards exploring the concept of immanent sensemaking (Aoki, 2022; Chen et al., 2023), which has been defined as the routinised course of action, using which the sense of the everyday task environment can be made (Niemi et al., 2022).

Overall, sensemaking can also be prospective (Bolander and Sandberg, 2013), and despite the importance of sensemaking in the organizational processes (Stigliani and Ravasi, 2012), there is distinct lack of empirical studies that have focused on the future experiences (Gattringer et al., 2021), and therefore prospective sensemaking is a concept that requires ample development (Wang et al., 2019).

Uncertainty is considered central to the literature on sensemaking (Rosness et al., 2016). Therefore, now this thesis reviews the literature on uncertainty.

2.2 Uncertainty

Uncertainty has different types because of which it has been defined in distinct ways (Sund, 2015).

Contemporary literature has defined uncertainty to be novel situations in which knowledge about the future is limited, that causes actors to utilize their subjective perceptions of future to guide their present choices and actions (Angus, Packard and Clark, 2023; Jahel et al., 2023; Rapp and Olbrich, 2023). Uncertainty has been considered pivotal concept in the realm of strategic management and organizational theory, largely in relation to theories examining connections between firms and their external environment (Haarhaus and Liening, 2020). But the concept of uncertainty is usually confused with the term risk (Storrud-Barnes, Reed and Jessup, 2010). The distinction between uncertainty and risk has now been analyzed (in the light of various authors and disciplines), and thus it has been assessed how the concept of uncertainty has evolved over the period.

2.2.1 Chronology and the Nomological Nets of Uncertainty

Table 2.2 depicts how the concept of uncertainty has been defined and shaped over the period of time.

Authors	Concept	Year	Discipline/Journal
Knight	Uncertainty (no probability) vs Risk (Probability)	1921	Economics
Pfeffer and Salancik	Uncertainty-unpredictability of environmental and organizational variables	1977	Organizational Dynamics
Porter	Uncertainty due to industry structure	1980	Strategic management

Scholz and Waller	Both subjective and objective probabilities exist	1983	Cognitive Psychology
Milliken	Three types of perceived uncertainty: State, Effect and Response uncertainty	1987	Academy of management Review
Rothschild and Diamond	Uncertainty (can have subjective probability)	1989	Economics
Tversky and Kahneman	Subjective judgements do not conform to probability theory	1992	Cognitive psychology in the journal of risk and uncertainty
Miller	Uncertainty framework: General environment, Industry and Firm level uncertainties	1992	International Business Management
Davidson	Epistemological uncertainty and Ontological uncertainty	1996	Post Keynesian Economics
Dequech	Fundamental uncertainty	2000	Economics
Courtney, Kirkland and Viguerie	Uncertainty is different from risk	1997	Strategic management

Jüttner, Peck and Christopher	Uncertainty and risk can be used interchangeably	2003	Supply chain management
Lane and Maxfield	Semantic uncertainty, Truth uncertainty	2005	Evolutionary economics
Wagner and Bode	Risk-only negative outcomes	2008	Supply chain management
Elster	Strategic uncertainty, Brute uncertainty	2009	Capitalism and Society
Taleb	Uncertainty-Black Swan	2010	Book (Discipline-Futures)
Taleb	Embracing Uncertainty-Antifragile theory	2012	Book (Discipline-Futures)
Simangunsong, Hendry and Stevenson	Risk has only negative outcomes. But Uncertainty can have both positive and negative outcomes	2012	Supply chain management
Vecchiato	Uncertainty due to continuous drivers of change (Institutional environment) and Discontinuous drivers of change (new customer needs, disruptive technologies)	2012, 2015	Technology and Forecasting

Dangol and Kos	Dynamic environments- Uncertainty	2014	Strategy and management
Diamond and Rothschild	Uncertainty-Subjective probabilities	2014	Economics
Beckert	Social interaction uncertainty, complexity uncertainty and fundamental uncertainty	2016	Book (Discipline-Futures)
Tuckett and Nikolic	Radical Uncertainty	2017	Theory and Psychology
Sharma et al	Uncertainty-turbulence, equivocality, entropy, risk	2020	International Business Management
Worley and Jules	Environment is volatile, uncertain, complex and ambiguity (VUCA)	2020	Applied Behavioural Science
Packard and Clark	Epistemic vs Aleatory uncertainty	2020	Academy of Management Review
Rindova and Courtney	Qualitative and Subjective representations of uncertainty	2020	Academy of management Review
Linden	Unproductive uncertainty	2021	Journal of Air transport management

Wang et al	Subjective perceptions of uncertainty related to socioeconomic status	2022	Journal of Business Research
Kroon and Reif	Subjective feelings and emotions of uncertainty	2023	Journal of Organization Management

While individuals and firms use the terms risk and uncertainty interchangeably, distinction is drawn in between these two concepts by certain studies (Knight, 1921), where uncertainty has been defined to be a phenomenon in which the consequence of an underlying individual/firm’s decision cannot be designated any probability, and risk is something in which the ramification of a particular decision can be approximated objectively using the distributions of probability. Despite sharing similar views about risk (Rothschild and Diamond, 1989), authors have repudiated the conceptualization of uncertainty proposed by Knight and have instead allotted subjective probabilities to the uncertain events (Diamond and Rothschild, 2014). Here, the discipline of economics converges with the boundaries of cognitive psychology, in which both objective and subjective probabilities to uncertainty are discussed (Scholz and Waller, 1983). In a similar vein, it has been established that subjective judgements regarding probability do not conform to the probability theory, because individuals prefer some sources of uncertainty over others (Tversky and Kahneman, 1992).

Debate of uncertainty vs risk extends into the realm of strategic management as well. The concept of uncertainty in the strategic management and organization theory has been defined as the unpredictability of environmental or organization variables, that influence the organizational performance and effectiveness (Pfeffer and Salancik, 1977). Conversely, key characteristics of the

organization's environment were tied with the risk (Porter, 1980), which are contingent on its industry structure (suppliers, buyers, potential entrants, substitutes, contention among existing firms). Nevertheless, Porter didn't draw a distinction between risk and uncertainty, and the view that uncertainty can adversely impact corporate performance, and thus lead to increased risk was highlighted by other researchers (Miller, 1992). Miller (1992) also criticized the previous research for treating uncertainty in an isolated way, and thus proposed a more integrated framework by listing various dimensions of uncertainty under three broader concepts: Environmental uncertainty, Industry uncertainty and Firm Uncertainty. Although, Miller's framework has introduced various types of uncertainty, yet it had used the term risk management approaches instead of uncertainty management approaches to tackle these different uncertainties, which again blurred the distinction between uncertainty and risk (Ghoshal, 1987). Regardless, contingency planning of uncertainty has gained considerable attention in the discipline of international management (Miller, 1992), economics (Tversky and Kahneman, 1992), strategic management (Bukhszar, 1999) and finance (Smith and Smithson, 1990). Time marched on and some authors still differentiated the concept of uncertainty from the risk (Courtney, Kirkland and Viguerie, 1997), whereas others have suggested to use them interchangeably due to the blurring boundaries between them (Jüttner, Peck and Christopher, 2003). For instance, risk was tied to only negative outcomes (Wagner and Bode, 2008), and issues stemming from uncertainty were construed to have both positive and negative outcomes (Simangunsong, Hendry and Stevenson, 2012).

Where studies above have mainly focused on discussing various distinctions between uncertainty and risk, others have predominantly focused on identifying different types of uncertainties. For instance, the concept of perceived uncertainty was discussed in the context of state, effect and response uncertainty (Milliken, 1987). State uncertainty was linked to the evolution of the drivers

of change. Effect uncertainty was associated with the impact of drivers of change on the competitive positioning of the firms. Finally, response uncertainty was linked to the difficulty that organizations face in deciding on a viable response (Vecchiato and Roveda, 2010). Others have discussed epistemological and ontological uncertainty (Connell and Nord, 1996). Epistemological uncertainty was linked to the lack of knowledge, where it also becomes difficult for the individuals to draw on different types of knowledge together (Spender, 1998). Conversely, ontological uncertainty was defined as a type of fundamental uncertainty, in which the exact predetermination of future prospects of an action becomes impossible (Davidson, 1996). In a similar vein, fundamental uncertainty has also been linked with the unpredictability of structural changes, where the future cannot be deciphered using the present information (Dequech, 2000).

Lane and Maxfield (2005), have instead discussed semantic and truth uncertainty, where during semantic uncertainty actors are uncertain about the meaning of different propositions, and truth uncertainty makes it difficult for the actors to decipher whether the well-crafted propositions are true or not. Elster (2009), have discussed strategic and brute uncertainty, where former arises due to the inability to predict the strategic actions taken by other actors, and latter draws parallel with fundamental uncertainty, in which uniform distribution of the cases cannot be produced. Beckert (2016), has discussed social interaction uncertainty, in which prediction of the actions of the third party become very difficult, where the author also discussed the complex uncertainty, which has been attributed to the situations which does not allow the maximization of the utility, and author also argued that due to the unpredictability of fundamental uncertainty it can't be approximated in the present calculus. Identically, the term black swan has been coined for such uncertain situations (Taleb, 2010), in which quantities of information will not be useful for prediction of the future (Blyth, 2009). Later, the theory of anti-fragility has been discussed to deal with the black swan

uncertainty (Taleb, 2012), where individuals/organizations tend to embrace uncertainty rather than avoiding it, so that they become better at the end of it (Subedi, 2013).

Uncertainty has also been classified into the continuous and discontinuous drivers of change (Vecchiato, 2012, 2015), where the former is attributed to environmental uncertainties (PESTEL), and latter signifies the disruptive innovation and new customer needs. Similarly, literature on strategic management has discussed dynamic environments (Dangol and Kos, 2014), and have pursued the concept of uncertainty in conjunction with volatility, complexity and ambiguity (VUCA) (Worley and Jules, 2020). Furthermore, in addition to risk, terms like entropy, turbulence and equivocality have also been used as a substitute for the concept of uncertainty (Alpers, 2019; Sharma et al., 2020). Sniazhko (2019), has instead adopted the framework of Miller (1992), in examining the uncertainties in the international business literature, nevertheless the author relabeled natural uncertainties (uncertainties brought by nature itself like storm, terrorist attacks etc) as discontinuous uncertainties.

The contemporary crisis brought by Covid-19 has led to unproductive uncertainty, which leads to a feeling of paralysis amongst the managers, and inhibits their action (Linden, 2021). Uncertainties like Covid-19 has directed the attention of recent studies towards drawing the distinction between aleatory and epistemic uncertainty (Holmes and Westgren, 2020). Aleatory uncertainty has been deemed unknowable and thus immitigable altogether, and epistemic uncertainty is considered to me mitigable because its genesis lies in the ignorance of the information that can be known (Packard and Clark, 2020). Similarly, uncertainty brought by Covid-19 has also been construed as the radical uncertainty (Au and Eyal, 2022), which encompasses indeterminate situations in which uncertainty regarding the ramification of the actions is so intense, that it is both cumbersome to construct the problem structure to select between alternatives, and is impossible to illustrate the

future with respect to a cognizable and exhaustive set of outcomes to which probabilities can be attached (Tuckett and Nikolic, 2017).

To conclude, the concept of uncertainty has been significantly shaped over the period and is still getting traction in recent studies with different conceptualizations. Contemporary literature has indicated a transition from a more objective and probabilistic comprehension of uncertainty (Johnson, Bilovich and Tuckett, 2023), towards a more subjective understanding and management of uncertainty (Fenton-O'Creevy and Tuckett, 2022; Kroon and Reif, 2023; López-Gamero, Molina-Azorín and Claver-Cortés, 2011; Wang et al., 2022). Recent studies (Rindova and Courtney, 2020), have also directed future research to construe uncertainty with subjective representations, images, where such subjective illustrations have been identified as the fundamental step in making sense of uncertainty. Complementarily, uncertainty is being experienced differently by different individuals in different settings (Sverke and Hellgren, 2002; Weber, 2010), and future studies have been directed to focus on meta-rationality approaches like plausibility and sensemaking (Ramírez and Ravetz, 2011).

Now this thesis presents literature that signifies the relationship between sensemaking and uncertainty.

2.3 Sensemaking and Uncertainty

Managing uncertainty is considered to be an everyday task of managers (Rachel-Dinur, 2011).

Shocks triggers the sensemaking processes and the most prevalent sensemaking events that initiates shocks are uncertainty and ambiguity (Dortland, Voordijk and Dewulf, 2014). Therefore, sensemaking efforts of individuals become pronounced during the times of uncertainty (Goretzki, and Messner, 2016). Classifying uncertainty as radical discontinuous change, the imperative need to explore sensemaking of uncertainty has also been identified by studies (Malhotra, 2001), where

the logic of pre-determination fails to deliver, and existing knowledge is static, rational and without context. Linking sensemaking with actionable knowledge, studies have also given attention towards heedful interrelating, improvised action and diversity in views while tackling uncertainty (Carroll, Rudolph, and Hatakenaka, 2002). Others, who have explored the uncertainty due to the social impact of technology, have highlighted the lack of emphasis on the intersubjective dialogue in the sensemaking processes, where existing logic models can't sufficiently address the change and complexity caused by uncertainty (Stapleton and Murphy, 2002). Moreover, it has been argued that the sensemaking of strategic crisis brought by uncertainty, requires a shift from the use of economic models, towards the processes of situational assessment, which facilitate the creation of meaning of such crisis (Scott and Barrett, 2005). Certain studies have also rejected the existing rational and structured decision protocols, that are profusely debated in the literature on the organizational studies and have instead suggested the use of schema-guided sensemaking of uncertainty which is marked with limited time and information (Sayegh, Anthony and Perrewe, 2004). For instance, sensemaking of Knightian uncertainty can't be contingent on rationality and predictive decision making, because Knightian uncertainty makes the use of probabilities difficult (Golring and Rehn, 2008).

It has also been established that uncertainty makes the assessment of the ramifications of decisions difficult, and thus during the sensemaking of uncertainty primacy is given to interpretations, using which an order is imposed on reality (Ravasi and Turati, 2005). These multiple interpretations generated during the sensemaking of uncertainty are given meanings, which leads to the mitigation of uncertainty (Fellows and Liu, 2016). Studies have also accentuated the significance of sensemaking in the times of high uncertainty, which helps managers in the critical assessment of the uncertainty, during which they assign meanings to these uncertainties (Ansell and Boin, 2019).

Samdanis and Lee (2019), have provided a conceptual framework on the sensemaking of uncertainty in the art organizations, which depicts a sequential process of sensemaking that begins with scanning of external environment, followed with the interpretation of uncertainties in the external environment, that eventually assist managers in crafting and adjusting actions for these uncertainties. Whereas others have attributed sensemaking of uncertainty to anomalizing (making sense of inconsistencies, as the uncertainty unfolds, and the proactive sensemaking (developing an active and in-depth comprehension of an uncertain situations), to eventually tailor actions as per the unfolding situation (Barton et al., 2015).

Sensemaking, sense-breaking and sense-giving also interact to construct the meaning of uncertainties (Kramer, 2017). Moreover, sense-taking has also been considered pivotal during situations of uncertainty (Birolo and Rouleau, 2018). Sense-breaking corresponds to the changing perceptions because one's sense of self has been contended, and sense-taking refers to how managers interpret or analyze the sensemaking of others (Rom and Eyal, 2019). Therefore, sensemaking has been deemed vital in construing meaning of issues and events, that are causing discrepancy in between the expected and actual state of these events (Kilskar, Danielsen and Johnsen, 2020).

Enactment is an essential element of sensemaking in which individuals craft actions (Jensen, Kjærgaard and Svejvig, 2009). Despite the centrality of enactment in the sensemaking theory, only limited attention has been given to exploring the interaction between interpretation and enactment (Sandberg and Tsoukas, 2015). Similarly, there are only a few attempts to explore the processes that connects uncertainty with enactment (Moqaddamerad and Tapinos, 2023; Tapinos and Pyper, 2018). Moreover, enactment is also linked with the strategy development and implementation (Bodhanya 2014; Hosseini et al., 2016), whereas substantive actions during sensemaking are also

associated with successful implementation of strategic change (Weiser, 2021). For instance, top managers in the science incubators make prospective sense of technological uncertainties, by anticipating and interpreting the changes pertaining to the new technology, which cause them to develop a new incubator strategy i.e. formation of a new alliance with the new incubators to maximize resource allocation, that results in the better management of technological uncertainty, and also allows the incubators to capitalize on the emerging opportunities, that are brought by such technological uncertainties (Friesl, Ford and Mason, 2019).

Strategy scholars have discussed strategy via two distinct types: Strategy process and strategy-as-practice (Vesa and Vaara, 2014). The term process is described as the everyday arrangement of events, actions, and interactions over time to a particular issue of strategy (for instance decision making, developing a plan, implementing change (Kouamé and Langley, 2018; Morton, Amrollahi, and Wilson, 2022). Conversely, the concept of practice is fathomed as an accepted standard of performing activities, that is manifested and materially mediated, where these practices are also shared between actors and become routines over time (Vaara and Whittington, 2012). Therefore, these practices signify the patterns of activity that are replicated and adapted repeatedly (Jarzabkowski, 2004). Moreover, strategy process can also be different from the strategy-as-practice in terms of theorization, i.e. process theory encompass temporal connections in between events over time (for instance, sequence of progression and emergence) (Cloutier and Langley, 2020). On the other hand, strategy-as-practice correspond to the practice theory, which argues that the actions of the organizational actors and their interactions with other actors are mutually constituted, where knowledge is immersed in the practical activity, and the agency of humans and nonhumans (for instance technological artifacts) can't be separated (Feldman and Orlikowski, 2011). Kouamé and Langley (2018), have instead argued that although strategy as process vs

practice are distinct, but they can be jointly explored in a particular study, as they are highly interrelated in two ways: First, long-term processes of developing strategies over time might encompass various practices, or various enactments of the similar practice (for instance, regular management meetings). Secondly, specific practices can incorporate particular processual structures (for instance, strategic planning can also be considered as a process that unravels as a sequence of events).

Now this thesis discusses the literature on sensemaking and strategy.

2.4 Sensemaking and strategy

Both strategy as process and practice research (Burgelman et al., 2018), has accentuated the significance of sensemaking in the studies on strategy (Jalonen, Schildt and Vaara, 2018). These recent developments have been built on the concept of strategic sensemaking, in which synergies between sensemaking and outcomes were established (Thomas, Clark and Gioia, 1993). More precisely, mediation between sensemaking and strategic actions signify strategic sensemaking (Fellows and Liu, 2017; Mesgari and Okoli, 2019), during which a sense of an underlying environment is made, and strategies are enacted (Cattani et al., 2018). Strategy-as-practice literature has advanced the understanding of sensemaking and strategy work of middle managers (Balogun and Rouleau, 2017), where their role has been predominantly associated with the implementation of strategies or HRM (Rouleau and Balogun, 2011; Conway and Monks, 2010). Furthermore, adopting the strategy-as-practice perspective, deliberate sensemaking strategies like sense-giving, sense-demanding, sense-breaking and sense-hiding have also been discussed using which top-level managers give meaning to various strategies and decisions (Pizzo et al., 2022). Sense-demanding accentuates the fact that practitioners look for information independently amidst uncertainty (Maitlis and Christianson, 2014), while sense-hiding is defined as hiding or limiting the information intentionally to shape the sensemaking of others (Horbach, Breit and

Mamelund, 2019). Sense-hiding takes into account a particular language, which is used to advance a specific way of thinking (Vaara and Monin, 2010), and attempts to silence the alternative perspective to promote a favorable meaning (Monin et al., 2013). For example, Monin et al. (2013), highlighted the fact that top management teams who were involved in a corporate merger, had intentionally avoided the use of the terms like merger or takeover (rather they adhered to the terms like equity and balance), and took actions to exclude the perspectives of managers who didn't utilize those terms. Whereas sense-breaking in the context of strategy, has been defined as breaking old associations by repositioning and redirecting support towards an intended outcome (Giuliani, 2016). For instance, Hayden, Mattimoe and Jack (2022), have delved deeper into the sense-breaking strategy, by accentuating that cues in the external environment commence sense-breaking activity, which facilitate the decisions of strategic expansion (Hayden, Mattimoe and Jack, 2022). Conversely, certain studies have also accentuated the importance of developing sense-abilities, which is defined as understanding how to better understand the unfamiliar changing environment, as this harnessed understanding assists managers in developing and implementing strategies in the times of crisis (April and Chimenya, 2019). Others have instead explored the interaction between sensemaking of uncertainty, and the individual coping strategy of the entrepreneurs, where emotion based coping strategy (for instance focusing on the positive, tension reduction), enable entrepreneurs to regulate their emotions, which are emerging as a consequence of uncertainty and uncontrollable situations (Johnson and Bock, 2017).

Where sensemaking has been associated with how organizational actors develop a comprehension of particular issues and enact their environment (Sandberg and Tsoukas, 2015), strategic sensemaking is defined along the lines of a more specific activity, in which managers and other actors in the organization tackle strategic issues to develop a collective comprehension of the

various issues, and the strategic actions taken by the organizations in response (Jalonen, Schildt and Vaara, 2018). This is considered to be a process that encompasses both cognitive (Cattani et al., 2018), and discursive aspects and dynamics (Rouleau and Balogun, 2011; Whittle et al., 2015). For instance, Djaballah, Hautbois and Desbordes (2017), have specifically focused on the strategic sensemaking process of top-level managers in relation to the CSR strategies, and discussed that top level managers scan environment for the CSR issues of their organization, to interpret these CSR issues and the respective strategies for them, to finally craft positive sensemaking strategies (sponsorship deals and CSR actions, and propagating CSR engagement of employees via internal communication), and negative sensemaking strategies (counter probable negative image with the philanthropic actions and counter communication of sponsorship issues to tackle inner CSR issues). Klarin and Sharmelly (2021), have instead discussed that political networking facilitate the strategic sensemaking of firms that are functioning in countries with high uncertainties, by assisting them with obtaining information about the market which is hard to sought without such political networks, and have accentuated the fact that the process of strategic sensemaking is not one time occurrence, rather it's cyclical, and is contingent upon an ongoing interaction between performance (evaluating the effectiveness of the scanning, interpretation and the actions crafted), and scanning and interpretation of uncertainties in the turbulent environment.

Cognitive frames are also considered pivotal for sensemaking, which are defined as the mental templates that managers foist on the information environment to give it structure and meaning, and these frames function as cognitive filters that permits certain pieces of information into the strategizing process, while discounting others (Hahn et al., 2014). As uncertainty increases sensemaking switches from perception based to category based, as cognitive processing becomes contingent upon schemas during which people allot their direct perception to categories,

characteristics, and stereotypes (Weick, 2010). Cognitive structure and changes in cognition thus fleshes out the sensemaking process of managers, which facilitate the development and adjustment of alternative strategies (Richter and Arndt, 2018). Such views are substantiated by other studies (Rankin, Woltjer and Field, 2016), in which different types sensemaking frames are considered vital in developing different strategies amidst uncertainties (Thiel et al., 2012). For instance, Rubin and de Vires (2020), established that resorting to chaotic vs complicated sensemaking frame distinctively affects the speed in which a strategic response can be crafted amidst a situation of high uncertainty. Furthermore, different sort of frames also supplement sensemaking and sense-giving activities during the moments of strategic change (Logemann, Piekkari and Cornelissen, 2019). It has also been argued that different cognitive frames cause managers to scan, interpret and respond distinctively to uncertainty, and they rarely resort to radical change in such uncertain times (Hahn et al., 2014). Additionally, in situations of extreme uncertainty actors try to create new frames to circumvent discrepant sensemaking, so that they can quickly craft a response as per the changing situation (Colville, Pye and Carter, 2013). Whereas cultural frames also assist individuals in interpreting events and preparing strategic action, which is susceptible to more sensemaking and evaluation (Ann Glynn and Watkiss, 2020). Tailored interpretation and cognitive maps also drive managerial sensemaking of uncertainty, and thus also affects different strategic actions (Mattsson, Corsaro and Ramos, 2015). Drawing convergence with such views (Lüscher and Lewis, 2008), studies have also established that cognitive frames advance interpretive framework, and thus drive managerial sensemaking during organizational change. Similarly, different cognitive frames of senior managers enrich their sensemaking process using, which they create meaning of uncertainty (Wang et al., 2019). Such frames and also assist senior managers in developing strategies against various uncertainties that are continuously transforming their business

environment (Penttilä et al., 2020). These different cognitive frames can also be pivotal in preparing effective strategies, so that senior managers can gain and maintain competitive advantage in their business environment (Abreu-Pederzini, 2018).

2.4.1 Collective sensemaking and strategy

Collective sensemaking in the situations of crisis, enable collective mindfulness and awareness, that leads to the construction, discovery, shared meaning, and the rectification of unexpected events that have the propensity to get escalated (Maitlis and Sonenshein, 2010). It has been argued that the circumstances of increasing uncertainty and complicated strategic problems transcend the scope of individual sensemaking, causing organizations to create partnerships with different organizations and thus engage in inter-organizational sensemaking, during which managers in these different organizations draw on the perspectives of each other to comprehend such uncertainties and strategize for them (Seidle and Werle, 2018). Merkus et al. (2017), has deemed temporal and contextual factors pivotal for the inter-organizational sensemaking, that decide whether such collective sensemaking would unravel either as a joint or a negotiated process. Similarly, it's been discussed that temporal development (i.e. transitioning from the past into present) and future-orientation, becomes increasing important during the collective sensemaking of organizational restructuring, as managers analyze the changes in the temporal development of work activities (from past to present), and intentionally work towards the future model of working (future-orientation), which enhances the development of new organizational strategy and the novel ways of working (Ala-Laurinaho, Kurki and Abildgaard, 2017). In addition, while exploring the links between collective sensemaking and strategy development (Dobusch et al., 2018), studies have established the significance of temporality (shared understanding via different interpretations of past events and future vision), factuality (openness to the different opinions and topics), and

sociality (openness to communication with the groups to increase the number of people who are listened to), for the effective development of strategies.

Complex uncertainties like Covid-19 magnify the importance of communication strategies of managers, that facilitate their collective sense-giving/sensemaking of such disrupting events (Sobral et al., 2020). Significance of strategic communication becomes more pronounced during the sense-giving and sensemaking of uncertain events (Kim, 2018), as absence of such strategic communication between top and other levels of management can exacerbate the crisis of uncertainty (Heide and Simonsson, 2021). Communication thus creates synergies between sensemaking and sense-giving process of managers at different levels of organization, using which they can effectively craft different sort of strategies for various stakeholders of their organization (Stocker et al., 2020). Communication also facilitate the sensemaking of changes caused by uncertainty and enable top managers to discuss strategies with managers at different hierarchical positions (Parsells, 2017). Similarly, sensemaking and sense-giving of both the senior and non-senior managers get positively influenced with the optimistic communication, as it develops the confidence of these managers, and thus helps them in jointly crafting effective response strategies against the organizational crisis caused by uncertainty (Klein and Eckhaus, 2017). Furthermore, discourse strategies of top-level managers become increasingly important in creating a shared meaning at the different levels of organization, as they guide the overall vision and strategies of the organizations (Bien and Sassen, 2020). Such dialogue and communication orchestrate shared meaning, which eventually facilitate the development and implementation of strategies (Pyhältö, Pietarinen and Soini, 2018).

Soini, Pietarinen and Pyhältö (2018), accentuated the fact that the shared sensemaking strategies (like transformation and comparison), also facilitate the development of strategies, i.e.

transformation strategy was contingent upon anticipating the consequences of potential strategies to develop/implement a new strategy, and comparison strategy was associated with comparing the existing strategy with the new strategy to aid the development/implementation of a new strategy. Moreover, it's been argued that combinative capabilities like coordination capability (signifies the functional units in firms that interact with each other to exchange knowledge), facilitate the shared sensemaking of the organizations, during which they develop strategies to respond to the changes in the environment (Sheng, 2017). Correspondingly, strategic networks which are defined as the construction of the networks between three or more managers, to intentionally collaborate towards the specific goals, are also deemed significant for collective sensemaking, which assist managers in crafting the goals and vision for their organization via sharing of resources and activity patterns (Bayne, Schepis, and Purchase, 2017). In addition, sharing ideas also facilitate the collective sensemaking (Bellis and Verganti, 2021), where individuals share their individual information seeking strategies (for instance strategies like browsing and querying to find information and structure tasks) with the groups, to finish different tasks (Tao and Tombros, 2017). Whereas others have discussed the role of technical structure (existing knowledge and mental models), and social structure (behavioral norms) in the collective sensemaking of the organizations, which enable the comprehension of particular contextual cues in the environment, and thus also assist managers in the implementation of the adequate plans and strategies (Tan et al., 2020). Conversely, attention has also been drawn to shared institutional understanding (for instance what an organization intends to achieve), which eventually help managers in crafting strategic plans for their organization (Cornut, Giroux and Langley, 2012).

Shared sensemaking is also significantly dependent on the interpretive schemes of the senior managers, which signify the shared assumptions of these managers using which they interpret and

comprehend the uncertainties in the environment, so that they can craft strategies towards them (Balogun, Bartunek and Do, 2015). Studies have also linked the shared strategic schemas at the senior management level with their temporal orientation (drawing specific attention to past, present, or future), where for instance a temporal orientation towards the future would cause senior managers to think more about the distant strategic goals, as opposed to the temporal orientation towards the present where they would focus more on attaining proximal strategic goals (Soo et al., 2013). Nevertheless, managers who are intending to influence the strategic sensemaking of others in their team, should form coalitions and build cohesion within this team to prepare strategies for their organizations (Rouleau and Balogun, 2011). For instance, studies accentuate the fact that the sense-giving of the senior managers can be directed towards creating a shared organizational meaning with the middle managers, so that middle managers can also actively contribute towards the development and implementation of strategies (Smith, Ashmos-Plowman and Duchon, 2010). Similarly, middle managers also synthesize the interpretations of senior managers to form a collective interpretation of uncertainty, that facilitate the implementation of appropriate actions (Beck and Plowman, 2009). Whereas senior managers also use their sense-giving faculties to influence the shared organizational meaning of other managers, during which they try to destroy the existing organizational meaning and reconstruct a new one, to change the strategies of their organizations amidst uncertainty (Mantere, Schildt and Sillince, 2012). Others have established the fact that, tacit knowledge becomes a pivotal discursive practice in facilitating the interaction between top managers' sense-giving faculties and the middle managers' sensemaking capacities, while they are trying to change the strategies of their organization (Rouleau, 2005). Contrarily, subordinates don't simply adopt the entire meaning provided by their senior managers, rather they select aspects of this meaning through their own sensemaking of the strategic change

implementation (Sonenshein, 2010). Moreover, lower-level managers can also engage in prospective sense-censoring (a process in which managers consciously remove their sensemaking details, with or without the existence of official attempts to change or silence them, due to the probable reactions or counter-actions), and thus break frame with the top-level management due to the power discrepancies, which adversely affects the strategy development, because the strategic action can get transformed into the strategic inaction (Whittle et al., 2016).

2.4.2 Prospective sensemaking and strategy

It has been established erstwhile, that the prospective sensemaking is undertheorized (Bruskin and Mikkelsen, 2020; Degirmenci and Recker, 2023). Nevertheless, strategic management literature has two dominant perspectives on forward-looking strategy making: Adaptation and Anticipation (Patvardhan, 2015). Retrospective view draws parallel with the adaptation perspective, and best reflects the notion of emergent strategy, which is developed via realized patterns (Mintzberg, 1994), in a series of decisions and actions that stem organically and incrementally via the process of experimentation and learning (Mintzberg and Waters, 1985). This view accentuates that future is unknowable, hence the role of strategy is to enable managers/organizations to only adapt to the robust and discontinuous business environments, by developing strategies in an iterative manner, and by engaging in incremental commitments instead of long-term strategies (Quinn, 1978). Time marched on, and with the increasing discussion on discontinuous and unpredictable environment, studies on strategy-making largely focused on the areas of adaptation, and fit with the environment (Smircich and Stubbart, 1985). This perspective accentuated learning and adaptation, it predominantly only focused on the reactive incremental changes (Nayak, 2009).

Conversely, anticipation view draws parallel with prospective sensemaking (Patvardhan, 2015). The idea that managers are capable of anticipating the unknown calls into questions the basic premise about the cognitive capacity of the decisions makers as boundedly rational (Kudesia,

2017), and retrospective (Weick, 1995). Where enactment in retrospective sensemaking is restricted by identity and learnings, enactment in prospective sensemaking is characterized as creative enactment, because it is an idealized identity, that is contingent upon an imagined alternate (Patvardhan, 2015). It has also been argued that as the focus on retrospective sensemaking is on recollection of past experiences, the ability to engage in propection is undermined, where these assumptions have resulted in a rather restricted and “incremental, backward-looking sensibility (Gavetti et al., 2012, p.26), within the field of strategic management. Nevertheless, the mere idea of strategy signifies that organizations anticipate the future, via decisions in the present, during which they build on the past (Bansal et al., 2019; 2022). Managers are drawn towards the future time to develop strategies in present (Orlikowski and Yates, 2002), because such anticipation of future assist them in predicting the future contingencies, and they actively strategize for these contingencies in the present, so that they can respond to these future contingencies once they appear (Crossan et al., 2005). Similarly, such focus on the future allows managers to extrapolate the trends of uncertainty, so that they can better adapt to the unfolding situation (Walker, Haasnoot and Kwakkel, 2013). Therefore, prospective sensemaking becomes pivotal in strategy development, as it focuses on the future frames, and allows managers to set an ideal future of their organization, which aids the strategy development in the present (Selsky and Parker, 2011).

Leading actions prospectively also assist managers in the institutionalization of different types of strategies, where institutionalization has been described as a process in which the future realities and expectations of the organizations interact with the actions and meanings of the actors (Schultz and Wehmeier, 2010). Conversely others have discussed the significance of network pictures (mental simulations of the network characteristics which are created and accepted by the involved actors) in the strategy development, which is retrospective in the sense as they provide probable

illustrations of the recent past event, nevertheless they support prospective decisions and shape the future options of the organization (Henneberg, Naudé and Mouzas, 2010). Future sensemaking can also work in tandem with the future sense-giving, during which managers can strategically act towards the pressures of the new challenges in the external environment, by creating new ideas for the development of goals and strategies (Degn, 2015). Similarly, it's been argued that managers imagine and align the future consequences of the identified opportunity with their sensemaking and sense-giving practices that facilitate an extensive organizational engagement (Pandza and Thorpe, 2009). Others have established the fact that the sensemaking of future is pivotal for crafting different strategies, goals and plans within the organizations, but such sensemaking of future encompass anticipations of the future which can only be made in the context of the past and present time (Tillmann and Goddard, 2008). In addition, the anticipation of the issues that can be potentially brought by the new stimuli spur managerial understanding, and thus can also supplement their adaptive sensemaking under such circumstances, which emerges when managers commence to doubt the sense, they have already made and try to comprehend the future actions (Strike and Rerup, 2016). Others have shown inclination towards giving future presumptions center stage in the prospective sensemaking, which allows managers to prospectively evaluate the alternative action-outcomes to decide on the final action (Seidel et al., 2018).

Sensemaking can also influence the future perceptions of environmental uncertainty, which allows the managers to think about a range of strategic responses to eventually develop strategies for their organization (Neill, Mckee and Rose, 2007). Similarly, prospective sensemaking shapes the expectations and perception of managers, by guiding them how strategies would affect the future performance of the firm, and thus also assist them in creating alignment between different types of business strategies (Tallon and Kraemer, 2007). Furthermore, the purpose of prospective

sensemaking has not been solely related to anticipating the future, rather it has also been associated with influencing the future in ways using which managers creatively enact strategies to proactively shape the future of their firms (Patvardhan, 2015). Prospective sensemaking has also been considered useful for strategic foresight (Sakellariou and Vecchiato, 2022), which has been described as a process during which managers see and analyze the future situations, to consider various courses of actions and future ramifications of their choices (Ehls et al., 2022). For instance, discovering has been considered a prospective sensemaking skill, which assist managers in creating the strategic foresight on the new product development, by identifying the future signals from the future trends related to the launch of the product, that gives managers a clear picture of when they should launch this new product, and thus assist them in deciding on the suitable mid- and long-term strategy for their organization (Sakellariou and Vecchiato, 2022). Similarly, others have accentuated the importance of prospective sensemaking for strategic foresight (Iden, Methlie and Christensen, 2017), by discussing it's use in wayfinding (finding different pathways into the future), that allows managers to evaluate the pros and cos of various courses of actions, to take the decisions for their organization (Sarpong, Maclean and Alexander, 2013).

Cognitive frames about the future direction of the organization contribute massively to both individual and collective sensemaking, as these future cognitive frames are punctuated with the shared meaning of the organizational change, and thus assist managers in the implementation of the strategic change (Stensaker, Falkenberg and Grønhaug, 2008). It has been argued that the studies on prospective sensemaking need to de-emphasize enactment and should give more attention to the future-oriented cognition over action, elaborating on how people think about future before they act towards it (Smerek, 2011). This importance of future cognition is also identified both in the strategy-as-process and practice literature (Vaara and Fritsch, 2022; Wrona, Ladwig

and Gunnesch, 2013). For instance, time-moving cognitive frames (the future is approaching), cause managers to perceive future as inevitable, and thus impacts the development and implementation of the strategic goals, where such time variant future cognition spur the support of control over outcomes, and thus harnesses the development of the long-term strategies (Vaara and Fritsch, 2022). Wrona, Ladwig and Gunnesch (2013), have instead discussed that future cognition drive future behaviors and actions, and have drawn convergence with the integrated theoretical framework on cognition and strategy (Narayanan, Zane and Kemmerer, 2011), where cognitive structures precedes the development and implementation of strategies in the organization. Whereas future mental models have also been given prominence in the prospective sensemaking of top-level managers, because they encompass various beliefs and assumptions, that illustrates the way in which managers will interpret the uncertain situations to change the strategies, business models and operative processes of their organization (Holmlund, Strandvik and Lähtenmäki, 2017). Similarly, it's been argued that prospective sensemaking becomes extremely significant in tackling the black swan uncertainties (Lindaas and Pettersen, 2016; Rawal, Sarpong and Singh, 2023), because focusing on the new elements in the unfolding situation allow managers to develop new mental models, which harness their capability to strategize and adapt to these uncertainties (Adobor, Darbi and Damoah, 2021).

Overall, notwithstanding the efforts of scholars to pursue anticipatory element in strategy development (Kickul and Gundry, 2002), it has been argued that anticipatory element in strategy development has largely remained deterministic and objective future towards which managers organizations have to adapt (Patvardhan, 2015.). Therefore, an alternative conceptualization of the future-as malleable, and its propensity to be shaped by human action, requires more attention (Beckert, 2021).

2.5 Significance of time in sensemaking

The significance of anticipation and all temporal frames (past, present, future) have been identified in the sensemaking literature (Maitlis and Christianson, 2014; Sandberg and Tsoukas, 2015). Nevertheless, the processual view of time (Feddersen, Hernes and Svejnova, 2023), circumvents the traditional linear modality of time (Konlechner et al., 2019), and signifies a transition from the temporal linearity to the non-linear temporal states, where time is interwoven and co-exist in a continuous progression of experience (Introna, 2019). Converging with such views (Carlsen, 2006), studies have talked about an ongoing present, in which past and future are constantly present via memory and imagination, which reflects a flow of ongoing experiences and anticipation between the “*present of the past and the present of the future*” (p.145). Prospective sensemaking can also involve the use of multiple temporalities (past, present, and future) (Goto, 2022), instead of just adhering to reconstruction of past events (Bruskin and Mikkelsen, 2020), and there is there is a need to integrate both divisible present (past, present and future are distinct temporal zones), and indivisible present (past, present and future are integrated) (Hernes and Obstfeld, 2022), to advance theory on sensemaking (Demastus and Landrum, 2023; Kemppainen and Uusitalo, 2022; Sylvain and Lamothe, 2012; Söderberg, 2013). Similarly, despite the centrality of time in the sensemaking literature (Karlsen, 2023; Kuepers, Wasieleski and Schumacher, 2023), and management and organization studies (Blagoev et al., 2023; Reinecke and Ansari 2015; Sonnentag, 2012), different conceptual and theoretical perspectives on time and temporality have only recently been recognized (Dawson and Sykes, 2019). Moreover, the theoretical understanding of time and temporalities related to the managerial sensemaking is insufficient, and thus requires further development (Lundgren-Henriksson and Tidström, 2021).

Therefore, now this thesis reviews the literature on time and temporalities.

2.6 Time and Temporalities

Time has been associated with the socio-temporal order which facilitate the dynamics of social life (Reinecke and Ansari, 2017). The concept of time and temporality has been intertwined, where both of them have been defined as the space of experience which explain the outlook of the expectation within the contingencies of organizing (Pickering, 2004). Conversely, other studies have drawn a distinction between the two concepts and have defined time to be a non-spatial continuum that characterizes the irreversible succession of events from the past via the present into the future (Siren et al., 2020), and temporality has been defined the as the subjective experience of this succession (Bluedorn, 2002; Wood, Baker, and Fisher, 2021). Similarly, temporality has been defined as the meaning which people attribute to the present in relation to the anticipation of the future and the memories of the past (Dawson, 2014).

It has been argued that temporality is not limited to the description of social processes, rather it is constitutive of them i.e. temporalities are inherent in the social processes where they develop these social processes by constructing structure, which is in continuous flow, and thus molds the experiences of an ongoing process by adhering to temporal orientations and distinctions that allot meaning to these experiences (Reinecke and Lawrence, 2023). Similarly, others have substantiated that as temporalities are implicit in the ongoing social processes, they don't necessarily resort to the linear progression of time (from past to present and future), rather they explain a continuum of time, in which present already contains past and, present is always already integrated with the future (de Vaujany, and Inrona, 2023). It has been argued that the experience of being in the present characterize the inseparable flow of experience (Tsoukas and Chia, 2002), where past, present and future temporalities are entangled (Louis and Mielly 2023), which therefore suspend the temporal distinction of before and after (Hernes, 2022). Time in organization research has discussed both the divisible present (past, present and future are distinct temporal zones), and the

indivisible present (past, present and future are integrated) (Hernes and Obstfeld, 2022), where later adheres to the Ricoeur's view on time i.e. "within-time-ness" in which actors integrate different events into meaningful wholes (Ricoeur, 1980, p. 170). Such attention to indivisible present also draws parallel with Sandberg and Tsoukas (2020)' perspective on temporal dynamics, which is associated with how actors progress through time, where present events recreate past events to guide the emerging future event. Similarly, such views also draw convergence with idealistic view of time (Simpson, Tracey, and Weston, 2020), in which past, present and future are integrated. In addition, the view that present time is indivisible also coincide with the views of George Herbert Mead, who argued the fact that social actions are needed to be anchored in the flow of time (Simpson, 2009).

Such processual temporality has been distinguished from the epoch temporality, which has been defined as imagining state of affairs at different points in time, where time can only have finite epochs in which things are presumed to stay stable (Feddersen, Hernes and Svejnova, 2023). Therefore, where processual temporality adhere to continuities, epoch temporality assumes discontinuities in time where past, present and future meaning can be disintegrated (Hernes, Feddersen and Schultz, 2021). Similarly, studies have also discussed the concept of temporal orientation, which has been described as the relative emphasis that different individuals can draw on past, present, or future time (Park et al., 2017). For instance, temporal experience of a meeting, where events before the meeting are separated from the events that are predicted to take place after the meeting (Hernes and Obstfeld, 2022).

Organizational temporality has been divided into two distinct categories (Gomez, 2009): construal of time and enactment of time. Temporal construal of time is defined as the way organizations focus on time and encompass the dimensions of urgency (concerns of deadlines and completion of

activities), scarcity (perceiving time to be a limited resource), and present and future time orientation (how organizational actors orient to present and future time during their interactions (Ballard and Seibold, 2003). Enactment of time is defined as how organizations perform time and is associated with precision (finishing activities as per the exact time and deadlines), flexibility (amount of rigidity pertaining to time structuring and plan completion), linearity (the extent to which activities are completed one at a time), pace (rate of activity), scheduling (sequencing and formalizing the duration of events, plans and activities), and separation (the extent to which external factors are removed or included in the execution of a work task) (Gomez, 2009).

Mental time travel is also an important cognitive action of time using which individuals or collectives frequently move in between backward and forward in time, to revisit memories of the past and make plans of the future (Shipp and Cole, 2015). Such interaction of past, present, and future helps people in performing various activities for instance, sensemaking (Hampel and Dalpiaz, 2023), affective forecasting (Karl et al., 2021), past vs future-oriented cognition (Beaty, Seli and Schacter, 2019), pragmatic prospection (Baumeister et al., 2020), and various others (Simpson, Buchan and Sillince, 2018).

2.6.1 Mental Time travel

Mental time travel (MTT) refers to the simulations in which individuals can mentally travel backward or forward in time, to recall past events or to imagine the potential future events (Suddendorf and Busby, 2004). Redshaw (2014), discussed that meta-representation is central to the mental time travel, as it illustrate the mechanism of mind, and facilitate mental time travel by illustrating reality as it exists in the present (through perceptions), or as existed in the past, and how it can probably exist or into the future (via imagination). In addition, mental time travel into the past and future doesn't only concern what has already happened or what will happen but can also encompass what didn't happen and what might not happen (Redshaw and Suddendorf, 2020).

Therefore, the essential feature of mental time travel is the temporal cognitive mechanism, which is also referred to as “*chronesthesia*”, and is defined as the capability to delineate the sense of the future and the sense of the past (Martin-Ordas, 2020; p.1).

Mental time travel into the past has also been referred to as episodic memory, which has been defined as the memory of the subjectively experienced events, and contains information regarding temporally dated events, and the temporal-spatial interrelationships between these events (Tulving 1972). Whereas mental time travel into the future has also been identified as episodic future thinking (Rasmussen and Berntsen, 2013), projection (Palombo et al., 2018), prospection (McCarroll, 2019) and simulation (Ford, 2002). Episodic future thinking is defined as the ability of individuals to project themselves in the future, so that they can pre-experience an event (Atance and O’Neill, 2001). Mental time travel into the future can take place either via an exclusive focus on the future time (episodic future), or an interaction between episodic memory and episodic future (Quoidbach, Hansenne and Mottet, 2008).

Episodic memory has been differentiated from other types of memories like semantic memory, which has been attributed to merely knowing something explicitly (Tulving, 2002), and implicit memories which have been associated with expertise, habits, habituation, and conditioning (Levine, 2004). Episodic memory is accompanied by autonoetic consciousness, which is described as a type of conscious awareness that encompasses conscious reminiscence of personal happenings (Terrace and Metcalfe, 2005). Conversely, semantic memory is associated with the noetic consciousness, which is described as the consciousness that is limited to knowing the symbolic representations of the world (Markowitsch and Staniloiu, 2011). Episodic memory has been considered more important as compared to other types of memories, because semantic memory only encompasses general facts about the experiences, whereas episodic memory represents the

personalized representations of the experienced episodes (Bréchet et al., 2020), which are highly specific and are stored in the mind automatically without a special trigger (Cheng, Werning and Suddendorf, 2016).

Episodic memory is also pivotal in enabling mental time travel into the future, because both past and future events capitalize on the similar information available in the episodic memory to navigate the future (Viard et al., 2011). While the episodic memory is engaged in the active remembrance of the relived experience, it is working in tandem with the auto-noetic awareness (exact awareness of ourselves during the memory recall), rendered via auto-noetic consciousness (mentally illustrating ourselves in the past), which creates video like imagery of the future so that we can prepare for the future contingencies (Zaman and Russell, 2022). Others have contended that episodic memory primarily works for the episodic future, because the ability of the people to remember past events is predominantly a design feature of episodic future thinking (Suddendorf, 2010). Therefore, both episodic memory and episodic future have been considered central to the mental time travel (Schacter, Addis and Buckner, 2007, 2008), as reminiscing the past and anticipating the future can rely on the overlapping processes within the episodic memory, where individuals extract and reconnect information in the memory, to anticipate or pre-experience the future (Storm and Jobe, 2012). For instance, remembering past experiences assist managers in reflecting upon the information of the past, using which they identify different aspects in the everyday situations, so that they can take the decisions of the future accordingly (Steinbauer, Rhew and Chen, 2015). Furthermore, firms that integrate past and future to the present temporal zone, developed more tolerance for uncertainty, because they reflected and learned from the strategic responses towards the uncertainty in the past, and anticipated the trends of uncertainty in the future, to set long-term planning horizons, which lead to more breadth in the strategic responses that were

crafted to tackle the uncertainty in the present (Slawinski and Bansal, 2012). Schultz and Hernes (2013), have instead provided a framework eliciting the interrelationship between past, present and future to construct an organizational identity, where organizational actors engage in a mental time travel across past, present and future, and integrate the memories of the past identities with the claims of the future identities to reconstruct a present identity, via time horizon (longer time span in the utilization of memory facilitated a longer time perspective in developing the present and future identity), depth (extent to which past, present and future identities were combined), and scope (broad range of claims reconstructed via the integration of past memory and the present and future identity).

Other stream of research considers that the past, present and future can also be characterized as separate temporal segments (Hernes and Schultz, 2020). Consequently, the mental time travel into the future can take place without the use of episodic memory, where people doesn't get involved in the event construction, rather they solely orient towards the future to make the decisions of the future (Kwan et al., 2012). For instance, D'Argembeau, Renaud and Van der Linden (2011), stated that the future-oriented thoughts encompass different thematic contents (i.e. work, relationships), which can render various functions (action plans, decisions making), where these functions are distinguished based on their temporal distance, i.e. future oriented thoughts pertaining to the near future are considered more specific and spur action planning to a greater degree, than the future-oriented thoughts about the distant future. Furthermore, managers engage in the exclusive mental time travel into the future to make long term strategies for a product that they intend to launch in the future (Sakellariou and Vecchiato, 2022). Quoidbach, Wood, and Hansenne (2009), have discussed that people who deliberately engage in a positive mental time travel into the future feel happy about the future, and it can also improve their well-being. Atance et., (2021), established

that people also exclusively focus on episodic future thinking, and delay gratification in the present, for a greater future reward. Conversely, when future is imagined to be more uncertain, people tend to shift towards more immediate rewards and forego a larger future reward, therefore their intertemporal decision making wasn't contingent upon the simulations from the past, rather it was dependent on the mental time travel into the future, which allowed them to construct new constellation of possibilities (Bulley, Henry and Suddendorf, 2016). In addition, it has been contended that mental time travel into future is useful for the sensemaking process (Sools, 2020), where individuals can imagine a new future instead of merely extrapolating the episodic memories from past (Cuhls, 2017). Such views draws convergence with the undertheorized concept of the episodic future thought, which doesn't need to be an extension of the episodic memory, rather it can correspond to the exclusive mental time travel into the future, where different projections of the future can assist people in rendering various activities in the present and future (Szpunar, 2010). Similarly, prospection which is defined as the representation of multiple futures, and is a pervasive feature of human mind, doesn't function by comprehending actions with a focus on past, rather it works via forward causation, in which present and future time is utilized to illustrate the various future states, so that individuals can draw on the new possibilities to craft a new action (Seligman et al., 2013). It has also been established that when attention is drawn to the future, prospective memory is used, conversely when focus is directed from the present to the past to remember the personalized past in the subjective time, episodic memory becomes pivotal (Vandekerckhove, 2009). Furthermore, by regarding learnings as future oriented, studies have also coined the term associated learnings, which are associated with prospection, and are defined as learnings that enable people to monitor local regularities, so that they can foresee future harms and adapt their behavior to maximize the future benefits (Suddendorf, Bulley and Miloyan, 2018). Therefore,

certain studies have deemed all prospection to be pragmatic, and have discussed the pragmatic prospection theory, which holds that the most significant reason of anticipating the future is to develop actions for possible situations, to move towards the desired outcomes and steer away from the aversive ones (Baumeister, Maranges and Sjästad, 2018). Pragmatic prospection becomes quintessential in the situations of uncertainty because it commences with the imagination of the desirable future outcome, and then guides individuals how to achieve this desirable outcome by forming multiple future alternatives amidst the difficulties and obstacles caused by uncertainty (Baumeister, 2023).

Individual episodic memory and future have been characterized as the individual mental time travel into the past and future (Viard et al., 2011), nevertheless other studies have also discussed the dimension of collective mental time travel (Cockayne and Salter, 2021; Umanath et al., 2023), in which groups engage in a time travel into the past or future, by recalling collective memory or by constructing collective anticipations of the future respectively (Michaelian and Sutton, 2019). In addition, a small group of researchers have proposed that collective memory and collective future may also be interconnected like episodic memory and episodic future (de Saint-Laurent, 2018; Merck, Topcu and Hirst, 2016). For instance, drawing on the collective memory of the past events related to the politics of Turkey, and developing the collective future thinking on how the international politics of turkey might unravel in the future, Turkish nation formed their current sociopolitical identity, in which opposition part voters construed both the past and future events more negatively than the voters of the ruling party (Hacıbektaşoğlu et al., 2023). Conversely, other studies have defined the individual type of collective mental time travel (Szpunar and Szpunar 2016), where they have only focused on the future mental time travel, in which individuals working in a small or a large-scale group imagine a future event on the behalf of their group.

To conclude, mental time travel is an important cognitive component of time in which people mentally project themselves in the past to reminisce past events (episodic memory) or anticipate future events (episodic future) (Martin-Ordas, 2020), where mental time in the future can take place via sole focus on the future (Kwan et al., 2012), or its facilitated by the episodic memory as it can contain information regarding both past and future events (Viard et al., 2011). Episodic memory and episodic future thus can play a pivotal role in enabling mental time travel via subjective temporality, that allows people to project themselves into the future (Klein and Steindam, 2016).

Two perspectives of time have dominated the organization studies: objective time and subjective time (Aeon, Giurge, and Whillans, 2020). Therefore, now this thesis draws a distinction between subjective and objective time.

2.6.2 Objective vs Subjective time

Objective time refers to the clock time (chronos) and draws parallel with the Newtonian view of time (Pulk, 2022), which is characterized as measurement and linear succession of time and is subjected to only single interpretation (Slawinski and Bansal, 2012), where experiences don't repeat themselves (Mosakowski and Earley, 2000). Conversely, subjective or event time (Kairos), is considered open and cyclical (Martin-Vallas, 2009), and manifest itself in ways that are non-deterministic, heterogeneous, and multiform (Eldor et al., 2017). Despite the presence of both objective and subjective views on time (Mosakowski and Earley, 2000), objective time has been emphasized over subjective time (Cronin, Weingart and Todorova, 2011). For instance, this emphasis is explicit in the strategic change research, where strategic change unravels linearly over clock time (Kunisch et al., 2017), ignoring the different subjective perceptions regarding this linear progression, which limits the complete comprehension of this organizational phenomenon (Eldor et al., 2017). It has also been argued that the subjective time can improve the comprehension of

organizational phenomenon better than the objective time (Akkermans et al., 2016; Huy, 2001). For instance, employees perceived control of time was harnessed with more job autonomy, that eventually lead to increase in their job satisfaction at their organization (Claessens et al., 2004). In addition, despite the fact that jobs can be distinct in terms of how farther in time present will last (few months or years), individuals' desired future state that underpins their subjective time perspective, encourages them to vouch for more challenging goals, accentuating the fact that the individuals' subjective perception of particular time zones molds their goal setting behavior in ways that objective time can't explain (Fried and Slowik, 2004). Similarly, uncertainties disrupt the linear clock time of predetermined schedules, where managers instead have to collectively update their comprehension of the current circumstances with a parallel subjective cognitive order of work, i.e., they have to synchronize work with time, and thus shift from linear clock time to mindful processing of subjective time (Patriotta and Gruber, 2015).

Now this thesis review the literature on subjective time.

2.7 Subjective Time

Subjective time has been defined as the “*experience of the past, present, and future, which occurs as individuals (intrasubjectively) and collectives (intersubjectively) mentally travel through, perceive, and interpret time*” (Shipp and Jansen, 2021, p.8). Subjective time thus signify that in the present moment, managers can form personalized perceptions of the past/present/future (George and Jones, 2000). For instance, expressions like time flies (Tang, Richter and Nadkarni, 2020), or perceived time pressure, signify how organizations actors can experience time subjectively (Dugan, Matthews and Barnes-Farrell, 2012). Organizational actors have different experiences of subjective time as per their innate traits, inherent beliefs, and impact of the external situations of events (Shipp and Fried, 2014). Therefore, subjective time corresponds to the

qualitative experience of the organizational actors, which is developed via the meaning these actors allot to specific events (Orlikowski and Yates, 2002).

Perceptions of time are thus pivotal in subjective time, which are defined as how individuals or collectives construe and articulate the configuration of time itself (Shipp and Jansen, 2021). For instance, when managers perceive time to be scarce, they come up with less original and less feasible strategic ideas, as their cognitive capacity is restricted (Treffers, Klarner and Huy, 2020). Therefore, in contrast to the mental time travel component of subjective time, in which managers recursively visit past or future, time perception component of subjective time, subjectively organize the temporal structures of past, present or future, which could otherwise be perceived as equivocal (Shipp and Jansen, 2021). Such emphasis on subjective perceptions of time circumvent and draw divergence from objective time, as evident from the concept of event time pacing, which is defined as using the unpredictable occurrences of events to adjust and synchronize activities so that progress can be gauged (Dougherty et al., 2013).

Where the perception of time correspond to the awareness of the structure of time, interpreting time action of subjective time focus on the meaning of these perceptions (Ballard and Seibold, 2003). For instance, the way managers allot meaning and comprehension to the present with respect to their memories of the past and the anticipation of the future, is fundamental in comprehending the processual nature of the organizations (Dawson, 2014). Similarly, others have shown linkage between mental time travel and interpretation of time action, by discussing that organizational actors engage in the mental time travel into past to interpret the meaning of past changes, that consequently molds the collective interpretations of change in the organization (Gray, Purdy, and Ansari 2015). Furthermore, some have used all three actions of subjective time (time travel, perception of time and interpreting time) (Jain and Lyons, 2008), in the context of planning

a future trip, where individual travelers engage in mental time travel into the future, while thinking about the travel time between journey and destination, and different things they planned to take with them, where they formed perception of this travel time (positive in terms of developing social network, and negative in terms of travel time as burden), and also interpreted the travel time (travel time savings i.e. financial benefits of the journey outweighs its financial cost).

Timing of critical events can't be known in advance, therefore an exclusive focus on clock time can only be of limited help in making sense of such events, and thus subjective time become equally important in assisting the sensemaking process of managers, as it allows managers to construct and reconstruct these conditions, that are influencing their organization (Geiger, Danner-Schröder and Kremser, 2021). To conclude, despite such significance of subjective time in facilitating various activities and processes in the organization, various functions of the subjective time have largely remained in a black box (Tang, Richter, and Nadkarni, 2020). In addition, although the idea that individuals engage in mental time travel has already been discussed (Shipp and Jansen, 2021), still more research is required to understand how exactly these individuals mentally travel through time (Zaleskiewicz, Traczyk and Sobkow, 2023). Therefore, the perspective that subjective time deserves more attention has been merited (Cuganesan, 2022; Thönes and Stocker, 2019).

Now this thesis reviews the literature on three functions of subjective time.

2.7.1 Three Functions of subjective time

Shipp and Jansen (2021), have identified three functions of subjective time: i) Attending; ii) Preparing; iii) Comprehending. These three functions elaborate on how individuals experience and work with subjective time differently (Branzei and Fathallah, 2023), and explain how exactly subjective time operates i.e. the processes in which subjective time transmit its effects via mental time travel, perception, or interpretation of time (Shipp and Jansen, 2021).

2.7.1.1 Attending

Attending function enables individuals/collectives in drawing an exclusive attention to past, present or future time to analyze and guide the experiences of the present (Shipp and Aeon, 2019). Focus of attention/Temporal focus, temporal influence, temporal comparison, learning, and accumulation are five mechanisms using which individuals/collectives can engage with attending function (Shipp and Jansen, 2021).

Temporal focus is defined as the degree to which individuals characteristically draw their attention to past, present, or future, which influences their current attitudes or decisions (Shipp, Edwards and Lambert, 2009). Temporal focus was predominantly explored in intrasubjective studies (individual), due to the different predispositions of individuals towards distinct temporal zones (past, present, or future) in acquisition decisions (Niittymies, Pajunen and Lamberg, 2022), job attitudes (Shipp, Edwards and Lambert, 2009), cultural differences (Guo et al., 2012), citizenship behavior (Methot et al., 2017), new product development (Nadkarni and Chen, 2014) and strategic risk-taking (Das and Teng, 2001). De Luca Picione, Martino and Freda (2018), have also discussed the importance of temporal focus in the sensemaking process, by discussing that temporal focus on future allows the individuals to anticipate the probable future world, and form modal verbs (defined as the intention of will) like I will or I must, which develops a sense of agency for the individuals via developing connections with the future temporalities. Moreover, temporal focus plays a significant role in managerial sensemaking during uncertain times, by facilitating the temporal dynamics between hindsight and foresight, where managers focus on past to understand the impact of the particular past peril (hindsight or ex post sensemaking), and also focus on the present and future to understand the present and future trends of uncertainty (foresight or ex ante sensemaking), to stay up-to-date with what can possibly happen (MacKay and Parks, 2013). Jansen and Shipp (2019), have instead established that research on temporal sensemaking of person-

environment fit and temporal focus, have only discussed certain dimensions of fit, which has only augmented its quantitative understanding, therefore their qualitative exploration of how sensemaking of person-environment fit is facilitated via temporal focus on past, present or future, helped them to understand how the fit of employees with the organization gets shaped over the period. Smallwood, Nind and Connor (2009), have explored the essence of the temporal focus on the past or future cognition, and have discussed that temporal focus on future thoughts is more salient than the temporal focus on the past thoughts, because such temporal focus on future enable the exploration of both the probable mechanism of change, and the plausible consequences of different actions. On the other hand, perceptual filtering (Hu et al., 2014) and remembering (Murphy and Castel, 2023) were also linked with the focus of attention (Cai and Canales, 2023), due to their association with the temporal focus on past. In addition, certain studies have established the use of temporal focus in developing foresight, using which the evolution of future uncertainties can be actively monitored (Minkkinen, Auffermann and Ahokas, 2019). Overall, only a handful of studies have explored temporal focus in relation to all of three temporal zones (Park et al., 2017). This uneven attention to only one temporal zone has been identified in the studies on temporal focus (Callizo-Romero et al., 2020; Loose, Wittmann and Vasquez-Escheverria, 2022), and therefore more studies are required on such mechanisms of attending function, due to their propensity of drawing attention to multiple temporal zones (Tuan, Corciolani and Giuliani, 2023; Vannucci, Pelagatti and Marchetti, 2017; Zimbardo and Boyd, 2014).

Temporal comparison is also considered a mechanism of attending function, in which individuals/collectives analyze the present by contrasting it with past or future temporal zones (Zell and Alicke, 2009). Hence, individuals/collectives evaluate current experiences by comparing them with the memories of the past (Maclean et al., 2014) or the anticipations of the future (Reh,

Tröster and Van Quaquebeke, 2018). Such temporal comparisons can assist individuals in various activities, for instance individuals temporally compare the important events in the past with the present, which drives the collective sense of their self in the present, because such temporal comparisons enable self-continuity, via the integration of the past and present sense of self (Smeekes and Verkuyten, 2014). Drawing attention to such comparisons not only facilitate an assessment over time but can also drive action that are contingent upon perceived discrepancies (Clark and Geppert, 2011). For instance, Afshan and Serrano-Archimi (2022), discussed that executives that are paid less, would still be less likely to leave their organization, as a consequence of the temporally comparison between the present and the anticipated future salary, in case this comparison entailed more growth in their salaries over time. Overall, studies on temporal comparison have been majorly pursued in relation to the comparison between present and past temporal zones (Wilson and Ross, 2000), leaving ample room for the future studies to explore temporal comparison in the context of comparison between the present and future temporal zones (Zhou et al., 2023).

Temporal influence instead describes how the present affective reactions of the individuals are influenced by either the recollection of past experiences, or the anticipation of the future experiences (Shipp and Jansen, 2021). Past experiences in temporal influence have been associated with concepts like nostalgia (Miller, Gomes and Lehman, 2019), rumination (Wenzel, Turner and Okimoto, 2010), regret (Saffrey, Summerville and Roese, 2008). For instance, Good et al. (2016), discussed that the negative emotions like regrets of the past experiences, can negatively affect the mindfulness (present attention and awareness) of managers at their organizations, via reducing their attention and awareness of work environment, which thus negatively affects their current workplace outcomes like performance or relationships. Similarly, past experiences can also affect

the outcomes of present day via collective memory (Bietti, Tilston and Bangerter, 2014), loss (Walsh, 2020) and legacy (Davis, Quinlan and Baker, 2016). For instance, Schiavio et al. 2017, explored the relationship between sensemaking and enactment of musical emotions, and found that individuals allot positive or negative responses to a particular music, because of their past emotional-laden memories of the music, that are recalled in tandem with the events that were deciphered as being positive or negative. In addition, anticipation of the future experiences can also influence the present affective reactions (Van Boven and Ashworth, 2007), as seen in the studies on affective forecasting (predicting one's future emotional and affective states) (Petagna and Wormwood, 2023). For instance, Karl et al. (2021), have explored the relationship between affective forecasting and travel decision making during pandemic, and have established that despite the uncertainty of Covid-19, people who anticipated the positive situations in their next holiday were more willing to travel during the pandemic, as compared to those who were only worried about the risks of travelling amidst pandemic. Anticipations of future experiences in temporal influence, have thus also been associated with the emotions of worry (Meier and Ingerslev, 2023), hope (Sawyer and Clair, 2022), anxiety (Yeomans and Bowman, 2021.) and nostalgia (Ybema, 2004).

Another mechanism of attending function is learning, that has been traditionally associated with drawing an exclusive attention to past/present temporal zones (Nissley and Casey, 2002), which enables individuals to draw on past learnings to be utilized in the present, for various purposes like knowledge creation and decision making (Choo, 2002). Learnings can also assist individuals in adaptation (Chiang, 2015), amassing information on internal and external environment (Fisher and White, 2000), crafting strategic responses against uncertainties (Park and Chung, 2021; Sharma, Borah and Moses, 2021), shaping ongoing identities (King, 2008), facilitating their role transitions

(Isopahkala-Bouret, 2008) and sensemaking (Schwandt, 2005). For instance, Maclean et al. (2014), have discussed the efficacy of past learning in the sensemaking of the organizational transition (making sense of the continuous progression amidst a changing competitive environment), and established that manager reflected on the learnings of their organizational predecessors to sustain the historical narrative, so that they can maintain the ideological consistency over time. Nevertheless, it has also been argued that learning can encompass active and recursive engagement with all of the three temporal zones i.e. past, present, and future (Berends and Antonacopoulou, 2014), and is not only restricted to the past/present temporal zones (Shipp and Jansen, 2021). Drawing convergence with such views (Konlechner et al., 2019), it has been argued that learnings facilitate the prospective sensemaking of doctors, where learnings from the past errors are recursively embedded with the present and future desired state of not repeating the same errors, that guide doctors to perform surgery on the patients more safely, and thus enable them to implement a culture of safety in the hospital. Furthermore, it was discussed that managers doesn't only resort to past learnings while they are making prospective sense of the uncertainties that are stemming from the emerging technologies, rather they actively create new learnings in the present and future to identify and anticipate the current and future impact of these emerging technologies on their organization (Gattringer et al., 2021).

The final cluster of attending function is accumulation, which again exclusively focuses on the past/present temporal zones and illustrates the process in which past experiences build or augment over time before their threshold is realized, thus triggering a temporal evolution (turning point) where individuals/groups might parts ways with such past experiences (Shipp and Jansen, 2011). For instance, Gray, Purdy, and Ansari (2015), discussed that past frames encompass meanings, behavior and norms that get amplified and thus get reenacted in the organization, nevertheless,

such past frames might be no longer relevant in the wake of new external events, and thus the organizational actors break frame with these past frames, to create a new frame in the present to facilitate the creation and acceptance of new meaning of these events in the organization.

Overall, notwithstanding the ability to consider both past and future temporal zones, studies on attending function have predominantly focused on one direction over the other, where the past/present mechanisms (for instance learning and accumulation), have not been completely understood (Shipp and Jansen, 2021).

2.7.1.2 Preparing

Preparing is the second function of subjective time (Branzei and Fathallah, 2023), and is attributed exclusively to the perceptions of present and future (Dwyer, Hardy and Maguire, 2021). Where the attending function can solely assist individuals in setting future expectations, preparing function assist individuals in understanding this future in ways, that enable planning and actions in the present (Shipp and Jansen, 2021). Projection (Ganzin, Islam and Suddaby, 2020), temporal allocation (Miller, Carlson and McAuley, 2013), time awareness (Purser, 2011), and temporal construal (Guizzardi, Mariani and Stacchini, 2022) mechanisms, correspond to the preparing function (Shipp and Jansen, 2021).

The first mechanism of preparing function is projection, which describes how individuals perceive future expectations with the objective of guiding present efforts (Beckert, 2016). For instance, people project the future by anticipating the future ramifications of different courses of actions, which guides their present action in terms of how they can achieve the goals of their ideal future (Kooij et al., 2018). Therefore, projection is considered pivotal in future-oriented cognition (D'Argembeau, 2016), planning (Myers and Kitsuse, 2000), goal-pursuit (Bashir et al., 2014), self-regulation (Kuntz and Gomes, 2012), foreseeing (Flyverbom and Garsten, 2021), forecasting (Carter et al., 2000), future-oriented imagination (Klein, 2013), prospection (Beckert, 2021),

motivation (Ricketta and Nienaber, 2007), shaping strategic choices in the present (Lefebvre and Lefebvre, 2016), and visioning (Kim et al., 2023). For instance, it has been argued that visions can be facilitated by prescriptive mental models, which are defined as mental models that enable organizational actors in making sense of complex situations, via the anticipation of action plans, and the articulation of these plans to other actors (Partlow, Medeiros and Mumford, 2015). Mumford and Strange (2013), have instead argued that these prescriptive mental models can be future-oriented in which vision formation is contingent upon the adaptive change, or they can also be past oriented in which the organizational actors construct future vision based upon the maintenance of the existing standards. The use of the past prescriptive mental models is well documented in the extant research (Strange and Mumford, 2005), but future mental models are considered more pivotal in the construction of vision amidst uncertain times, because these new future prescriptive mental models facilitate a better formation of vision as per the unfolding uncertain situation (Carrington, Combe and Mumford, 2019; Combe and Carrington, 2015). Overall, the use of projection has been considered quintessential in the intra-subjective studies (individual level), nevertheless projections have also been explored in the inter-subjective (collective level) studies like strategic planning (Shipp and Jansen, 2021), where for instance different managers jointly construct the projections of how they want to shape the future of their organizations, by engaging in recursive communication with each other regarding this future, that results in the formation of strategic plans and a written strategic document in the present (Spee and Jarzabkowski, 2011).

Temporal allocation also correspond to the preparing function and explains how individuals or collectives discern or interpret temporal structures, to facilitate the present or future performance (Mohammed and Nadkarni, 2011). These temporal structures are defined as creating urgency

(Chen and Nadkarni, 2017), routines (Southerton, 2013), schedules (Bartel and Milliken, 2004), synchronization (Chen and Liu, 2020), coordination (Im, Yates and Orlikowski, 2005), activity cycles (Jensen, Rolison and Barbour, 2022), pace (Agypt and Rubin, 2012), and entrainment (Popli et al., 2017) in the organization. For instance, it was found that schedules help managers in finishing various tasks at the designated time in future, by creating reliable anticipations of the time at which particular actions will occur (Ellwood, Grimshaw and Pandza, 2017). Whereas Granqvist and Gustafsson (2016), elaborated on the perception and interpretation of time via creating urgency, enacting momentum, and entraining actions amidst institutional change, where constructing urgency assisted organizational actors in communicating the crisis within the organization through the prioritization of more pertinent issues in a limited time, enacting momentum supported organizational actors via pacing up of activities to get the intended outcome, and entrainment helped organizational actors through synchronization with the changes in the external (align organizational projects with the wider reforms), and the internal environment (communicate power positions). Entrainment is defined as the synchronization of the phases or paces of two or more activities in an underlying system (Pérez-Nordtvedt et al., 2008). Phase (when) and pace (how quick) entrainment is contingent upon the temporal focus of the organizations (Sandra, Segers and Giacalone, 2023), where phase entrainment refers to the reaction speed, and adaptation occurs as a consequence of the change in environment, and pace entrainment refers to the implementation speed in which activities are adapted/matched with the change in exogenous activity (Schmitt and Klarner, 2015). Entrainment encompasses two main concepts: internal entrainment and external entrainment (Lervik, Fahy and Easterby-Smith, 2010). During internal entrainment individuals/teams align the pace or phase of a particular activity as per the temporal structures of the internal environment (Ebersberger and Kuckertz, 2021). For instance,

managers align their task planning with the schedules and new product cycles, to coordinate different internal activities, which enhances innovation in their firm (Dibrell, Fairclough, and Davis, 2015). Conversely, external entrainment capitalizes on the adaptation view in which individuals/teams alter their activities reactively as a consequence of unpredictable external events (Ancona and Waller, 2007). For instance, managers adapt the internal business plans as per the changing needs of the customers in the external environment, which creates a synchronization between internal activities of the firm with the changes in the external environment, and thus enhances organizational performance (Yu et al., 2023). Overall temporal allocation wasn't frequently used in the extant studies (Shipp and Jansen, 2021), and thus more research on its temporal constructs like internal and external entrainment (Kunzl and Messner, 2023; Shipp and Richardson, 2021), or temporal urgency (Mohammed and Nadkarni, 2011; Pérez-Nordtvedt, Shin and Lee, 2023), can augment theory on the mechanism of temporal allocation, and thus can further the theory on the preparing function of subjective time (Ballard, 2008).

Time awareness is another mechanism of preparing function, which again concerns the perception of time (Grondin, 2010), i.e. time can be as perceived a scarce resource, and thus individuals try to manage it appropriately via setting temporal norms like deadlines (Janicik and Bartel, 2003). For instance, when the future task deadlines are near managers had increased time awareness of the future, which spurs timely planning in the present (Tang, Richter and Nadkarni, 2020). Time awareness has also been defined in the context of the economic value of time (Lee-Yoon and Whillans, 2019). For instance, real investment decisions make individuals aware of their economic value of time, i.e. when managers perceive that their future financing can be constraint, they shift towards the investments that have shorter payback periods (Almeida, Campello and Weisbach, 2011). Temporal awareness is a scarcely studied mechanism of preparing function (Waller et al.,

2001), and its usefulness has been largely explored for individuals i.e., individuals with less or more awareness of time (Witowska, Schmidt and Wittmann, 2020), rather than the organizations (Schriber and Gutek, 1987), which makes sense as it primarily functions via behaviors that are usually linked with the individuals (Hanna, Bergerand and Abendroth, 2005).

Finally, temporal construal is the last mechanism of the preparing function, during which individuals mentally illustrate stimuli for events or circumstances distinctively, based upon their psychological distance from the present (Paine, Byron and Higgins, 2023). Individuals' construal level of psychologically near events/situations is considered to be lower and thus more concrete (Trope and Liberman, 2003), whereas their construal of psychologically distant events/situations is considered to be high i.e., mental illustration of such a stimulus is more abstract (Rosenbaum et al., 2023). Concrete and low construal levels of events correspond to the events of the future which are near to the present, and details about them become more accessible and reliable, which cause the events to be illustrated in terms of the concrete and distinctive features (Sharples et al., 2022). Conversely, when events are far from the present, there are lack of particular details, which therefore require high-level construal i.e. more abstract and hypothetical mental representations of these events (Van Der Schaft et al., 2022). For instance, during the moments of uncertainty where information of the distant future becomes difficult to obtain, managers tend to approach the future with concrete construal of the events, where they utilize the available information in the present and near future, to prioritize short-term strategies over the long-term strategies in their organization (Crilly, 2017). Therefore, temporal discounting becomes vital in the temporal construal mechanism, where stimulus such as uncertainty can cause individuals to discount distant future so that they can adopt a more immediate orientation (van der Wal, van Horen and Grinstein, 2018). Similarly, this accentuate the aspect of myopia in which individuals prefer to focus more on short

rather than long-term temporal zones (Mehta, Zhu and Meyers-Levy, 2014). Although, such myopia is also linked with negative ramifications, because it cause the managers to become shortsighted, which constraints the capabilities of action (Cunha et al, 2022). Conversely, abstract, and thus high construal of the distant future are also deemed necessary, as it generates a strong future orientation in the organization, which cause managers to orient to the long-term future so that they can develop the essential long-term plans and strategies for their organization (Ballard and Seibold, 2003). Temporal construal has been predominantly explored with either a focus on high or lower levels of construal (Tenbrunsel et al., 2010), leaving ample room for future studies to explore the boundary conditions (Steinbach, Gamache and Johnson, 2019), which cause individuals to adopt a short vs long-term orientation (Drencheva et al., 2021; Mount, Baer and Lupoli, 2021).

Overall, all of these four mechanisms of the preparing function signify the importance of preparing for the future in the present, where interaction between these different mechanisms can significantly advance the theory on the preparing function of subjective time (Shipp and Jansen, 2021).

2.7.1.3 Comprehending

Comprehending is the third and the final function of subjective time (Branzei and Fathallah, 2023), and it has been deemed different from the rest of the two functions, because it is the only function that simultaneously integrates past, present, and future to interpret time action (Shipp and Jansen, 2021). Comprehending function can assist individuals in their sense-making activities (Johnsen and Holt, 2023), and also help them in construing meaning (Staudenmayer, Tyre and Perlow, 2002) and forming narratives (Goldstein, Kielhofner and Paul-Ward 2004).

Narratives are considered the mechanism of the comprehending function (Shipp and Jansen, 2021), and are defined as the storied accounts of events (Rudrum, 2005). Temporality is considered pivotal in the formation of narratives (Richardson, 2000), because the construction of narratives is considered to be a process in which actors create stories, where past can be contested (Lowe, Ellis, and Purchase, 2008) or nostalgised (Wohl et al., 2023,) and present and futures are desired or feared (Ashforth and Schinoff, 2016). Similarly, studies have also defined narratives in the context of the theory of narrative thought, in which narratives are constructed by the simultaneous integration of past memories, with the present perceptions, and the anticipated future (Beach, 2021). Therefore, narratives play a pivotal role in stringing the episodes together (Wyer, Adaval, and Colcombe, 2002), by allowing experiences to be ordered in time (Mar, 2004). Narratives are also deemed vital for the mental organizations of individuals, as they aid their cognition via the interrelated stories over time, which augments the comprehension of events (Tomasello, 2020). Similarly, individuals can also form self-narratives, which are consisted of particular stories of past, present and future, using which they amend and recreate identities during the transition in their work roles (Maitlis, 2022). For instance, narratives allows individuals to form career identities in the present (Dahm et al., 2019), via storytelling about their self-i.e. what career successes/failures they had in past (past self), what ideal career they want in the future (projection of the future self), and what career they have at the moment, and what they need to do in the present to realize their ideal future self (present self) (Dahm et al., 2019). Boje (2008, 2011), has instead highlighted the significance of ante-narratives, which are defined as narratives that create synergies between narratives and living stories (Rosile et al., 2013), and are specifically associated with the future time (Betts, Hintz and Buzzanell, 2022). Such future narratives assist competing meanings via giving enough room to the equivocal narratives, that can widen the pathways for the future

possibilities (Sillince, Jarzabkowski and Shaw, 2012). Overall, the interaction between all three temporal zones has been considered pivotal for the construction of narratives (Märtsin, 2019), yet many narratives studies have given more prominence to past temporal zone (Ravasi and Schultz, 2006; Ybema, 2014), limiting the comprehension of meaning that can be made with the integration of all three temporal zones (Ancona, Okhuysen and Perlow, 2001).

Meaning is also considered a mechanism of the comprehending function (Shipp and Jansen, 2021), in which individuals try to understand the importance of the past, present and future experiences for various activities (Stryker and Burke, 2000). Although meaning making is essential for both individuals and groups (Bévort and Suddaby, 2016), but most of the studies have given more attention to how groups make meaning of a particular phenomenon (Oyserman, 2011). For instance, in the wake of new circumstances in the external environment, organizations that don't challenge the existing meaning of their organizational identity, and thus not create a new meaning and identity in the present and future, struggle to strategize for the ongoing organizational change, which has been caused by these environmental influences (Kjærgaard, 2009). Similarly, it has been argued that only those past meanings of the organization are worth to be valorized and maintained in the present and future, that are still worthy of benefiting an organization, in the wake of contemporary concerns (Balmer and Burghausen, 2015). Conversely, only a few attempts have been made to comprehend how both individual and group meanings are created within an organization (Avital, Jensen and Dyrby, 2023), accentuating the fact that comprehension and interpretation of past, present, and future experiences can be equally significant for the individuals, using which they can establish the significance and meaning of a particular phenomenon (Cartel, Kibler and Dacin, 2022). For instance, individual meaning making of the managers assist them in adapting to the ongoing organizational change, via assisting them in understanding how well they

adapted to the organization change in the past, which reduces their uncertainty and anxiety regarding how they can adapt to the ongoing organizational change over time, in the absence of detailed information (Van den Heuvel et al., 2013).

Sensemaking is considered to be a social process that managers/organizations employ to fathom their environment (Tapinos and Pyper, 2018), and encompasses three main stages: identification, interpretation and enactment (Moqaddamerad and Tapinos, 2023). Shipp and Jansen (2021), have also identified sensemaking to be a mechanism of comprehending function, which therefore involves simultaneous integration of past, present and future temporal zones. Proponents of such a view highlight that the present experience takes the shape of flows of experience, where past, present and future can't be separated (Tsoukas and Chia, 2002), hence differences between before and after are eliminated (Hernes, 2022). Similarly, others have pursued sensemaking theory and temporal work, by considering that the ongoing activity encompasses the reminiscing past, reimagining the future, and attending to the present situation (Kaplan and Orlikowski, 2013). Nevertheless, sensemaking doesn't necessarily involve the simultaneous integration of the past, present and future temporal zones, as it can be retrospective, in which focus is simply on the reconstruction of past events (Hayden, Mattimoe and Jack, 2021). Similarly, it can also be prospective, in which focus is on the future temporal zone, nonetheless it can also incorporate multiple temporalities of past, present, and future (Gephart, Tople and Zhang, 2010), to directly address the future (Goto, 2022). However, temporal dynamics using which actors transition through time encounters "*stationarity problem*" (Hernes, 2022, p. 141), which occurs when analysis treats past, present and future as distinct temporal zones, and thus doesn't encompass how agency in the present event, originates a unique framing of the past, that guides the emergent future event. Most importantly, in order to fully realize the potential of sensemaking theory, theorization

requires a full theory of time, which thus has a dual focus where, past present and are simultaneously integrated (indivisible present), and past, present and future are treated as distinct temporal zones (divisible present) (Hernes and Obstfeld, 2022). Hence, this thesis adopts this dual focus on time, while advancing theory on sensemaking, and have focused on how managers simultaneously integrate past, present, future (Comprehending function), or solely focus on one or two temporal zones (Attending, preparing function), to make sense of uncertainties.

To conclude, attending, preparing, and comprehending are the three functions of subjective time, that can assist managers/organizations in performing various activities and actions (Branzei and Fathallah, 2023). Nevertheless, future research should try to incorporate all the three functions of subjective time, or explore the interactions between these three functions, to open the black box on different mechanisms in these three functions (Tang, Richter, and Nadkarni, 2020), which will significantly advance the theory on the understanding and use of subjective time in explaining a particular organizational phenomenon (Shipp and Jansen, 2021).

2.8 Conclusion

This chapter has reviewed literature to identify the gaps in the literature, which formed the basis of forming research question and objectives of this thesis. Therefore, this chapter has reviewed the literature on sensemaking and other related concepts which were important in understanding the sensemaking theory. Uncertainties trigger the sensemaking process (Schildt, Mantere and Cornelissen, 2020), which takes place via identification, interpretation, and enactment (Moqaddamerad and Tapinos, 2023). Enactment is associated with crafting actions (Jensen, Kjærgaard and Svejvig, 2009), and thus is also linked with strategy development and implementation (Hosseini et al., 2016), as managers can identify and interpret uncertainties to eventually develop strategies for/amidst them (Friesl, Ford and Mason, 2019). Nevertheless, future studies have yet to expound further on the interaction between interpretation and enactment (Sandberg and Tsoukas, 2015). Moreover, sensemaking can be both retrospective and prospective (Tapinos and Pyper, 2018), where prospective sensemaking is significantly undertheorized (Bruskin and Mikkelsen, 2020), in which managers focus on the future (Stigliani and Ravasi, 2012), or invoke all the temporalities (past, present future) (Goto, 2022), to make sense of uncertainties. This formed the basis of the research question “*how do managers make sense of uncertainties?*”. To fully realize the potential of the sensemaking theory, theorizing need to encompass a comprehensive theory of time, in which there is a dual focus on the divisible present (i.e. past, present, future are distinct temporal zones), and the indivisible present (i.e. past, present, and future are interlinked) (Hernes and Obstfeld, 2022). Time has been positioned in literature as objective or subjective (Aeon, Giurge, and Whillans, 2020), where latter has remained significantly understudied in the extant literature (Eldor et al., 2017). Subjective time can improve the comprehension of an organizational phenomenon better than the objective time (Akkermans et al., 2016), as it draws on the subjective experiences of the past, present and future, via mental time

travel, perception, and interpretation of time (Jain and Lyons, 2008). Subjective time has three functions: Attending, Preparing and Comprehending (Branzei and Fathallah, 2023), where exploring these three functions together, or elaborating on the interactions between these three functions to facilitate the sensemaking phenomenon, can augment the understanding of the sensemaking theory (Shipp and Jansen, 2021), and can also advance the theory on time and temporalities in general, and subjective time in particular (Tang, Richter, and Nadkarni, 2020). Consequently, this thesis proposes the two research objectives of this study:

Research objective 1: To explore how the functions of subjective time or interactions between them influence the identification, interpretation and meaning construction of uncertainty.

Research objective 2: To explore how the functions of subjective time or interactions between them influence the development of strategies amidst uncertainty (enactment).

Chapter 3: Methodological Approach

3.0 Introduction

The previous chapter has accentuated the need to fathom the role of three functions of subjective time in making sense of uncertainties. To commence with, this chapter reintroduces the research question with its two overarching research objectives and their significance for the data collection. Thereafter, this chapter presents two dominant approaches of philosophy in social science and justifies the use of interpretivist approach for this thesis. Subsequently, this chapter discusses the research design pertaining to the use of exploratory qualitative research and the adoption of semi-structured interviews for this thesis. This is followed with discussion on the thematic abductive analysis, using which all the 39 semi-structured interviews are analyzed. This chapter concludes with the discussion on ethical concerns, that are addressed throughout the conduct and reporting of this research.

3.1 Aim and objectives of research

The main aim of this research is to answer the research question “*How do managers make sense of uncertainties?*”. This research question has been divided into two underlying research:

Objective 1: To explore how the functions of subjective time or interactions between them influence the identification, interpretation and meaning construction of uncertainty.

Objective 2: To explore how the functions of subjective time or interactions between them influence the development of strategies amidst uncertainty (enactment).

Next section discusses the two main philosophical paradigms in social science research, and thus justifies the use of an interpretivist approach in this thesis.

3.2 Philosophical paradigm

Philosophical underpinnings are significant for any research because they influence the selection of a particular research design (Matta, 2022; Maxwell, 2011; Panya and Nyarwath, 2022). In a similar vein, the understanding of philosophy leads to probable and new approaches which allows the researcher to not merely reiterate the ideas of others, so that they can move beyond them (Crotty, 1998; Greetham, 2006). Deciphering the philosophical position requires the understanding of differences among various stances of the philosophy and presuppositions that a researcher is making to attain knowledge about the selection of a particular philosophical approach (Creswell and Clark, 2011). The propositions of a researcher regarding how and what they will ascertain during their research is dictated by the attainment or claim to knowledge (Subedi, 2016). These claims can be called paradigms “*which are a shared constellation of group commitments along the spectrum from preferred analogies and metaphors, to shared exemplars, to heuristics, to ontological models, or accepted hypotheses of laws of nature, which influence what would be accepted as a warranted explanation and as a puzzle solution*” (Anand, Larson and Mahoney, 2020, p.1650-1651). At large these paradigms encompass: philosophical assumptions, ontology epistemology, methodology (Boon and Van Baalen, 2019), and a worldview (Kuhn, 1962), which is reflected in the beliefs of the researchers pertaining to the characteristics of reality, knowledge, values and intuition (Ugwu, Ekere and Onoh, 2021). Reality becomes particularly indispensable in any research because the principle of the “*ontological foundationalism*” necessitates a clear view about reality (Lohse, 2017, p.5), otherwise researcher will not be able to make the adequate methodological choices (Maarouf, 2019). Each philosophical paradigm has its exclusive ontological, epistemological, and methodological footings (Rabetino, Kohtamäki and Federico, 2021). For instance, distinct epistemological footings of different paradigms spur an ongoing debate in between qualitative and quantitative research, which makes the studied phenomenon

methodology specific (Ghiara 2020; Joslin and Muller, 2016). Usually, inquirers pursuing research within a particular paradigm resort to their exclusive metaphysical assumptions that doesn't accept the assumptions of other paradigms (Kakkuri-Knuuttila, Lukka and Kuorikoski, 2008; Morgan, 2007). This accentuates the notion of incommensurability of paradigms, which addresses the impossibility of merging two paradigms (Fulgencio, 2020; Mesel, 2013; Sale, Lohfeld and Brazil, 2002). Table 3.2 explains three assumptions (ontology, epistemology, and methodology) that are predominantly used to contrast different philosophical paradigms (Becker and Niehaves, 2007).

Table 3.2: Philosophical assumptions: (Mingers, 2003, p.559, 561)

Philosophical Term	Explanation
Ontology	Recognizing the existence of different types of objects and relations.
Epistemology	Recognizing that there are different ways of gaining knowledge of the world.
Methodology	A structured set of methods or techniques to assist people in undertaking research or intervention.

The next section discusses two important paradigms in social science research: Positivism and Interpretivism (Clarke, 2009). These two paradigms are discussed in the light of ontological, epistemological, and methodological considerations (Hussain, Elyas and Nasseef, 2013). Subsequently, this thesis also elaborates on the distinctions between these two paradigms, and thus justifies the selection of interpretivism as the philosophical paradigm for the underlying research.

3.2.1 Positivism

Positivism was first introduced at the start of nineteenth century, and since then it has been subjected to many stages of evaluation, and got displaced with its subsequent versions (Zammito, 2004). Age of enlightenment signified the pervasiveness of positivism, which was initially popularized by Auguste Comte, who was a French philosopher and subjected the social world to this scientific paradigm (Scotland, 2012). It was succeeded by logical positivism which showed its eminence in twentieth century (Scofield, 2005). Consequently, the paradigm of positivism was developed further via the third prominent state of deductive-nomological model, which was proposed by Carl Hempel and Earnest Nagel in the mid-twentieth century (Baert and Rubio, 2008).

Positivism is identified as a traditional model of scientific progress as an accumulative recognition of objective truth, with the belief that the growth of knowledge is linear as the new data is included in the research findings of existing studies (Meredith et al., 1989). The ontology that positivism holds is that of realism, which identifies objects and researchers as independent to each other (Aliyu et al., 2014), and its assumptions of epistemology encompass objective knowledge which has the propensity to be transferred in a tangible form (Solem, 2003). Central tenets of positivism linked social sciences with scientific laws (York and Clark, 2006), and its methodology is contingent upon explaining facts and deciphering causal connections (Goduka, 2012). Positivistic inquiry revolves around truth that is realized via the corroboration and replication of noticeable findings pertaining to the directly observable entities or processes (Donaldson, 2005; Poole and Jones, 1996). Moreover, positivism stresses that science consists of theoretical laws which are backed with empirical observation (Holbrook and Rannikmae, 2007), and it holds the same epistemological footings for social sciences (Hughes and Sharrock, 2016). Positivism encompasses four major methodological strategies (Turner, 2001): (1) considering social phenomenon as facts, (2) subjecting social facts to experimentation, (3) drawing comparison

between societies to reveal the elementary nature of human world (4) focusing on historical analysis, to examine societies over time to formulate dynamic capabilities into the laws of human organization. Different approaches of positivism (such as the naturalism of Auguste Comte and then sociology as discussed by Emile Durkheim), can examine various prevalent issues of social world (Ali and Chowdhury, 2015), and it has been argued that the statistical work pertaining to social sciences are contingent upon the positivistic views of science (Keat, 1979). Positivism accentuates the fact that objective reality and causal explanations are considered a foundation of conducting rigorous social research (Kincheloe and Tobin, 2009). In addition, logical positivism has been contrasted with positivism (Ray, 2017), where it has been majorly utilized by quantitative researchers in the social science, to give an exclusive cognitive and scientific consideration to meaningful statements, that are either analytic or synthetic in nature (Caldwell, 1980). Regardless, logical positivism is considered a version of positivism (Weinberg, 2013), and is not popularly used in recent studies (Marsonet, 2019).

Social science research has also shown the trend of increased quantitative research (Babones , 2016; Halfpenny, 2014; Kaltenbrunner et al., 2022), and still largely make use of the vast data sets, and deploys quantitative and statistical measurements of analysis (Zyphur and Pieridies, 2020). Formative impact of positivism is embodied in the emerging social sciences (Eidlin, 2015) with the use of survey, experimental designs, statistical analysis (Anderson, Wennberg and McMullen, 2019), questionnaire (Ambrose, Goodchild and O'Flaherty, 2017), and hypothesis testing (Meyer, Van Witteloostuijn and Beugelsdijk, 2017). Similarly, positivistic epistemology has also pervaded organization studies where the use of both positivistic and neo-positivist approaches was evident (Daft and Lewin, 1990; Johnson and Cassell, 2001). In the realm of neo-positivism, edges of positivism might have been softened, but the basic tenets and underlying differences prevalent in

the positivist worldview are still adopted (Deetz, 1996). Consequently, ontology in neo-positivism is still realism i.e., scientific realism instead of naïve realism, and its epistemology is based upon the estimation of truth and the main aim of methodology is fixated on falsifying the central tenets of a theory (Hwang, 2010). To conclude, as per positivism the only way to gain authentic knowledge is a scientifically grounded study, which is considered hierarchically dominant than the other methods of analysis, and permits its users to examine their hypothesis, where reality is found and not interpreted (Wicks and Freeman, 1998).

3.2.1.1 Limitations of positivism

The positivist paradigm and its related ontology and epistemology has received increased scrutiny (Hunt, 1991; Johnson et al., 2006). Positivists adhere to the specifications of value-freedom and discard the subjective understanding of the social world which on the contrary is considered extremely vital in social research (Keat, 1979). Positivism doesn't specifically capitalize on investigating and fathoming the intricacies and volatility of the socio-behavioral phenomenon (Hudson and Ozanne, 1998). Its adherence to the reductionist posture and the reliance on objective truth discards the empathic comprehension of the social phenomenon from the point of view of an individual (Rodwell, 1987). As a consequence, various social scientists and humanists commenced to pay more heed to the alternative paradigms like interpretivism, phenomenology etc (Bush, Singh and Kooienga, 2019; Fox, 2008). Such paradigms emerged with the idea that the positivistic orientation restricts a researcher in explaining all the factors that can explain a phenomenon, and it is also considered insufficient in understanding the behavior or idea of individuals (Bernardino, 2023). Hence such paradigms repudiated the scientific approach that positivism adopts, especially when the researcher is interested in comprehending the actions of different individuals, and their aim is to explore the changing social phenomenon and meaning of these different individuals (Nesbitt-Larking and Kinnvall, 2012). Human actions are complex and can have various meanings

(Bevir and Rhodes, 2005), and thus the anti-positivists or anti-naturalists claimed that the shortcomings of quantitative techniques may advance the belief that these intricate actions of individuals can be treated as reducible to some basic behavior, and as if every action had the similar meaning notwithstanding the context (Sayer, 1992). Similarly, a quantitative approach to delineate social world may engender superficial information (Coffey, 1999). Hence, instead of resorting to survey-based research measuring vast amount of data and forming causal connections (Gable, 1994), anti-positivists shifted towards conducting in-depth studies of different cases to delve deeper into the underlying patterns that are possibly demonstrated in the surface structures (Abdel-Fattah and Galal-Edeen, 2009), i.e. interpretivists (Ponelis, 2015), and post-positivists (Panhwar, Ansari and Shah, 2015). Proponents of such views resorted to qualitative (Denzin, Lincoln and Giardina, 2006), humanistic (Alasuutari, 2010), subjective (Walsh and Downe, 2006), ethnography (Voyer and Trondman, 2017) and hermeneutics (Buttler, 1998) approaches to counter the limitations of positivism in the social science (St-Pierre and Jackson, 2014). Such perspectives advanced the fact that objects in social science are complex, and thus they require a plural recognition of objects in relation to various methods of description, categorization, and analysis (Montuschi, 2004). In a similar vein, the paradigm of positivism is normatively considered a natural-science approach (Siponen and Klaavuniemi, 2021), and its application in a social science setting may become difficult due to its questionable claims of ensuring objectivity via an unbiased researcher who is disconnected from the research (Philip, 1998). Nevertheless, positivistic paradigm can also be used in qualitative research (Berkovich, 2018), but its main use lies in subjecting qualitative data to testable propositions and explaining causal relationships (Bennett and McWhorter, 2016), and thus it doesn't provide much assistance to the researcher who aims to explore beliefs and mechanisms of particular cases (Lin, 1998). Therefore, positivism hasn't been

adopted as a philosophical paradigm for this thesis, because aims and objectives of the underlying research required the researcher to explore the different subjective sensemaking experiences of different individuals, with respect to the different functions of subjective time, and thus the purpose of this research was to build/extend theory on sensemaking, instead of testing it.

Most prominent critique of positivism was provided by Max Weber, who heralded the use of interpretivism in research (Weber, 2004). Hence now this thesis discusses the paradigm of interpretivism, to later justify its adoption for this research.

3.2.2 Interpretivism

Max Weber is known to have the central influence in interpretivism, who has associated it with the terms like understanding (*Verstehen*), “meaning” (“*Bedeutung*” or “*Sinn*”), and “interpretation” (“*Deutung*”) (Oakes, 1977, p.21). Interpretivism draws focus on the subjective representation of individuals, where these individuals and their social actions are considered the fundamental social unit (Tucker, 1965). Concept of *Verstehen* was furthered by Alfred Schutz (Schutz, 1970), who argued the fact that scientific knowledge related to the social life is of secondary significance and it must be contingent on the meanings and knowledge of the actors involved in the study i.e. “*the constructs involved on common-sense experience of the intersubjective world in daily life are the first-level constructs upon which the second-level constructs of the social sciences have to be erected*” (Tibbetts, 1980, p.365). Hence, interpretivism shows a methodological commitment to interpret the meaning of various categories of social actions, that work together to form a text that is a representational view of the world (Schwandt, 1994). Interpretivists focus on the behavior and interactions of people with others in society, so that they can decipher the meaning and intention behind various actions of these people (Mantzavinos, 2012; Whelan et al., 2016). Interpretivism argues the fact that the value free data can’t be acquired because the process of enquiry is guided

by the preconceptions of the enquirers, nevertheless researcher engages with the human subjects involved in the enquiry that alters the perception of both the researcher and the subjects (Walsham, 1995). Moreover, researchers that adopt the interpretivist paradigm are not simply explaining the existence or non-existence of causal relationships, but they are more meticulously exploring the particular ways in which these relationships are manifested, and the context in which such relationship exists (Lin, 1998). Therefore, interpretivism allows researchers to delve deeper into how something has taken place instead of merely telling them what has occurred (Casula, Rangarajan and Shields, 2021). Hence it was argued that social science must encompass the significance of social actions using *verstehen* (interpretive understanding), instead of always resorting to quantitative measures deployed by the natural scientists (Maley, 2004). Similarly, it has been suggested that fathoming the meaning of human consciousness and action requires interpretive reasoning instead of causal logics (Brown, 1976). Furthermore, to fathom a specific social action inquirer must also comprehend the meanings of this particular action (Gephart et al., 2018; Khan, 2017), where understanding the meaning of this specific action is contingent upon the way inquirer interprets the action of the actors (Schwandt, 2002).

Ontology in interpretivism is relativism (Sandberg, 2005), where people and reality can't be separated (Irshaidat, 2022). Epistemology is constructivism (Walters, 2009) in which reality is constructed by the minds of the individuals with its "*systematic relationship to the external world*" (Young and Collin, 2004, p. 376). Epistemology in interpretivism can also be social constructivism, i.e., reality is created and recreated via social discourse (Cohen, Duberley and Mallon, 2004). Furthermore, interpretivism is usually associated with qualitative methodological approaches (Bleiker et al., 2019). This view primarily stem from an idealist outlook which endorses multiple rather than a single reality (Otoo, 2020), where these multiple realities are

contingent upon the subjective understanding of the actors (Bevir and Rhodes, 2005). Furthermore, the knower and knowledge is considered inseparable in interpretivism (Hiller, 2016), where multiple realities of the individuals are also dependent on their symbolic actions (Heracleous, 2004). In addition, it has been established that interpretivism exemplify affinities between psychological and social aspects (Fulbrook, 1978), and therefore intersubjective creation of reality can also give rise to multiple realities (Cunliffe, 2011). In a similar vein, instead of adhering to reductionism which is frequently adopted by the positivists (Dupré, 2017), plurality of views is sought by social constructivists (Greene,1992), where more prominence is given to the different views of the research participants (Alharahsheh and Pius, 2020; Pulla and Carter, 2018). At large, users of the interpretive paradigm deploy induction (Towers et al., 2020) or abduction (Malhotra, 2017), to develop or extend theory (De Villiers, 2005). Subsequently, interpretivists predominantly adhere to the qualitative methods (Conboy, Fitzgerald and Mathiassen, 2012), and collect data using various techniques like ethnography, interviews, observations, narratives, and stories (Nowell, et al., 2017).

Table 3.2.2 concludes the major distinctions between positivism and interpretivism in social science, which also formed the basis of adopting an interpretivist paradigm for this thesis.

Table 3.2.2: Major distinctions between Interpretivism and positivism

Metatheoretical Assumptions	Interpretivism	Positivism
Ontology	Relativism (Moon and Blackman, 2014) Belief of the individuals is contingent upon the fact that reality is formed	Realism (Reed, 2005) Reality is single and causal with a continuous conjunction of events (Hibberd, 2010).

	<p>indirectly and is based on their subjective interpretations. Individuals interpret and craft their distinct meaning of events which can't be generalized. Moreover, the world and the knowledge of the individuals regarding this world is inseparable (Cuthbertson, Robb and Blair, 2020).</p>	
Epistemology	<p>Subjectivism (Duberley, Johnson, and Cassell, 2012)</p> <p>Social constructivism (psychological, as individuals construct their own realities), and/or social constructionism (social, as reality is contingent upon intersubjective constructions) (Ong, 2012).</p>	<p>Objectivism (Al-Ababneh, 2020)</p> <p>Reality is independent of human knowledge and exist outside their mind. People only rationally discover the world as it really is and simply explain the objective facts of the world (Hjørland, 2005).</p>
Research Object	<p>Research object is analysed with respect to the meaning and lived experience of the specific individual. (Weber, 2004). There is co-construction of knowledge by researcher and participants (Finlay, 2002).</p>	<p>Implicit qualities of the research object are independent of the researcher knowledge (Kincheloe and Tobin, 2009).</p>

Commonly used methodological approach/research design	Idiographic (Walsh et al., 2015), Qualitative (Haven and Van Grootel, 2019)	Nomothetic (Sanchez et al., 2023), Quantitative (Breen and Darlaston-Jones, 2010)
Frequently used Techniques	Interviews (Zhao, Chapman and O'Donoghue, 2023), ethnography (Mannay and Morgan, 2015), participant observations (Öksüzoglu-Güven, 2016), narratives and stories (Boéri and Giustini, 2023).	Surveys (Woodside, 2010), experiments (Schrag, 1992), archival data (Tsang, 2014)
Majorly used reasoning	Abductive (Boswell and Corbett, 2014), Inductive (Barnes, 2012), to build new theories or extend old theories (Gehman et al., 2018; Lucarelli et al., 2023).	Deductive to justify and test theories (Bitektine, 2008).
Prominent ways to analyze	Thematic Analysis (Wiltshire and Ronkainen, 2021), Gioia Methodology (Gioia et al., 2022)	Statistical analysis (Chirkov and Anderson, 2018), hypothesis testing (Hasan, 2016), structure equation modelling (Masa'deh, Obeidat and Tarhini, 2016)
Aim of analysis	Uniqueness and Specificity (Stoian, Dimitratos and Plakoyiannaki, 2018).	Regularity and Generality (Koivu and Damman, 2015)

	Analysis is contingent upon the specific context and only explores the subjective comprehension of the individuals within this unique context (Ezzedeen and Zikic, 2017).	Analysis is contingent upon a law that go beyond the examination of the particular instances (Roth and Mehta, 2002).
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Based upon these distinctions, this thesis now discusses the rationale of choosing the interpretivist paradigm for this research.

3.2.2.1 Justification of Philosophical Stance: Interpretivism

Uncertainty is subjectively experienced (Picione and Lozzi, 2021; Russo, Mannarini and Salvatore, 2020), and thus require subjective representations, as each individual can have varying images and opinions about it (Rindova and Courtney, 2020). In addition, sensemaking is largely considered a subjective process (DeGhetto, Russell and Ferris, 2017). Therefore, the interpretivist paradigm is suitable for this thesis as its ontology adheres to relativism (Rousseau, Manning and Denyer, 2008). Relativist ontology has allowed the researcher to delve deeper into the different sensemaking realities that different senior managers have constructed regarding the uncertainties of their particular organizations (Sword-Daniels et al., 2018; Zeng, Deschenes and Durif, 2020). More precisely, relativism enabled the researcher to explore the subjective sensemaking process of different senior managers, in the context of their independent interpretations and the distinctive meanings that they allot to different uncertainties (Calvard, 2016). Erstwhile, it has been established that the inquiry of this thesis (research question and two research objectives), has focused on “how” functions of subjective time can influence the different constituents of

sensemaking i.e. identification, interpretation, and enactment (Tapinos and Pyper, 2018). This reflects the fact that the research question and objectives of this thesis are exploratory in nature (Ward, Comer and Stone, 2018), which permits an in-depth understanding of ways (Iofrida et al., 2018), in which different functions of subjective time or interactions between them influence the sensemaking process of different managers (Branzei, and Fathallah, 2023). Therefore, even on the epistemological footings, interpretivism has proven to be a suitable paradigm for this research. Interpretivist epistemology allowed the researcher to explore how managers constructed their own subjective sensemaking processes of uncertainty, using their subjective perceptions of time (constructivism) (Young and Collin, 2004). In addition, epistemology of social constructionism (Ong, 2012), also facilitated the intersubjective understanding of managerial sensemaking, because reality was co-constructed in between the researcher and participants throughout the interviews (Gubrium and Koro-Ljungberg, 2005), during which managers shed light on their lived experiences of uncertainty (Müller and Vaseková, 2023). Conversely, realist ontology and objective epistemology wouldn't have suited the purpose of this research (Scott, 2007), because the main aim and objectives of this research have been formed to explore the pluralistic views and perceptions of various senior managers (Szmigin and Foxall, 2000). Subsequently, this thesis accentuated the need to explore the individualistic and voluntaristic type of human nature that can prevail in organizations (Pozzebon, 2004). Neo-positivist have instead discussed critical realism (Patomäki and Wight, 2000), which is characterized with epistemological relativism, and advocates the perspective that all knowledge is fallible, fragmentary and can change over time (Albert et al., 2020). Regardless, this thesis hasn't adopted critical realism because it argues that reality is not fully socially constructed, and it advocates an ontology in which the belief of the world is independent of the observer (Easton, 2010). This does not synch well with the main

research question and the two objectives of this thesis, because the very concept of uncertainty and time can be subjective (Mannino et al., 2017; Rafferty and Griffin, 2006), and thus can't be independent of the observer (senior managers here). The distinction between epistemic and aleatory uncertainty further substantiates such views on subjective uncertainty (Holmes and Westgren, 2020). Individuals perceive epistemic uncertainty to be mitigable, whereas they perceive aleatory uncertainty to be unmitigable and thus only try to adapt to it (Packard and Clark, 2020). Therefore, such findings accentuate the fact that the subjective perceptions of different uncertainties influence the way individuals craft response towards them (Kreye et al., 2012).

Interpretivism favors idiographic methods (Keutel, Michalik and Richter, 2014), in which focus is on discerning patterns or structure within individuals (Runyan, 1983), and thus it shows more inclination towards qualitative exploratory studies (Gupta and Mukherjee, 2022), that are conducted to discover "*how*" things occur rather than the fact that they simply occur (Tetnowski and Damico, 2001, p.22). Interpretivism doesn't dismiss empirical observations and large samples of data as a feasible source of knowledge, nonetheless interpretivism part ways with the predisposition of positivism towards considering such large amount of data to be self-explanatory (Packard, 2017), and instead advocates for more exploration into the causes which can be better facilitated using qualitative research (Frost and Nolas, 2011). Consequently, even as per the methodological approach interpretivism has proven to be an appropriate philosophical paradigm for this thesis, because this thesis has galvanized around understanding the interaction of three functions of subjective time with different stages of managerial sensemaking, which could have been better explored using a qualitative research design, that interpretivism favors (Babones, 2016; Tetnowski and Damico, 2001). Moreover, interpretivism doesn't claim that the social phenomenon is solely contingent upon the individual action and not their interactions with others (Bhaskar,

2014). Interpretivism instead claims that social entities are ontologically inseparable from the elements that make them and are fluid and adaptable (Orlikowski and Scott, 2008; Riemer and Johnston, 2017). This reflects ontological individualism that synchs with the methodological individualism, which signifies the fact that the social phenomenon at macro-level should be explained with respect to individuals and their synergies with their physical and institutional environment (Hodgson, 2007). Ontological and methodological individualism are commonly associated with qualitative research (Zahle and Kincaid, 2019). Therefore, this thesis has resorted to qualitative research to explore multiple realities of different managers (methodological individualism), to delve deeper into how the sensemaking of these different managers get influenced by the different functions of subjective time or interactions between them (ontological individualism), in terms of the uncertainties faced by their respective organizations (physical and institutional environment).

Now, this thesis provides a more detailed justification of adopting a qualitative research design. Thereafter the use of semi-structured interviews is advocated. Subsequently, this thesis also elaborates on the strategy, using which these semi-structured interviews are collected and analyzed.

3.3 Research Design

This thesis has adopted a qualitative research strategy (Goodell, Stage and Cooke, 2016), following a constructivist-interpretivist orientation, to fathom the intricate world of lived experience from the perspective of those who inhabit it (Ganzin, Islam and Suddaby, 2020). Quantitative research is primarily designed to understand the knowledge or truth in an objective way (Zyphur and Pierides, 2017). Predominantly, the main purpose of quantitative research is theory testing (Baškarada and Koronios, 2018). Conversely, this thesis has pursued research that has concentrated

on exploring the sensemaking phenomenon (Dixon et al., 2017), instead of testing it. Hence qualitative research has best served the purpose because it has been deemed extremely useful for exploring a particular phenomenon (Carvalho, Scott and Jeffery, 2005; Galliers, and Huang, 2012; Mansourian, 2008), and facilitates theory building/extending (Andersen and Kragh, 2010; Hoon, 2013). Qualitative methods encompass data collection and analysis techniques that unravel the interpretive processes of individuals, which forms the basis of creating a comprehension of complex phenomenon from the perceptions of those who inhabit it (Brinkmann, Jacobsen and Kristiansen, 2014). Furthermore, qualitative inquiry has been deemed most appropriate for the studies in which different perspectives of the participants are given central stage in providing an in-depth description of a particular phenomenon (Yilmaz, 2013). Therefore, the use of qualitative research design allowed the researcher to delve deeper into the managerial sensemaking process, via the exploration of how different managers construe the meanings of various uncertainties faced by their respective organizations to strategize amidst them. In addition, qualitative research design helped the researcher in discovering various linkages in between three functions of subjective time and the sensemaking process of different managers. Moreover, qualitative research design has been adopted because it has given voice to the different views of the participants (senior managers here), who possess more knowledge about the phenomenon under investigation (sensemaking of uncertainty), than others in the organization (Bluhm et al., 2011). Most significantly, the main reason for selecting a qualitative research design for this thesis, is the exploratory nature of the research question (*how do managers makes sense of uncertainties?*) and objectives of this study (*how functions of subjective time or interactions between them influence the identification, interpretation and meaning construction of uncertainty, and how functions of subjective time or interactions between influence the development of strategies amidst uncertainty*) . Focus on “how”

in the research question and objectives accentuate the usefulness of deploying qualitative methods in answering an exploratory research question (Makri and Neely, 2021; Ward, Comer and Stone, 2018). The research question and objectives of this thesis has required the researcher to elaborate on the phenomenon of sensemaking, by unveiling the different linkages between three functions of subjective time and sensemaking. Therefore, the exploratory research question and objectives necessitated the use of qualitative inquiry (Novara et al., 2018), which couldn't have been better answered using for instance experimentation in quantitative research (Grant and Wall, 2009).

Qualitative research designs include various data collections techniques (Knapp, 2017; Moser and Korstjens, 2018). Nevertheless, the most frequently used techniques are interviews (Anderson and Holloway-Libell, 2014), ethnography (Van Maanen, 2006), observations and analysis of documents like “*texts, artifacts, objects, pictures*” (Brantlinger et al., 2005, p.202). These techniques and methods stress the significance of: (i) flexibility over standardization, (ii) interpretive viewpoints based on subjective experiences over objectivity, and (iii) the investigation of complicated phenomenon in its natural setting (Barr, 2004).

Now this thesis justifies the use and significance of semi-structured interviews for its research.

3.3.1 Data Collection technique: Semi-structured Interviews

Interviews are considered a backbone of data collection in qualitative research (Adhabi and Anozie, 2017). Interviews facilitate the most straight forward, research-oriented communication between the participant and researcher (Kazmer and Xie, 2008). Qualitative research interviews encompass structured, semi-structured, and unstructured interviews (Qu and Dumay, 2011). Nonetheless semi-structured and unstructured interviews are more frequently used in social sciences (Brinkmann, 2014), where semi-structured interviews are given preference over

structured and unstructured interviews (Ruslin et al., 2022). Selection of the type of qualitative interviews is contingent upon the research objectives of a particular study (Doody and Noonan, 2013). Moreover, semi-structured interviews are considered a perfect fit for the exploratory research question and objectives of any study (Gupta et al., 2020). Therefore, this thesis has adopted semi-structured interviews for its research question and objectives which are exploratory in nature.

Semi-structured interviews were conducted to collect data about how different top-level managers identify and interpret uncertainties and enact strategies amidst them (Marshall and Rollinson, 2004). More precisely, semi-structured interviews were conducted to develop an understanding of the top-level managers' train of thought and constructed experience (Millwood and Heath, 2000; Parry, 2003), regarding how different functions of subjective time (attending, preparing, comprehending), affect their three phases of sensemaking. Therefore, semi-structured interview questions helped the researcher in directing conversation towards the research topic (McIntosh and Morse, 2015). For instance, managers were asked "*what are the events that are causing uncertainties for your organization?*". Responses to this question helped the researcher in understanding the identification phase of sensemaking. Moreover, semi structured interviews allowed the researcher to probe the critical factors and obtain in-depth information on them (Sekaran and Bougie, 2016). For instance, managers have accentuated the fact that there is too much uncertainty at any given point in time, and the uncertainties of the future can be diametrically opposed to the uncertainties they were facing at the time of the interview (present). This caused the researcher to further explore the identification phase of sensemaking further w.r.t time, and therefore respondents were asked "*what are the events that are causing uncertainties for your organization in the present, and what are the emergent events that will cause uncertainties for your organization in the coming years?*". This helped the researcher in understanding how time and

temporalities influence the managerial identification of the present and future uncertainties. Therefore, semi-structured interviews worked best for this research, as it allowed the researcher to get into the perspective of the other person (top-level managers here) and enabled the researcher to develop thick description of their sensemaking process (Mahat-Shamir, Neimeyer and Pitcho-Prelorentzos, 2021). In a similar vein, these semi-structured interviews weren't just a mode of information retrieval, but they fostered active communication in between the researcher and respondents (Schischka, 2013), using which the researcher was able to fathom the distinct sensemaking experiences of different top-level managers. Active communication gave autonomy to the researcher to explore the influence of three functions of subjective time in the sensemaking of different top-level managers (Adeoye-Olatunde and Olenik, 2021), while simultaneously providing flexibility to the top-level managers to elaborate on their distinct lived experiences (Buys et al., 2022). Active communication was facilitated via open-ended questions, that permitted the researcher to pursue these interviews in a conversational style (Sittig et al., 2008). In addition, open ended questions allowed the researcher to delve deeper into the emerging phenomenon, and ask new questions regarding it (Ryan, Coughlan and Cronin, 2009). For instance, managers accentuated the fact that the reason they identify and interpret present and future uncertainties is to strategize for them (enactment). Therefore, further inquiry was made regarding how different managers strategize for uncertainty. Interestingly, managers highlighted that every uncertainty is different, and hence they can have different strategies for different uncertainties. Hence the researcher also asked additional open-ended questions like "*what strategies have you developed for the different present and future uncertainties identified before?*". More precisely, to facilitate an adequate implementation of all the semi-structured interviews, questions were kept loose (Henriksen, Englander and Nordgaard, 2022). Hence flexible conversation was facilitated during

all the interviews (Hwang et al., 2023), so that all the participants can add or revise the concepts of their choice (Striepe, 2021). To delve deeper into the emerging themes, the researcher also prompted further conversation by asking why or how questions (Hove and Anda, 2005), where such follow-up questions also made the transition between different interview questions easier. (Castillo-Montoya, 2016). The pre-determined sequence of the questions was also susceptible to change as per the discussion of the participants (Moser and Korstjens, 2018). Nevertheless, these participants were renavigated to the key questions (Das et al., 2020), so that the discussion on all aspects of sensemaking and time can be covered.

The design and conduct of these semi-structured interviews was improved by refining the quality of interview protocol (Rabionet, 2011). The quality of the interview protocol was enhanced using pilot testing, which is pivotal in testing the questions of the interviews and also improves the interviewing techniques of the researcher (Majid et al., 2017). These test interviews were conducted before commencing the data collection. This assisted researcher in rectifying language of the questions and improving the precision of the questions and aspects of active listening (Gani et al., 2020; Louw, Todd and Jimarkon, 2011). It has also helped the researcher in developing a noninvasive open conversation with the interviewees (McGrath, Palmgren and Liljedahl, 2019). Pilot testing was done by using three techniques: internal testing, expert assessment, and field testing (Kallio et al., 2016). Internal testing was made possible by providing the preliminary interview guide to the three supervisors of the researcher. Their feedback helped the researcher in discarding/changing vague and inadequate leading questions (Barriball and While, 1994). For instance, based upon the feedback of supervisors the interview question *“how do you engage in a mental time travel into past/future or both to develop strategic action?”* was changed to *“can you reflect on a recent strategy meeting to discuss how do you develop strategies for your*

organization?”. Once the internal testing was done, the researcher moved to expert assessment by conducting an interview with a professor at a different university who specializes in semi-structured interviews. This enabled the researcher of this study to obtain valuable feedback about the wording and the sequence of the questions (Barriball and While, 1994). Moreover, the researcher of this thesis had learnt from this expert to maintain eye contact with the participants throughout the interview and ask them more follow-up questions on the topics they are more eager to discuss. Finally, field-testing was done with a senior manager of a Fintech company. This helped the researcher in simulating and predicting the real situation of the interviews (Chenail, 2011). It also helped the researcher in deciding on the duration of the interviews i.e., each senior manager might take around an hour for each interview (Cridland et al., 2015). Furthermore, field testing with this senior manager also caused the researcher to add interview questions to the overall interview protocol. For instance, during the discussion on strategies, senior manager not only discussed the strategy development, but also started discussing the implementation of these strategies in more detail. Therefore, the researcher added new interview questions to the interview protocol regarding the implementation of strategies, which characterized the final phase of enactment, for example “*how do you and your strategy team implement strategic action in those uncertain situations (like Covid, Brexit, or a possible Scottish referendum), where no prior data/experience exists to guide the implementation of strategies?*”. Once the interview questions passed these three rubrics, researcher commenced the actual data collection with the final interview protocol. Final interview protocol (IP, Appendix) enabled the researcher to obtain information about each concept from all the senior managers, that later allowed the researcher to compare the responses of all these managers on a similar subject (Jiménez and Orozco, 2021).

An essential aspect of a particular research design is time (Babbie, 2020). The research design can be broadly characterized, as cross-sectional or longitudinal (Bala, 2020). In a longitudinal research design, data is collected in the same format, at multiple points in time (Gravlee et al., 2009). Conversely, cross-sectional research design is considered contemporaneous, and data is collected at one specific point in time (Babbie, 2020). This thesis adopts the cross-sectional research design, and thus have conducted all the semi-structured interviews at one particular point in time. Cross-sectional research design allowed the researcher to draw comparisons within the entire sample (Vogl et al., 2018). Some researches on sensemaking have pursued a longitudinal research design, as collecting data at different points in time, act as a frame of reference for past, present and future time (Balogun, Bartunek and Do, 2015). Nevertheless, the research question of this thesis aimed to explore temporalities within the semi-structured interviews, in terms of how they have been experienced by different managers. Hence, instead of conducting interviews at different points in times, and thus using them for frame of reference i.e. 2021 (Past), 2022 (Present), 2023 (Future), this instead focused on how temporalities emerged in the sensemaking experience of managers at the time of the interview (Plotnikof and Mumby, 2024). Also, the focus of the research is not how the managerial sensemaking changes over the period, rather the focus is on how functions of subjective facilitate the managerial sensemaking. Moreover, segmenting time and temporalities, using a longitudinal research design, can also be viewed as the objective view of time (Jansen and Shipp, 2019), where past, present and future time are determined in terms of the frame of references, that different data collection points provide. On the contrary, the focus of this thesis is on subjective time, where time and temporalities lie in the eyes of the beholder (Tang, Richter, and Nadkarni, 2020), instead of being fixated by different data points. Therefore, this thesis has adopted a cross-sectional research design, so that the findings can shed light on the subjective time

and temporalities, in terms of how they have emerged within the semi-structured interviews, instead of pursuing time and temporalities in terms of different frames of reference, that different data collection points provide.

3.3.2 Purposive and theoretical sampling: Justification of participants

Purposive sampling has been used to commence data collection for this thesis (Palinkas et al., 2015). Purposive sampling is deployed to select participants that are most likely to yield suitable and beneficial information (Saunders and Townsend, 2018). In addition, it is considered a way of selecting participants that will utilize the limited resources of research effectively (Campbell et al., 2020). Hence, purposive sampling permitted the researcher to specifically select managers who occupy top-managerial positions in their respective organizations. Top-level/senior managers are defined as all individuals who were employed in commanding positions of their respective organizations, for instance, C- suite managers (signified by their designations like CEO, CFO, Executive Director etc.), Vice-Presidents, senior managers, and department heads (Zumaeta, 2019).

Although, sensemaking can take place at every hierarchical level in the organizations (Abreu Pederezini, 2017). Nevertheless, top management was focused, because the researcher aimed to interview the participants, which would be most suitable for answering the main research question and objectives of this thesis. More precisely, the researcher focused on interviewing the managers, that can elaborate on the three key stages of sensemaking (Moqaddamerad and Tapinos, 2023): Identification, interpretation and enactment (which in the context of this thesis is strategy). Therefore, senior managers were an adequate choice for this research because situations of uncertainty require senior managers to augment their capacity to interpret external events via sensemaking, so that they can allot meaning to a complex reality (Sakellariou and Vecchiato,

2022). In a similar vein, senior management is vital for strategic change because they have increased authority over middle or lower-level employees, and they control resources, and lead and guide others during the enactment of decisions (Grojean et al., 2004). Moreover, the particular way in which senior management makes sense of situations has direct ramifications for change outcomes in their organization, because their meanings structure the social realities and concomitant reactions of other actors (Balogun, Bartunek and Do, 2015). Most importantly, one manager that the researcher interviewed turned out to be a middle-level manager. This manager couldn't give comprehensive answers on the interpretation of uncertainty and strategy development where he further stated that "*strategies are made at the top... we are just responsible to implement them*". This interview was eventually discarded from the overall data collection, because there was no discussion regarding the stage of enactment (strategy), which is a key phase of sensemaking theory (Tapinos and Pyper, 2018), and thus the need to interview senior managers was again revitalized. Therefore, this thesis purposively interviewed senior managers, as they must be directly involved in developing strategies amidst the uncertainties faced by their respective organizations (Peter and Jarratt, 2015). Moreover, the unit of analysis in this thesis is the individual managers. Therefore, interviews with the managers at all the different hierarchical positions, to incorporate an organization wide view wasn't required. In addition, as this thesis pursued a qualitative research design, the aim of this thesis was not to produce findings, that ensure statistical generalization at the level of senior managers (Christiansen and Varnes, 2009), rather the focus was to obtain findings that enable analytical generalization (Halkier, 2011), at the level of individual sensemaking theory, and how it can be built/extended via the three functions of subjective time.

The researcher contacted various senior managers who were working at different organizations via LinkedIn and email (publicly available on the official websites of the organizations). Element of snowball sampling was also evident here, as some senior managers assisted the researcher in establishing contact with their acquaintances (Parker, Scott and Geddes, 2019), who were also senior managers, and were working at different organizations. Prior to each interview, the information and consent form (ICF, Appendix), was emailed and explained to all the participants. Once the participants have signed the consent form, a time of mutual convenience was set to conduct the interview. All the interviews were conducted between September 2021-December 2022. Due to the Covid-19 restrictions all the interviews were conducted using the virtual platforms of Zoom/Teams (McMullin, 2023). All the interviews were audio/video recorded, and the auto-generated transcripts were edited right after the interviews. The final sample consisted of 39 senior managers who were working at various organizations in different industries. Senior managers had the mean age of 44.6 years and were all working in their current industries for more than five years. It has been established in the previous section; all the interview questions (IP, Appendix A) were designed in light of the research question “*How do managers make sense of uncertainties?*”, and the two research objectives “*how the functions of subjective time or interactions between them influence the identification, interpretation and meaning construction of uncertainty, and how the functions of subjective time or interactions between them influence the development of strategies amidst uncertainty*” of this thesis. Nevertheless, as the research progressed, the interview protocols were revised to incorporate any additional questions that arose as part of the interviewing process, and where the emergent phenomenon necessitated further investigation (Gioia, Corley and Hamilton, 2013). This degree of flexibility in developing a synchronizing aspect to the interview questions that is seeking rich data, exemplifies more

advantages of interpretive research (Goulding, 1998). Consequently, at this stage the sampling changed from purposive to theoretical sampling (Foley et al., 2021), because the data collection was integrated with its simultaneous coding and analysis to explore the dynamics of the functions of subjective time in the development of the sensemaking theory as it emerged (Langley, 1999). Table 3.3.2 presents the demographics of all the top-level managers who were interviewed for this study.

Table 3.3.2 Demographics of participants

Participant number	Designation	Years in industry	Organization name/Pseudonym	Age	Gender	Number of employees
1	CEO	20	Fintech A	52	M	13
2	Brand and Marketing Head	20	Fintech A	50	F	13
3	Founder	25	Fintech A	50	M	13
4	Broking Director	9	Insurance	36	F	25
5	Chief insurance officer	20	Insurance	55	M	25
6	Co-founder	7	Insurance	50	M	25

7	Executive Chair	25	Fintech D	48	M	12
8	Founder and Strategic Advisor	35	Fintech C	59	M	50
9	Founder	16	Fintech E	40	M	52
10	Investment Director	9	Fintech B	35	M	50
11	Certification Head	18	Aviation A	44	M	200
12	Fluid and Mechanical System Team Lead	10	Aviation A	36	M	200
13	Chief engineer	22	Aviation B	50	M	>10,000
14	Associate Director A	29	Consultancy A	50	M	25

15	Associate Director B	26	Consultancy A	54	M	25
16	Director	24	Consultancy A	47	M	25
17	Founder	29	Software B	51	Male	9
18	Vice President	30	Software A	55	Male	50
19	Currency Strategist Head	13	Foreign Exchange	48	Male	200
20	Director	23	Business Support	57	Male	50
21	Founder	5	Digital Marketing	31	Male	5
22	Senior Strategy Manager B	12	Energy	34	Male	1000
23	Senior Strategy Manager A	9	Energy	49	Female	1000

24	Chief of Staff	11	Aviation C	30-35	Female	2500
25	CEO, Chief operations officer	30	Technology A	50-55	Male	5
26	Director of business development	20	Technology A	57	Male	5
27	Chief Innovation Officer	15	Software C	52	Male	18
28	CEO	30	Consultancy B	55-60	Male	2-10
29	Senior project manager	20	Nuclear	65	Male	10,000
30	Benefits management subject matter expert	10	Nuclear	60	Male	10,000

31	Director	15	University A	52	Male	51-200
32	CEO	26	Consultancy C	60	Male	50
33	CEO	30	Consultancy D	50	Female	10
34	Director of projects	10	Yacht	58	Male	270
35	Associate director of project delivery	6	Consultancy E	46	Male	10,000
36	Founder and CEO	23	Consultancy F	53	Male	6
37	Founder and Director	5	Coworking space	30	Male	6

38	Head of operations	10	Bank	42	Female	15188
39	Head of department	30	University B	60	Male	Total: 3500 Department: 37

3.4 Data Analysis

This thesis has used abduction to analyze all the semi-structured interviews (Chen, Eweje, and Kennedy, 2021). Abduction involves the use of constructs, theories and models which assist researchers in developing meaningful explanations of a particular phenomenon (Richardson and Kramer, 2006). More precisely, the abductive approach develops a constant discourse between pre-existing understanding of a theory, and what is being observed in the empirical data (Biggs and Wilson, 2017). Abduction encompasses three rules (Alvesson and Kärreman, 2007): (1) using an existing interpretive rule (theory), (2) evidencing surprising empirical phenomenon with respect to the interpretive rule, (3) creative articulation of the novel interpretive rule (theory). Hence it has been argued that abduction blends induction and deduction to develop a new theory, or extend an existing theory (Kistruck and Slade Shantz, 2022). Such blending of inductive and deductive coding can help in generating enticing findings from the qualitative data (Graebner, Martin, and Roundy, 2012). Inductive analysis incorporates the approaches that predominantly use extensive readings and interpretations of raw data to acquire concepts, themes, or models (Thomas, 2006). On the contrary, deductive approaches mainly resort to the use of existing theories or frameworks (Love and Corr, 2022). Therefore, deductive analysis attunes to pre-existing theories, and thus don't reveal surprises in the data (Jamie and Rathbone, 2022), whereas inductive analysis pays

more heed to the empirical data, and thus lacks theoretical focus (Linneberg and Korsgaard, 2019). Moreover, various authors have accentuated the significance of abduction for sensemaking (Abolafia, 2010; Liff and Rovio-Johansson, 2015; Lundberg, 2000, Weick, 2010, 2012), indicating the fact that abduction aligns very well with the theoretical lens of sensemaking (Jones and Li, 2017). Consequently, pertaining to the research question and objectives of this thesis, the researcher has resorted to abductive analysis (Cunliffe and Coupland, 2012), and has thus explored and interpreted surprises in the sensemaking experience of the senior managers w.r.t the various functions of subjective time. Therefore, abduction allowed the researcher to have simultaneous engagement with empirical data (induction), and the previous theoretical understanding on the three functions of subjective time and sensemaking (deduction) (Earl-Rinehart, 2021). Abduction has also enabled the researcher in constructing a fine-grained explanation of the data and harnessed the sequential understanding and integration of semi-structured interviews into single situation models (Funke and Frensch, 1995), via illustrating the various interactions of attending, preparing, and comprehending functions of subjective time with the identification, interpretation, and enactment phase of sensemaking (Jansen and Shipp, 2019).

This thesis has coupled abduction with thematic analysis which is frequently used in qualitative research (Braun and Clarke, 2006). Thematic analysis was particularly useful for this research because it provided a theoretical freedom and flexibility to the researcher (Nicholas and McDowall, 2012), using which the researcher adapted the analysis to the research question and objectives of this study, and yet provided an in-depth account of all the semi-structured interviews. Therefore, given the interest of exploring the influence of functions of subjective time in the sensemaking of different senior managers, this study has used thematic abductive analysis to analyze all the semi-structured interviews (Meng, Newth and Woods, 2022). Thematic abductive

analysis assisted the researcher in exploring common thematic elements of different functions of subjective across the sensemaking experiences of different senior managers, and thus enabled the researcher to comprehend and collate the meanings which these managers have attributed to the sensemaking experience of uncertainty (Trainor and Bundon, 2021). In addition, thematic abductive analysis was extremely useful in exploring and examining the differences in the views of different managers, which has spurred surprising and unanticipated insights (Chen et al., 2021; Golden-Biddle, 2020). For instance, researcher managed to interview three senior managers in Fintech A. All three managers focused on the present time but identified different current uncertainties. Therefore, thematic abductive analysis enabled the researcher in capitalizing on such interesting differences between the lived experiences of different senior managers, where despite working in the similar organization different senior managers had identified different current uncertainties (induction), with a temporal focus on present time (deduction), where temporal focus corresponds to the attending function of subjective time (Shipp and Aeon, 2019). Nvivo 2020 has been used for the effective management and analysis of data (Alam, 2021). Thematic abductive analysis conducted via Nvivo 2020, has helped the researcher in summarizing the findings of the large data set (39 semi-structured interviews), in a clear and organized structure (Vila-Henninger, 2022), as the final analysis was illustrated in the form of first order codes, second order codes and aggregate dimensions (Stylos et al., 2021).

Next section elaborates on the way this thesis has conducted thematic abductive analysis, that has facilitated a clear and systematic analysis for this research.

3.4.1 Thematic Abductive Analysis

3.4.1.1 Transcription and Familiarization

Thematic abductive analysis commenced with the transcription and familiarization (Thompson, 2022). This was done in two phases. Firstly, Zoom/Teams uses automated speech recognition to provide live transcription of the interviews (Chen et al., 2023). Hence, during the interviews such live transcription became the source of interview notes for the researcher and allowed him to ask questions on issues that required further details and clarification (de Villiers, Farooq, and Molinari, 2022). Secondly, at the end of each interview, the researcher compared each and every word of the auto-generated transcripts with the video recordings of the interviews to ensure verbatim transcription of the interviews (Halcomb and Davidson, 2006). Subsequently, to ensure respondent validation (Brod, Tesler and Christensen, 2009), these verbatim transcripts were emailed to the participants. This gave an opportunity to the participants to review their responses, and once they agreed with their transcripts the process of transcription was completed. This furthered the credibility of transcripts, and thus also enhanced the accuracy of data and findings (Rowlands, 2021). After such verification, transcripts were read and reread once again, to augment the familiarization with the transcripts (Nasheeda et al., 2019). Therefore, transcription process wasn't a simple task of editing words, rather such active and multiple interactions with the transcripts led to emergence of ideas and recognition of underlying patterns even before the coding was started (Kobori, et al., 2012), and thus signified an interpretive act in which meanings were constructed continuously (Crowther and Thomson, 2020).

3.4.1.2 Creating Initial codes: First Order concepts

A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and/or evocative attribute for a portion of language-based or visual data" (Saldaña, 2021, p.3). Coding in this research has commenced by forming first order

codes. Coding at this stage had initially gone to the first round of coding in which the initial link between the raw data and the cognitive interpretation of the researcher was established (Fox-Wolfgramm, Boal and Hunt, 1998). During this phase, the researcher resorted to lumped coding in which the researcher holistically coded more specific and contextualized paragraphs of the interviews (O'Connor and Joffe, 2020). This characterized the open coding phase in which every single point of significance in all the 39 semi-structured interviews were given the inductive first order codes to extrapolate the semantic meanings of the words of the participants (Rahman and Cachia, 2021). For instance, in response to the interview question “*What are the events that are causing uncertainties for your organization?*”, two managers gave the following responses:

Associate director B of Consultancy A: “*I think well we're living in a completely uncertain world... and I think there is a broader macro-economic uncertainty at the moment which isn't helped by our friend's sort of sitting on the borders of Ukraine at the moment, so I think there's a macroeconomic concern.*”

Founder and executive director of the Fintech E: “*we continue to witness covid-19 since 2020*”.

Codes given to these two responses were the current macroeconomic and Ukraine war uncertainty, and the current Covid uncertainty, respectively. These codes were discussed with the supervisors, and thus had gone through various iterations (second and third round of coding), during which they were edited and improved, and thus reliability of the coding was also enhanced (Hruschka et al., 2004). Therefore, in the subsequent rounds of coding, these related uncertainties (for instance, from the example above, current macroeconomic and Ukraine war uncertainty, and the current Covid uncertainty) were grouped into current macro-environmental uncertainties, to avoid overlapping of the similar types of codes. This signified the heuristic process in which researcher

was able to link data with the idea, and thus developed a fine-grained understanding of underlying patterns and relationships prevalent in the data (Jnanathapaswi, 2021). All the 39 interviews were given the first order codes in this manner, and hence this also concluded the process of forming first order codes, that permitted the data to be “*segregated, grouped, regrouped and relinked*” in furtherance of the consolidation of the meaning and the explanation (Connor and Cavendish, 2020, p. 294). Similarly, while analyzing data the researcher had highlighted all the instances in which managers discussed the terms like guesses, gut feel, intuition and had given them the first order code of “*use intuition*”. Similarly, the researcher separately highlighted all the discussion on prior knowledge and experience and had given them the first order code of “*recall experience*”. As both intuition and experience were temporally used in the evaluation of strategies for uncertainties, the researcher had grouped together these two first order codes (induction), into the second order code of “*temporal evaluation of strategies for uncertainties*” (deduction, signifying preparing function, as managers engaged in a mental time travel into the future or past, to evaluate strategies in present).

3.4.1.3 Development of themes and theorizing: Systematic combining of data and theory

Once all the first order codes were collated and finalized across all the 39 semi-structured interviews, the focus of the analysis has been shifted towards creating broader themes (Vaismoradi et al., 2016). Researcher had grouped all the different first order codes into the second order themes, which were eventually collated into aggregate dimensions, based upon their capacity to clarify the story behind the data (Braun and Clarke, 2006). These themes captured the essence of all the interviews in relation to the research question and objectives of this research, and thus illustrated a patterned response and meaning which emerged in all the interviews (Braun and Clarke, 2012). Transition from the first order codes to the second order themes and aggregate

dimensions was facilitated by theoretical saturation (Rowlands, Waddell and McKenna, 2016). Theoretical saturation was achieved when the researcher had interpreted all the relevant conceptual categories (Hennink, Kaiser and Marconi, 2017), i.e. all the instances in which the three functions of subjective time were influencing the sensemaking phenomenon. At this stage data categories were firmly established and validated, because novel insights and new themes stopped emerging, and no new issues were seen around a category of data (Bowen, 2008). Most significantly, the analytical process of developing second order themes (axial coding), and eventually their respective aggregate dimensions was facilitated via abduction (Magnani and Gioia, 2023), which systematically and creatively combines data (induction) and theory (deduction), to provide novel theoretical insights (Linneberg and Korsgaard, 2019). At this stage the focus shifted towards forming latent themes (Valdez, Pickett and Goodson, 2018), in which the researcher has gone beyond the data to abductively theorize the significance of attending, preparing and comprehending function of subjective time (Branzei, and Fathallah, 2023), in the identification, interpretation and enactment (strategy development amidst uncertainty) phases of sensemaking (Jeong and Brower, 2008). For instance, managers formed stories on events that have caused similar/different uncertainty over past, present, and future to implement past/different strategies in the present. Different managers had interwoven different uncertainties while they were constructing their storied accounts, and hence the researcher inductively formed the two first order codes *“implement past strategies for the similar uncertainty over the years”* and *“implement different strategies for the different uncertainty over the years”*. As this story construction entailed the simultaneous integration of past, present, and future temporal zones, the researcher had systematically combined these two inductive first order codes, with the theory on comprehending function (deduction) (Shipp and Jansen, 2021), to abductively form the second order code i.e.,

“form narratives of implementation”, because narratives are a mechanism of comprehending function of subjective time, which simultaneously integrates past, present, and future temporal experiences into a coherent story (Shipp and Jansen, 2021).

Nevertheless, the researcher didn't attempt to reinvent the wheel by exclusively resorting to induction (Gioia, Corley and Hamilton, 2013). In addition, researcher didn't fit the data into pre-existing theoretical frameworks by solely relying on deduction (Kennedy and Thornberg, 2018). Instead, researcher followed an abductive approach to creatively form and collate second order themes and aggregate dimensions (Timmermans and Tavory, 2012), which were only guided but not solely determined by pre-existing theoretical frameworks (Bouncken, Qiu and García, 2021). For instance, analysis of this thesis evidenced that the attending function influenced the identification of present/future uncertainties via temporal focus (Peltokorpi, Allen and Shipp, 2023). Extant literature argues the fact that the temporal focus enables individuals to draw selective attention to only one time zone (past, present, or future) (Li and Cao, 2019). But senior managers on a lot of occasions had drawn a concomitant focus on two temporal zones, for instance a simultaneous temporal focus on the present-future temporal zones to identify current uncertainties. Therefore, researcher had redefined the concept of temporal focus, in which there can be a concurrent focus on the two temporal zones to render a particular activity (for instance, identification of uncertainties), to interpret and expound on the surprises in the lived experiences of the senior managers, by synchronizing data with theory in imaginative ways (Cunliffe and Coupland, 2012). Figure 3.4 (Appendix) illustrates the coding structure and frame of the first, second order codes and the aggregate dimensions.

3.5 Ethical consideration

Deontological philosophy has been pursued to arrive at ethical decisions (Skinner, Ferrell, and Dubinsky, 1988). Deontological philosophy ensures that research is conducted in an appropriate way via privileging duty and responsibility over the ends achieved (Paquette, Sommerfeldt and Kent, 2015). Consequently, any practice that might have caused any unease or harm to the respondents was avoided. Table 3.6 depicts the 6 broad ethical areas that the researcher has incorporated into the underlying research.

Table 3.5: Ethical considerations

Ethical considerations (Giordano et al., 2007)
1. Voluntary participation
2. Informed Consent
3. Confidentiality
4. Anonymity
5. Potential harm to participants
6. Communicating the results

3.5.1 Voluntary participation

Respondents had participated voluntarily and there was no coercion or deception. Respondents were made aware that their organization has allowed the researcher to ask them questions about the uncertainty and strategy. There wasn't any penalty if someone did not participate, and the information from the research was not provided to the employer.

3.5.2 Informed consent

To address this issue, the researcher provided an information sheet (ICF, Appendix) to each respondent. As this sheet had contained the official letterhead of Strathclyde university, respondents knew that it was an official and authentic research, and thus its purpose was not limited to generating more responses.

3.5.3 Confidentiality and anonymity

To ensure confidentiality, it was made sure that the identity of the respondents was not revealed while writing the report. Managers and their respective organizations were given pseudonyms to maintain anonymity. For instance, CEO of Fintech A.

3.5.4 Potential harm to participants

Given the nature of the topic, no physical harm to the respondents was expected. Although the construct of uncertainty might have elicited some uneasy memories, causing psychological or emotional harm (Miceli and Castelfranchi, 2005). To deal with this, respondents were given complete autonomy to not answer any question or withdraw from the interview at any point in time.

3.5.5 Communicating results

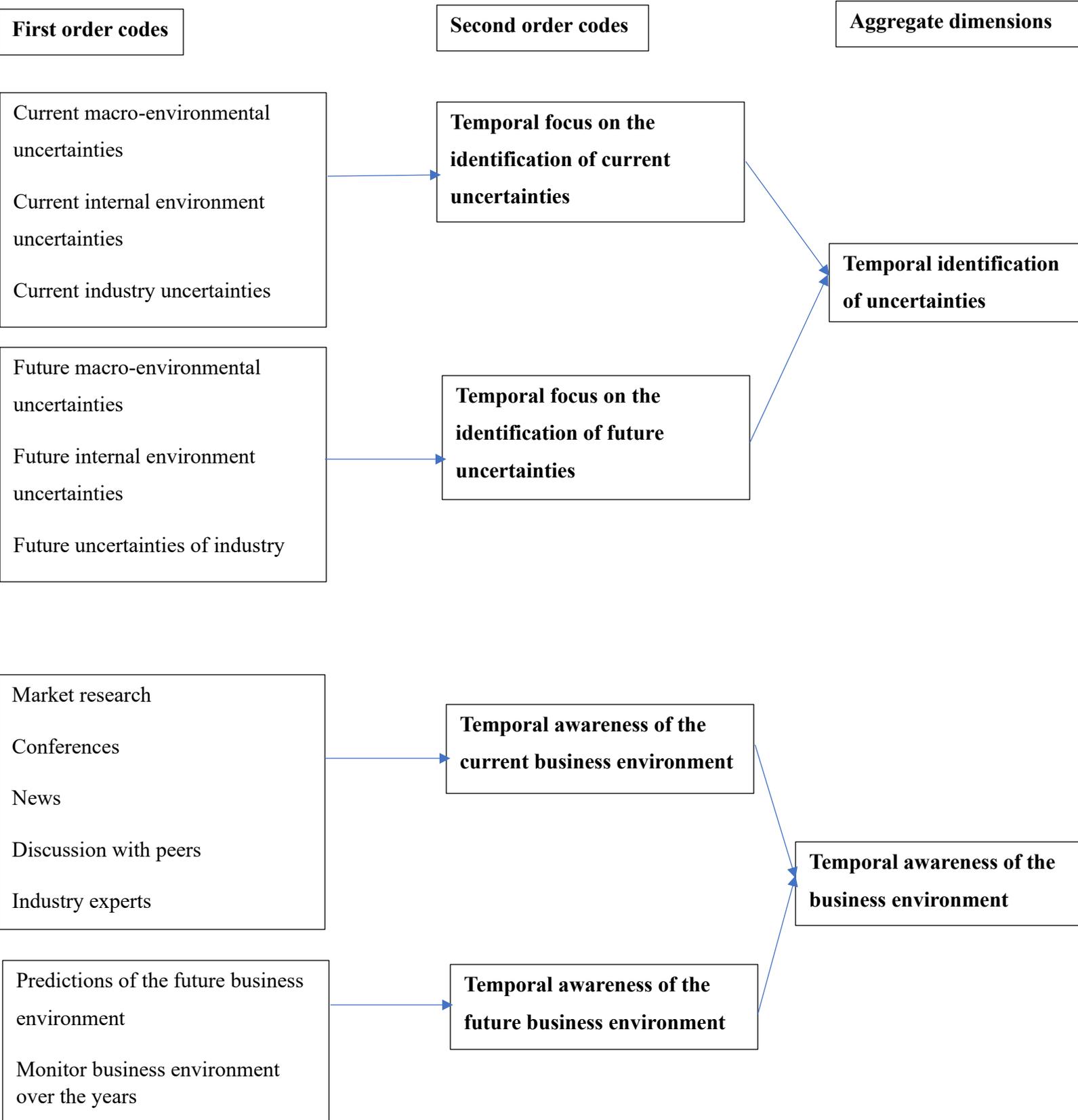
Someone else's work was not represented as the work of the researcher. Hence plagiarism was kept at bay at all costs (Gunnarsson, Kulesza and Pettersson, 2014). Any idea or texts borrowed were properly referenced, and it was made sure that all the references commensurate with the Harvard referencing style. Data was honestly reported as obtained, to avoid its intentional misrepresentation and academic fraud.

Chapter 4: Making meaning of uncertainties

4.0 Introduction

This chapter has addressed the first research objective of this thesis “*how the functions of subjective time or interactions between them facilitate the identification, interpretation and meaning construction of uncertainty?*” Attending and Comprehending function were evident at this stage of sensemaking. Attending function demonstrated how managers can draw selective attention to past, present, or future temporal zones, to inform their present experiences Comprehending function had shown its influence on phases where managers had simultaneously connected past, present, and future temporal zones, to guide their present experiences The findings of this chapter were guided by the analysis of the data, which culminated into the data structure below (Figure 4.1). The data structure consists of four aggregate dimensions: Temporal identification of uncertainties; Temporal awareness of business environment; Temporal interpretation of uncertainties; Creating an ongoing meaning. Figure 4.2 has presented the empirical framework that represents the interactions between different aggregate dimensions.

Figure 4.1: Data Structure



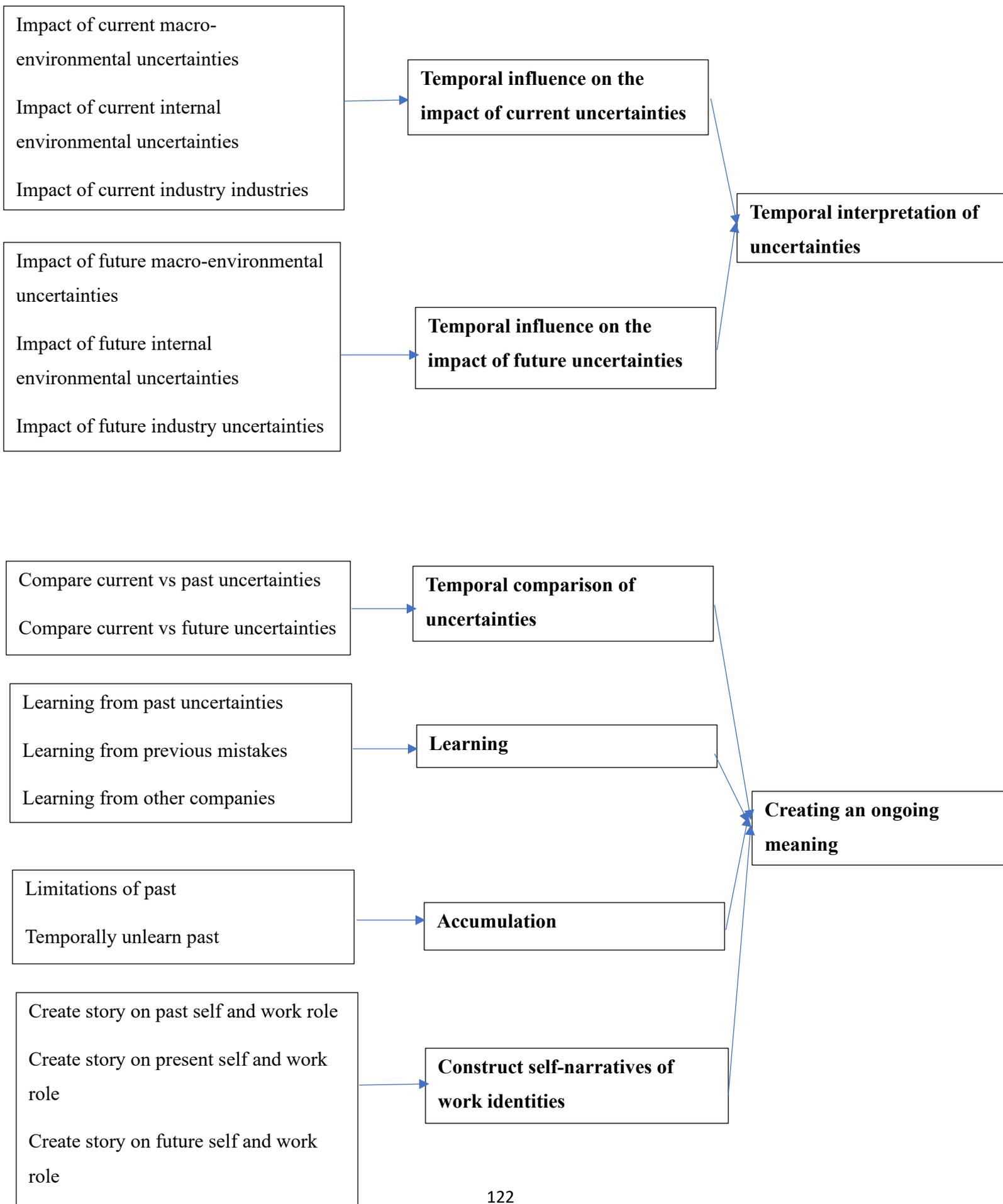
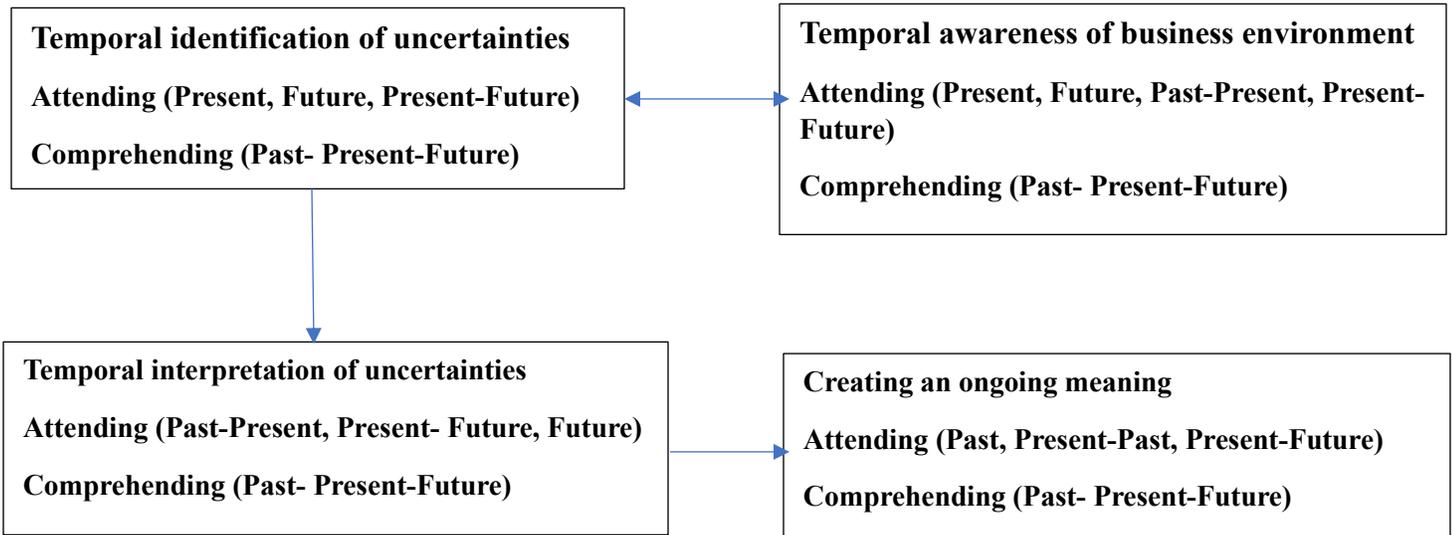


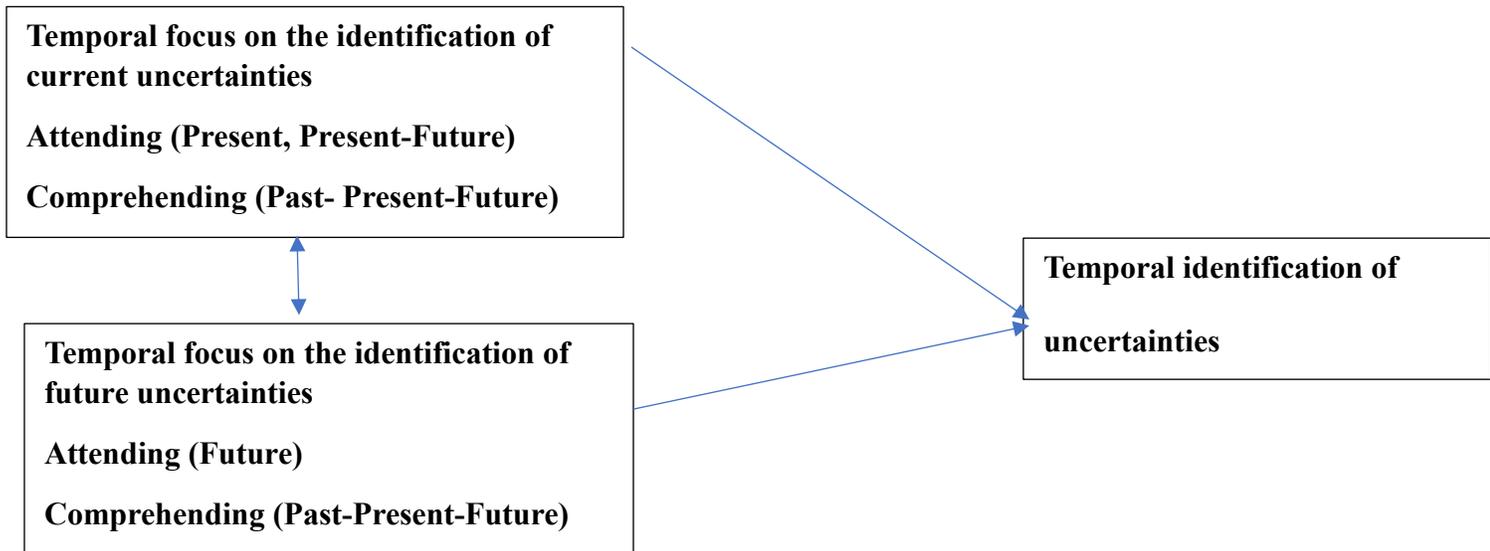
Figure 4.2: Empirical Framework



The section below has unpacked the empirical framework in figure 4.2, and thus has delved deeper into how managers commenced with temporal identification of uncertainties and concluded with creating an ongoing meaning of uncertainties.

4.3 Temporal identification of uncertainties

Figure 4.3: Temporal identification of uncertainties



Temporal focus corresponds to the attending function of subjective time in which individuals selectively draw cognitive attention to a particular time period (past, present or future), to filter information (Peltokorpi, Allen and Shipp, 2023). This section shows how managers draw attention to the present and future subjective time to identify current and future uncertainties. In addition, the comprehending function also influence this stage of sensemaking as managers simultaneously integrated past, present, and future temporal zones to identify some current and future uncertainties. The section below expands on these findings. Table 4.3 presents other exemplar quotes on the temporal identification of uncertainties.

4.3.1 Temporal focus on the identification of current uncertainties

Managers focused on the present time to identify all the current uncertainties of their respective organizations. Managers discussed current macro-environmental uncertainties, current internal environment uncertainties and the current uncertainties of the industry. Majorly, attending function was evident, as managers focused on one temporal zone or had drawn a concomitant focus on the

two temporal zones, to identify current uncertainties. However, the comprehending function also influenced the identification of some current uncertainties, during which managers simultaneously integrated present with the past and future temporal zones, to identify these current uncertainties.

4.3.1.1 Current macro-environmental uncertainties

Managers focused on the present temporal zone or integrated past, present and future temporal zones, to identify all the *current macro-environmental uncertainties*. Different managers identified different uncertainties. Even the managers who worked in similar companies identified different uncertainties. For instance, marketing head of Fintech A, discussed how he identifies current economic uncertainty “*so, you've got that sort of economic uncertainty...*”, with the inherent focus on the present time “*...going on*”. On the contrary founder of Fintech A, had shed light on how he identifies and links different types of macro-environmental uncertainties “*economic events and political events as political, economic, events are linked...*”, by drawing a focus on the present time “*... at the moment... I think are the two biggest influences*”. Whereas the CEO of this Fintech A, discussed how he identifies specific uncertainties in the macro-environment “*you know capital markets, moving out of city and more into you know European destinations post Brexit follow up from that you know there's just there's so many uncertainties within, like there's a lot of you know, talk of disintermediation etc. within financial services...*”, by focusing on the present time “*... and that's something which is an is prevalent on something we are aware of current uncertainty around financial disintermediation*”. This accentuates the fact that subjective and temporal perceptions of time lead to the identification of different current uncertainties. Hence, this thesis argues that these uncertain situations necessitate the qualitative subjective representations of individuals who can have different images, convictions, or opinions on different uncertainties (Rindova and Courtney, 2020). Subsequently, such subjective perceptions of uncertainty also dismiss the assertions that the duties of managers are just those of a statistician (Arrow, 1951), and hence this thesis theorizes the

role of subjective and temporal perceptions of uncertainty, in the managerial sensemaking (Dawson and Sykes, 2019).

Moreover, some managers have simultaneously integrated past, present and future temporal zone (Comprehending function), to identify other *current-macroenvironmental uncertainties*, that have actually stemmed from the past, but were expected to continue in the present and future. For instance, broking director of Insurance, discussed that he reflects on the past “*and within the last couple of years covid's and Brexit there's general things have happened...*” to identify current uncertainties that would continue to be uncertainties for his organization in the present and the future “*... that are expected to be there*”. Overall, the most common uncertainty that managers have identified in the underlying macro-environment was covid, as exemplified by the quote of the founder of Software B, who focuses on the present time “*I mean right now...*”, to identify the current uncertainty caused by covid “*...we are working more remotely than we would not that I would normally like to, so Covid is providing a bit of a challenge*”.

4.3.1.2 Current internal environment uncertainties

Managers have also focused on the present temporal zone or simultaneously focused on the present and future temporal zones, to identify all the current uncertainties in the internal environment of their respective organizations. Director of Consultancy A, discussed that he draws a concomitant focus on both the present and future temporal zones “*another factor that makes things difficult for us is that we work on projects and our projects are typically three to four months in duration, so we don't tend to get booked in advance too far in advance for projects...*”, to identify the current internal uncertainty, which would remain an uncertainty for his organization in the future “*...so we never really know what's happening more than a few months ahead so that's an uncertainty*”. This illustrated the fact that the way his organization approached new businesses caused temporal

uncertainty in the projects. Hence, it was evident again that how manager attended to both present and near future temporal zones, to identify current uncertainties which would continue to remain uncertainties in the future. This simultaneous focus on the present and future temporal zones established the fact that attending function is not limited to one-time frame.

Moreover, the founder of Digital Marketing, discussed that he focuses on the present time “...so, *at the moment...*”, to identify the current uncertainties in the internal environment, that are caused by the current uncertainties in the macro-environment “...*staffing is a big issue, it’s actually a massive issue due to covid... not all of us are efficient on a system*”. This accentuates the fact that focusing on present time assisted manager in linking the *current macro-environmental uncertainties* with the *current internal environment uncertainties*.

4.3.1.3 Current industry industries

Managers focused on the present temporal zone or simultaneously integrated past, present and future temporal zones to identify all the *current industry uncertainties*. Different managers identified different industry uncertainties, as they were working in different industries. For instance, Chief insurance officer of Insurance, discussed that he focuses on the present time “...*at the present time...*”, to identify current industry uncertainty that is caused by the nature of his particular organization “ *we are joining as a startup an industry that is already busy with lots of competition... and the United Kingdom insurance broker market is extremely competitive very fragmented between very powerful big, big players and hundreds if not thousands of very small brokers, so that alone is an area of uncertainty as to how successful the business can be ...*”. In addition, vice president of Software A, discussed that he simultaneously focuses on the present “*understanding the growth in some of the target markets we’re interested in, understanding how much of some of that growth today is a bubble...*”, past “*when the pandemic past six ...so how*

much of the growth in certain set factors that may have been driven by the pandemic...”, and future temporal zones “ *how much of that will continue to grow at the same rate will apply note, or will it drop away again...*”, to identify the interlinkages between two different types of current uncertainties i.e. industry uncertainty (growth uncertainty), and current macro-environmental uncertainty (pandemic).

4.3.2 Temporal focus on the identification of future uncertainties

Empirical evidence also revealed that managers particularly focused on the future temporal zones or integrated past, present and future temporal zones to identify three types of future uncertainties, that they anticipated to emerge in the years ahead. Future macro-environmental uncertainties, future internal environment uncertainties and future industry uncertainties were identified at this stage. Predominantly, attending function influenced the identification of future uncertainties, as managers had drawn an exclusive focus on the future to identify these future uncertainties. Nevertheless, comprehending function also influenced the identification of some future uncertainties, during which managers simultaneously integrated past, present and future to identify these uncertainties.

4.3.2.1 Future macro-environmental uncertainties

Managers discussed that they focus on the future time to identify all the *future macro-environmental uncertainties* that could possibly emerge in the years to come. As the aviation chief executive of Aviation C, discussed that she focuses on the future time “...*for the next five to ten years...*”, to identify future uncertainties “...*I think the continued view of environmental will start getting involved with these uncertainties...*”, that could possibly emerge from the changing legislation and regulation “...*when legislation and regulation starts to put a constraint around them...*”.

4.3.2.2 Future internal environment uncertainties

There were all the uncertainties that managers thought they could potentially encounter in their internal working environment in the years ahead. Managers either focused on the future temporal zones or simultaneously integrated past, present and future temporal zone to identify these *future internal environment uncertainties*. As the CEO of Coworking space, discussed that he focuses on the future time “...*I suppose it's all uncertain; that's the whole thing of the future...*”, to identify the future internal uncertainty “... *work I believe in the future; the biggest uncertainty will be how we work; how we work and where we work will be the biggest one*”, that will possibly emerge from a change in operations and business location “...*and but the main things that we will focus upon on is how people are interacting with how they choose where they live, how, where they live and where they work*”. Whereas the head of department of Education B, had discussed that he focuses on the future time to identify future internal uncertainty, regarding the work capability of the employees and the finances of his department “... *so in future wellbeing of the employees... income streams.... if you will be in a deficit particularly unplanned deficit than you will start to lose control of your decision making and that's true for company and so as university...*”, during which he simultaneously integrates past, present and future temporal zones to reflect on the existing macroenvironmental uncertainty of covid, which might augment this future internal uncertainty “...*we must recognize that people have gone through difficult 18 months for lots of different reasons.... some of the colleagues might not adjust and they would need to be helped so that they can be adjusted*”. This re-establishes the interaction of attending and comprehending function, because the focus of managers on the future time (attending), also triggered a simultaneous integration of past, present and future temporal zones (comprehending), where managers engaged in a mental time travel across the past, present and future to identify the future internal uncertainties.

4.3.2.3 Future industry uncertainties

Managers discussed that they focus on the future time to identify all the future uncertainties that could possibly emerge in their respective industries in the coming years. Founder of Digital Marketing, discussed that he focuses upon the future time “...*I think in the next five to ten years probably...*”, to identify future industry uncertainty around client retention and growth “*I think uncertainty would be...so, it's going to be a say we have a test over the next few years to see what kind of client retention... and around growth factor side*”.

Overall, it can be established that the temporal identification of current uncertainties takes place via the temporal focus on the perceptions of the current uncertainty or their trends in the future, and also through the simultaneous integration of these current perceptions on uncertainties, with the memories of these similar uncertainties in the past, and their trends of the future. Moreover, the temporal identification of future uncertainties take place via the sole temporal focus on the anticipations of the future uncertainties, and the simultaneous integration of these future anticipations, with the past memories related to these uncertainties, and their current perceptions. Therefore, mental time travel doesn't necessarily stem from the objective view of time, in which it only takes place across past-present-future and is only subjected to a single interpretation (Slawinski and Bansal, 2012). Rather, it can converge with the subjective view of time, where it can have multiple interpretations (Eldor et al., 2017), and thus it can originate from the future and then take place backwards to present and past, or it can originate from present and then, simultaneously takes place across future (forward) and past (backward). Hence, the identification stage of sensemaking, is a temporal activity, in which current and future uncertainties are identified, through referencing of the present, future or both (via the temporal focus mechanism of the attending function), and also through the simultaneous integration of the past, present and future (via the comprehending function) (Shipp and Jansen, 2021).

Table 4.3: Exemplary quotes on the temporal identification of uncertainties

	Theme and Codes	Exemplary quotes
1.	Temporal focus on the identification of current uncertainties	
A	Current macro-environmental uncertainties	<p>Associate director B Consultancy A: “<i>I think well we're living in a completely uncertain world... (Present, Future) and I think there is a broader macro-economic uncertainty at the moment which isn't helped by our friend's sort of sitting on the borders of Ukraine at the moment, so I think there's a macroeconomic concern</i>” (Present).</p> <p>Founder and executive director of the Fintech E: “<i>we continue to witness (Present, Future) covid-19 since 2020</i>” (Past).</p>
B	Current internal environment uncertainties	<p>Chief engineer of Aviation B “<i>...the uncertainties... somehow, the lack of skill set sometimes (Present, Future), it's difficult to recruit the right people, it's quite complete nowadays (Present) in an</i></p>

		<p><i>enterprise environment, in my environment, where a lot of it is quite technical uncertainty, actually, not all the senior management has this structural approach strategy” (Present).</i></p> <p>Senior manager A of Energy: <i>“...now is sort of related but is around our supply chain (Present) so yeah just again in terms of like the actual materials that we need to be able to deliver and the scale of growth is a huge challenge around you know, limited global resource and how we can secure that supply chain given the uncertainty” (Present, Future).</i></p>
C	Current industry uncertainties	<p>Senior strategy manager B of Energy: <i>“...so currently we are exposed to you know, externalities within our industry...” and competing with other growing sector... (Present) that new organization, exists in a vacuum and in a silo... (Past) so renewables oil and gas...hydrogen ever takes off and you know so potentially we</i></p>

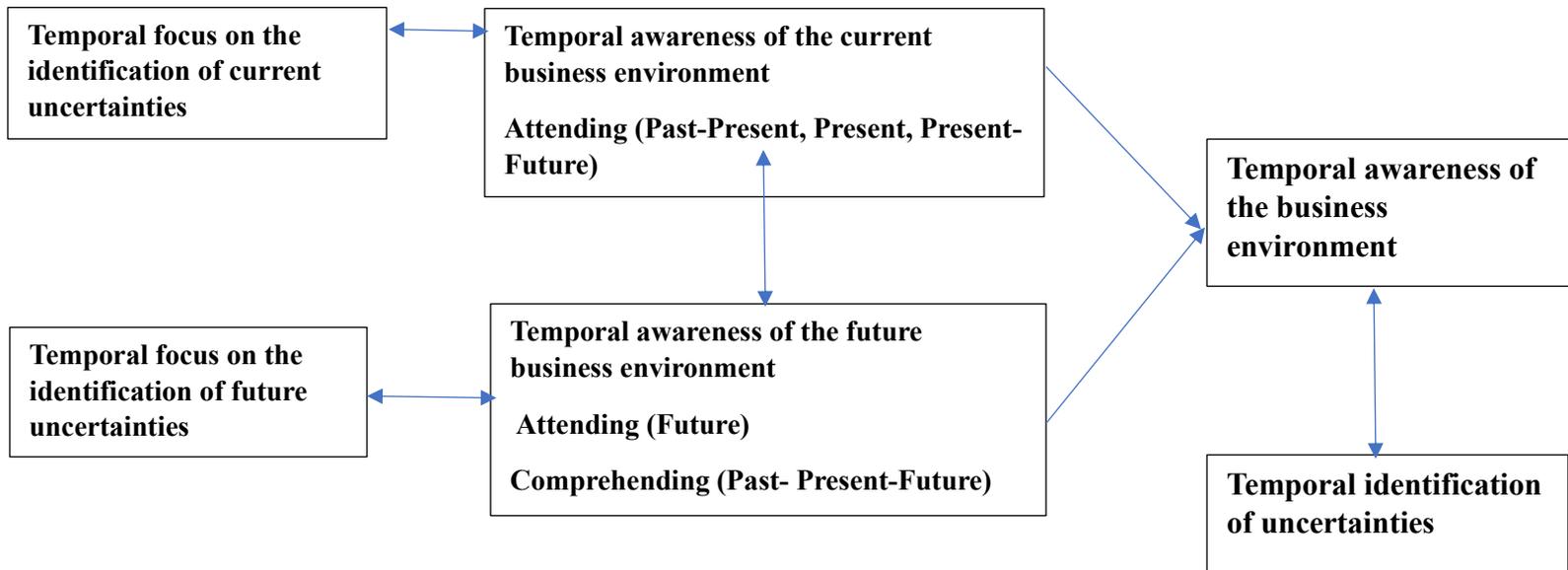
		<p><i>will be competing with some of these other areas...” (Future).</i></p> <p>Broking Director of Insurance: <i>“our main concern and the main uncertainty now (Present) and as always, would be (Future) the actual insurance market because we are brokers, we don't underwrite the policies we don't pay the claims ourselves, we essentially, put the client in touch with the best insurer on the best product that suits their needs” (Present).</i></p>
2	Temporal focus on the identification of future Uncertainties	
A	Future macro-environmental uncertainties	<p>Chief Innovation officer Software C:</p> <p><i>“...predicted recession (Future) and all of that, potentially the longest recession..., we don't know what the effect of that will be...” (Future).</i></p> <p>CEO of Technology A: <i>“...see for the next three to five years... (Future) how Britain is actually viewed, as far as a</i></p>

		<p><i>country that organizations want to invest in...so I think that will be one of the main challenges...” (Future).</i></p>
<p>B</p>	<p>Future internal environment uncertainties</p>	<p>Founder of Digital Marketing: <i>“I think retention applied is going to be a big deal over the next three to five years... (Future) I think one of the biggest things that I’m concerned about is, how you will raise funds to grow, the business or take it to the next steps.” (Future).</i></p> <p>Director of Business support: <i>“some of the future uncertainties (Future) will be our internal uncertainties like will there be any reorganizations changes of emphases which will inhibit our role and that you know can stop us doing stuff that's the same in any big sort of bureaucracy and that could happen and alike, (Future) so retirements of our aging management team who have worked with us from the beginning (Past, Present) and how new blood new ideas might come in to replace</i></p>

		<p><i>some of those so that's you know that's the purely internal focus” (Future).</i></p>
<p>C</p>	<p>Future industry uncertainties</p>	<p>CEO of Consultancy D: “...how the future shapes and unforeseen 2023... (Future) we will work with tech companies that's launched that tech here sometimes they outsource tech also from Ukraine...” (Future).</p> <p>Chief engineer of Aviation B: “...in the next five years... (Future) there will be a lot of uncertainty around large enterprises giving the first steps to actually implement a strategy of sustainability... it somehow needs to be an agreement of various parties” (Future).</p>

4.4 Temporal awareness of business environment

Figure 4.4: Temporal awareness of business environment



This section elaborates on the figure 4.4 and discusses that managers had drawn an exclusive attention to the present temporal zones or have drawn a concomitant attention to past-present and present-future temporal zones (Attending), to develop awareness on the current business environment, which also assisted them in identifying all the current uncertainties. In addition, during temporal awareness of the future business environment, managers had either drawn exclusive attention to the future temporal zones (Attending), or have simultaneously integrated past, present and future temporal zones (Comprehending), to develop awareness on the future business environment, which also assisted them in identifying all the future uncertainties. Temporal awareness of the current business environment and temporal awareness of the future business environment characterized this phase. Table 4.4 also shows more exemplary quotes on the temporal awareness of the business environment.

4.4.1 Temporal awareness of the current business environment

This phase depicted that various managers draw attention to the present temporal zones or draw a concomitant attention to past-present and present-future temporal zones, to develop awareness on the current external (macro-environment and industry environment), and the internal business environment, which also assisted them in identifying all the current uncertainties discussed erstwhile. Market research, conferences, news, discussion with other peers and industry experts were discussed at this stage.

4.4.1.1 Market Research

Managers discussed that resorting to present time to conduct market research helped them in developing an awareness of current macro environment, current internal environment and current industry environment, that also leads to the identification of current uncertainties in all of these environments. As the CEO of Technology A, discussed that he adheres to the present time “...*and your time is really...*”, to conduct market research via surveys “...*surveying...*”, which assists him in developing an awareness on the current industry environment “...*Europe not as much as the Middle East, where we’re looking at so the Middle East so we look at where we’re going to be trading..., and plus a bit over in the west, as well, with the Americans, because we’ve got some stuff over there..*”, and thus also helps him in the identification of the current industry uncertainties that are caused by the changing demand of the clients in the technological industry at various parts of the world “...*and how they are responding, and what they’re doing, and what their plans are so, we’ll look at how we can work together...*”.

4.4.1.2 Conferences

Managers discussed that conferences raise their awareness of the external business environment, during which they draw focus on the present and future temporal zones to identify the underlying uncertainties in this environment. Director of business development of Technology A, had shed

light on how he currently develops awareness on the current-macroenvironment by going to the conferences “...I do a lot of that through conferences I say that that I've been to a lot of conferences, but you know that a lot of those conferences stopped so, they're coming back and I still go to them now what I do I attend a lot of them online and that's been a valuable tool in...”, during which he focuses on the present and future temporal zones, to identify current uncertainties and their trends in the future “...in keeping up to date with uncertainties...and at the same time where you know we don't want to take the business...”.

4.4.1.3 News

Managers discussed that news helped them in raising awareness of the current external business environment, during which they also attend to present/future or both temporal zones, to identify current uncertainties in this environment. As the executive chair of Fintech D, discussed that he attends to present time while watching news “...which you can see in the news right now...”, which helps him in augmenting his awareness on the current external environment, and thus the identification of the current uncertainties caused by the changing political situation “... which are destabilizing the global political position...”.

4.4.1.4 Discussion with peers

Managers elaborated on how an active conversation with the peers (inside and outside the organization of these managers), leads to the creation of individual and shared mental models, which helped them in raising awareness of the current external business environment, during which they focus on both the present and future temporal zones, to identify current uncertainties and their pattern in the future. Like the chief engineer of Aviation B, discussed how interactions with the peers in the consortiums result in the formation of shared mental models, which leads to the collective awareness of the current external environment “...these are like consortiums, so we have representatives from consortium in the US, UK that actually make European-based

companies they come together, they bring resources together outside and they just create a platform... who are aware of... keeping aware of what is happening out there...”, where his own distinct mental models are created as he delves deeper into how different peers in these consortiums are monitoring the current external environment and making strategies to tackle the underlying current uncertainties “... try to assess their capabilities internally...because they don’t have the capabilities for this continue monitoring... then each of the players then takes this information and creates its own strategy to address the information about the uncertainties...”, and where he also draws a concomitant focus on both the present and future temporal zones to identify current uncertainties in the external environment “...that will screen all these external factors for all the players ...the uncertainties that, for example companies in the UK can experience in the US market”, and their pattern in the future “...what is in horizon scanning of these in the US and the others...” .

4.4.1.5 Industry experts

Managers discussed that they draw attention to either past/present or both temporal zones, while listening to the industry experts, to raise awareness on the current business environment (internal, external), which also leads to the identification of current uncertainties in this environment. Vice president of Software A, discussed that he draws a concomitant attention to the present “...now there’s a guy in the financial market called “Person X” who is well known particularly in, he’s doing a lot on digital ID...and some of the things, for example, of some of the covid apps in terms of the way they work in terms of proving somebody’s been vaccinated...”, and past temporal zones, while listening to the industry experts in the software industry “because he’s been talking about these 10 years so...there that if you listen to the right people the industry experts and you work with people, and you get to know them you’ll get again...”, to raise awareness on the current external environment, which assists him in identifying the current macro-environmental

uncertainties “*you can quantify you get a confidence level of thinking well actually now, it makes sense, so therefore this is how we should react in that environment... there are several things... if they've listened to the “Person X” their problems wouldn't happen*”.

4.4.2 Temporal awareness of the future business environment

This phase signified that managers had either drawn an exclusive attention to the future (Attending), or have simultaneously integrated past, present and future business environments (Comprehending), to raise awareness on the future business environment, which also aided the identification of the future uncertainties. Predictions of the future business environment and business environment over the years has characterized this stage.

4.4.2.1 Predictions of the future business environment

During this phase managers discussed that they draw an exclusive attention to the future temporal zone to anticipate the future of their business environments, which assists them in developing an awareness of this environment, and thus also helps them in the identification of future uncertainties. Investment director of Fintech B, discussed that he draws an exclusive attention to the future temporal zone, to predict the future industry environment “*...and on what does the world look like in 10 years...*”, which assists him in developing an awareness of the future trends in the industry environment “*so, I think we know that trends come in...*”, and thus also aids the identification of future uncertainties in this future industry environment “*...what trends are actually going in their favor so we're looking at things like future work climate...*”.

4.4.2.2 Monitor business environment over the years

Previously attending function was evident as managers had drawn exclusive attention to the future temporal zone, to increase their awareness on the future business environment. Now comprehending function influenced the awareness of the future business environment, as managers simultaneously integrated the episodic memories of the past business environment, with the

perceptions of current business environment, and the episodic future of the business environment. Such understanding of the past, present and future business environments assisted managers in monitoring the business environment over past, present, and future, which augmented their awareness of the future business environment, and thus also assisted them in identifying future uncertainties. As accentuated by the currency strategy head of Foreign Exchange , who discussed that he monitors the business environment over the years by integrating the episodic memory of the past industry environment “*like we have been since the start of this year equity markets selling off crypto space selling off...*”, with the current perceptions of the current environment of industry “*...right now it’s collapsing, you know very, very quickly...but we know that the competition are probably suffering a similar scenario, so you know we have work to do internally to ensure that we don’t get ourselves into that kind of situation and financial markets dislocation well, we have to ensure that we we’ve hedged our own bets...*”, and the anticipated episodic future of the business environment “*...how does that interest rate markets and yield markets will move higher...this is cross asset class dislocation*”, to augment his awareness of the future business environment “*...I’d say historic vs future...I mean we can’t predict what’s going to happen with a pandemic...can we predict what the labor markets going to look like in 12 months 18 months’ time well, no... but what we can do is go based off what’s already happened...*”, which also leads to the identification of future uncertainties “*...future macroenvironmental uncertainties...*”.

Overall, this thesis theorizes that sensemaking is actually an iterative process (Sandberg and Tsoukas, 2015), where identification is succeeded by awareness, and these two stages take places simultaneously. Temporal awareness of the current business environment took place iteratively with the temporal focus on the identification of current uncertainties. Temporal awareness of the current business environment, therefore, signifies a temporal activity, which is facilitated solely

by the attending function, as it involves the attention to one (present), or two temporal zones (past-present, present-future). Temporal awareness of the future business environment took place simultaneously with the temporal focus on the identification of future uncertainties. Temporal awareness of the future business environment thus again signifies a temporal activity, nevertheless it is facilitated both by the attending (sole attention to the future business environment), and the comprehending (simultaneous integration of the past, present and future) functions of subjective time (Shipp and Jansen, 2021). Subsequently, this thesis corroborates the intra-subjective time accounts to how managers form individualized experience of time through the psychological time travel either into future (George and Jones, 2000), or across past, present and future (Simpson, Tracey and Weston, 2020). Therefore, this thesis theorizes that the awareness of the environment, and thus the identification of current and future uncertainties in it, can also be contingent upon the insights and qualitative assessments of the managers (Samdanis and Lee, 2019). More precisely, such assessments are contingent upon either one temporal reference point, or a mental time travel across two or all three temporal zones (Hernes and Obstfeld, 2022). Moreover, this thesis theorizes that the anticipations of the future business environment can be made without formalized techniques (Tapinos and Pyper, 2018). These anticipations of the future business environment are actually made via the mental travel time travel either into future or across past, present and future temporal zones, where such mental time travel is facilitated by the attending and comprehending function of subjective time (Shipp and Jansen, 2021).

Table 4.4 Exemplary quotes on the temporal awareness of the business environment

	Theme and codes	Exemplary codes
1.	Temporal awareness of the current business environment	
A	Market research	<p>Co-founder of Insurance: “...currently (Present) we’ve got independent studies, independent research that back up claims that we are on the right track so, really, we look at external sources to, to validate, and we also do a lot of customer surveys as well and not even customer surveys we do lots of surveying of the marketplace to find out what the challenges are, are reflexing those problems.” (Present).</p> <p>Associate director A of Consultancy A: “...here...at the moment... (Present) give it to somebody to do some background research in his spare time...and then build that into pilot projects in new areas...see what networks got connections you need to make, what skills you need, what qualifications you need...” (Present).</p>
B	Conferences	<p>CEO of Consultancy D: “...going to conferences...presently... (Present) or actually</p>

		<p><i>we also invite a lot of people for some of our events and you know, talking to folk leaders or those movers and shakers in the, you know, wider ecosystem you get a lot of information from that to form some kind of picture where that it's a picture about you know the financial standing of certain sector and uncertainties...”</i></p> <p><i>(Present, Future).</i></p> <p>Vice president of Software A:</p> <p><i>“currently...(Present) going to conferences to listen to people who are experts in the markets, giving their predictions... (Present, Future) and going to events going to trade shows seeing what other people are doing and listening to them to understand what’s happening in the environment...so yes that helps with uncertainties too...” (Present).</i></p>
C	News	<p>Founder and Strategic advisor of Fintech C:</p> <p><i>“...that would be on the news every day ... (Present) now that message from the UK population, as I am just focusing on the UK population...who put the signs can tell you that</i></p>

		<p><i>it's highly likely to happen unless we change” (Present, Future).</i></p> <p>Founder and CEO of Consultancy F: <i>“...and then really it’s sort of the macroeconomic uncertainties (Present) come through keeping and eyes on the news” (Present).</i></p>
D	Discussion with peers	<p>Director of business development of Technology A: <i>“...I have a network of colleagues, friends but I stay in touch with a lot of them are in likeminded businesses some of them are even potentially competition, and I don’t mind having a conversation with the competition if it also means knowledge sharing about what’s happening in the industry at the moment (Present) and that knowledge sharing isn't necessarily going to affect mine or theirs, but mine actually enhance and actually add a little bit more to the knowledge of uncertainties of both sides and how they might turn out in the future” (Present, Future).</i></p> <p>CEO of Technology A : <i>“...there are lawyers, journalists, accountants and marketing and</i></p>

		<p><i>other business heads that are in my sector that I really follow quite admirably..... some of them actually work as advisors on some of my businesses... and I take advice all the time... (Present) I like to keep very current and up to date with the environment... so I'll go to them and say, can you predict the future of these uncertainties with me” (Present, Future).</i></p>
E	Industry experts	<p>Associate director B of Consultancy A: <i>“from time to time you think of Bill Gates and his announcements (Present) about how we invested in in vaccines just before the pandemic... (Past) so he he's trying to invest in growing markets and saying that look, I've got a 20 time return on my investment on vaccine.” (Present).</i></p> <p>Aviation Chief executive of Aviation C: <i>“...specific experts in certain things, like we have forestry experts... (Present) that talk about climate control because it's worth knowing how a forest operates when you're trying to fight a fire...” (Present).</i></p>

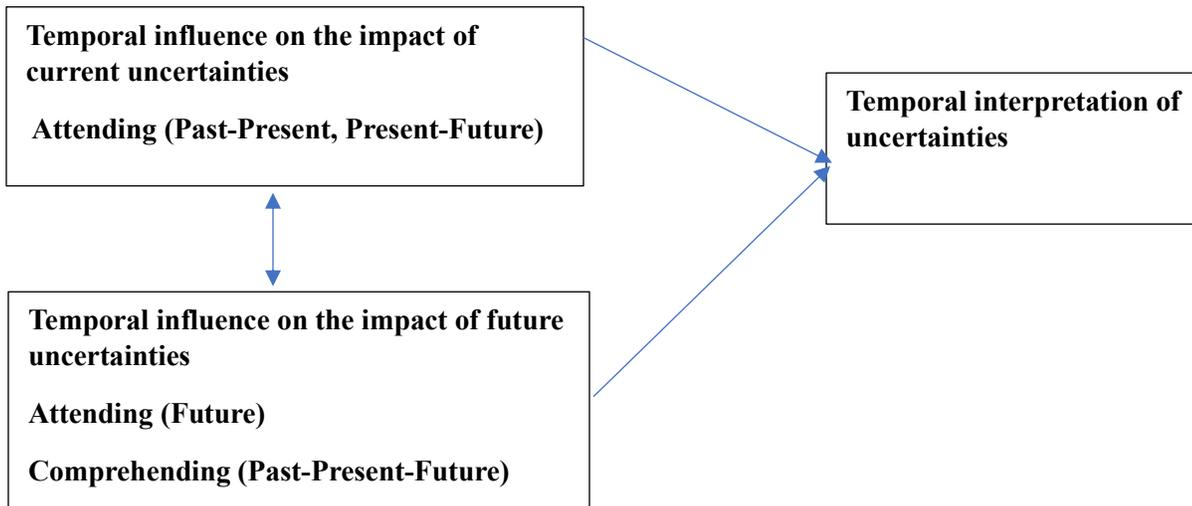
2	Temporal awareness of the future business environment	
A	Predictions of the future business environment	<p>Director of projects of Yacht: “...there's plenty of sources of good economic forecasting data available that doesn't always follow the popular television news view of the world and is likely to be revised and updated more frequently (Future) to help you with those future uncertainties” (Future).</p> <p>Associate director A of Consultancy A: “...so we're always looking and understanding how future market trends can, how companies can align the future market trends (Future), and the reason for it is that If you align to the future market... you can also come to know about future uncertainties” (Future).</p>
B	Monitor business environment over the years	<p>Chief engineer of Aviation B: “...if you think, 15 years ago, I don't know when – it didn't exist at all, so companies would have their own governance system, even if it was a combination of spreadsheets or whatever...(Past) but now as you move on, you start to have this software that starts to get into these organizations... (Present)</p>

		<p><i>so, whatever we want to do in the future needs to be compatible with this software... (Future) so their awareness may change in the future (Future) they are not as open as for example the automotive company or the technology company that changes quite fast, the product life cycle in aerospace or in defence is 20, 40 years whereas a mobile phone's is 1 year and in cars is 8, 10 years" (Future).</i></p> <p>Founder and Strategic Advisor of Fintech C:</p> <p><i>"...and the pension deficit in the UK is already 5 trillion... (Past) now, with a high degree of confidence that there is pension poverty... (Present) that problem if we don't solve that problem, there's a high degree that uncertainty that will be working longer so that living wage increase or the working living wage increase the acceleration of medical and technology or that is certainly the age of life will increase (Future)...if you then put that too, and actually that needs to be funded and the worry that you got pension deficit that means that the number of people that</i></p>
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		<p><i>will be excluded from a from a living pension”</i></p> <p>(Future).</p>
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4.5 Temporal interpretation of uncertainties

Figure 4.5: Temporal interpretation of uncertainties



This section discusses figure 4.5, in which managers discussed that the emotional reactions to the experiences of the past or future, influence the way they interpret the current and future impact of the current and future uncertainties on their respective organizations. Temporal influence corresponds to the attending function, in which past or future experiences directly affect the present affective reactions (Shipp and Jansen, 2021). Moreover, temporal influence on the impact of future uncertainties evidenced the presence of comprehending function, as managers simultaneously integrated the emotional reactions to the experiences of the past, present and future temporal zones, to anticipate the future impact of some of the future uncertainties. Temporal influence on the impact of current uncertainties and the temporal influence on the impact of future uncertainties, has characterized this phase. Table 4.5 presents some more exemplary quotations on the temporal interpretation of uncertainties.

4.5.1 Temporal influence on the impact of current uncertainties

Managers discussed that their current interpretation of the impact of all the current uncertainties on the current state of their respective organizations was influenced by their emotional reactions to the experiences of the past or future. Therefore, attending function was evident here. Impact of current macro-environmental uncertainties, impact of current internal environmental uncertainties and impact of current industry uncertainties has signified this stage.

4.5.1.1 Impact of current macro-environmental uncertainties

Managers discussed how their interpretation of the current impact of the *current macro-environmental uncertainties* has been influenced by their emotional reactions to the experiences of the past or future. Broking director of Insurance, discussed that attending to the past worries related to some current uncertainties “...with the recent weather as well... the reason why the claims we’ve had lots of floods in the last couple of years...”, influence the way she interprets the impact of such uncertainties on the current state of the organization “...we’ve seen an increase in escape of water planes due to poor plumbing, so those kind of specific sort of claim areas we don’t know whether certain insurers will be applying terms or not covering certain insurance won’t be it’s very uncertain as to how each specific and share where we are...”, where she also attends to the future anxiety about the current uncertainty due to covid “...how different insurers are going to feel about certain uncertainties we don’t know which insurers are going to have survived covid or might be having trouble...”, which influences the way she currently interprets the impact of such uncertainties on the current state of her organization “...which have affected the insurance market and realistically we’re still on so and as to how close it has it affected the insurance market but the insurance market the premiums are going up, but terms are being applied thus higher accesses less capacity from insurance of white-collar certain areas...”. Hence, it’s seen that manager had attended to the present time to interpret the current impact of uncertainty on the

current state of the organization, where her current interpretations have been influenced by the way she selectively draws attention to the emotions of the past or the future.

4.5.1.2 Impact of current internal-environmental uncertainties

Managers discussed that their interpretation of the current *impacts of current internal environmental uncertainties*, has been influenced by their emotional reactions to the experiences of the past or future. Associate director of projects delivery in Yacht, discussed that the interpretation of the current impact of the current internal uncertainty “...one of the biggest uncertainties is managing the growth, managing the impact of the growth on the organization...”, is influenced by the nostalgia of past in which the organization was managed easily “well “...because five years ago, you could manage the business by walking around the office...”, where such past nostalgia is challenged with the present fears of the negative impact that these uncertainties are having on the current state of the organization “...now it's impossible to do that and yeah, it's even impossible to do that in a single zoom call...”.

4.5.1.3 Impact of current industry uncertainties

Managers discussed that their interpretation of the current *impacts of current industry uncertainties*, has been influenced by their emotional reactions to the experiences of the past or future. Associate director of project delivery in Consultancy E, discussed that the current uncertainty due to public spending “in the particular industry that I work in, our currently working defense, there's uncertainty related to release of public spending”, is having an impact on the current state of the organization “the reprofiling of government in particular, sort of influencing us quite significantly...”, where the interpretation of the current impact of this uncertainty has been influenced with the anxiety of how it would affect the organization in the future “...might also affect our future work streams...”.

4.5.2 Temporal influence on the impact of future uncertainties

Managers discussed that drawing attention to the emotional experiences of the past or future influence the way they anticipate the impact of all the future uncertainties on the future state of their organizations. In addition, the impact of future macro-environmental uncertainties and the impact of future industry uncertainties, was also influenced by the comprehending function, as managers simultaneously integrated past, present and future emotional experiences to anticipate the future impact of these future uncertainties. Therefore, both attending and comprehending function was evident here. This section discusses the impact of future macro-environmental uncertainties, impact of future internal environment uncertainties and impact of future industry uncertainties.

4.5.2.1 Impact of future macro-environmental uncertainties

Managers discussed that their anticipation of the impact of the *future macro-environmental uncertainties*, has been influenced either by their emotional reactions to the experiences of the past/future or by the simultaneous integration of the emotional experiences of the past, present and future. Associate director B of Consultancy A, discussed that attending to the concerns regarding the changes in the future macro-environment “... *in areas of rail sector or whatever diesel locomotives will be taken out of operation over the next 20 years... phasing out of fossil fuels...*”, influences the way he anticipates the future impact of such future regulatory uncertainties on the future state of his organization “... *what is the replacement for that? How do we deal with freight implications of that? so there’s a lot of not just environmental concerns and considerations, from the point of view on sustainability per se, but the legal ramifications of changes that flow out of them*”. Whereas, comprehending function was evident during the discussion with fluid and mechanical system lead of Aviation A, as the simultaneous integration of past “ *so nobody has gone before and certified or put into series production and electric aircraft...*”, present “ *and now*

particularly one that takes off and lands vertically... ”, and future concerns regarding the new product “...because of that, the authorities that will give us the permits to fly and give us the types difficult that allow us to sell aircraft... ”, influences the way he anticipates the future impact of the future regulatory uncertainty around the new product “...we will not have the complete set of rules for us to be able to say yes, we have met Rule number one, rule number 2 so, we will need to work with them to understand what that looks like... ”.

4.5.2.2 Impact of future internal environment uncertainties

Managers discussed that their anticipation of the future impact of the future *internal environmental uncertainties* has been influenced by their emotional reactions to the experiences of the past or future. Currency strategy head of foreign exchange, discussed that the anxiety about the future internal environment with respect to the skills shortage “...those seasonal unskilled workers if they're not filling their roles... ”, influences the way he anticipates the future impact of this uncertainty on the future state of the organization “...then you get the trickledown effect into the pyramid so the employment side because that then means it's much more difficult to get the level of skilled people into your sector because they're moving elsewhere... ”.

4.5.2.3 Impact of future industry uncertainties

Managers discussed that their anticipation of the future impact of the *future industry uncertainties*, has been influenced either by their emotional reactions to the experiences of the past/future or by the simultaneous integration of the emotional experiences of the past, present and future. Certification Head of Aviation A, discussed that the anticipation of the future impact “...a risk that the products may be slightly heavier than we anticipated, or the range may not be as long as we could initially offer so than there will be mitigations ... ”, of the future technological uncertainty “...in terms of the technology side... ”, has been influenced by the simultaneous integration of the past, present and the future worries, related to the new battery technology “...so battery

technology, for example, already there's been huge improvements in the capacity... and power delivery of batteries over the years that's an onward trend it seem... so, there's a lot of design complexity there really, around understanding what failure will look like...”.

Hence, this thesis theorizes that the interpretation stage of sensemaking is facilitated by the temporal influence of the emotions. More precisely, the interpretation of impact of current uncertainties is solely facilitated by the temporal influence mechanism of the attending function, as this current interpretation was solely influenced by the emotional reactions of the managers towards the experiences of either past or future. In addition, the anticipation of the impact of future uncertainties is facilitated by either the attending or comprehending function, because this anticipation is influenced either by their emotional reactions to the experiences of the past/future (Attending), or by the simultaneous integration of the emotional experiences of the past, present and future (Comprehending). Therefore, this thesis unveils the latent role that emotions play in sensemaking (Maitlis, Vogus and Lawrence, 2013). In a similar vein, this thesis further theorizes that temporal negative emotions can also facilitate sensemaking process. For instance, worry, which is a negative emotion didn't block the sensemaking process of managers (Heaphy, 2017), rather it supported managers in their interpretation of the impact of various current and future uncertainties. Whereas this thesis also theorizes that the temporal positive emotions can facilitate the managerial interpretation of uncertainties (Helpap and Bekmeier-Feuerhahn, 2016), as the positive emotions related to some past uncertainties influenced the way managers deciphered the impact of certain current uncertainties. Therefore, this thesis argues that both categories of emotions (positive and negative) (Scarduzio and Tracy, 2015), can facilitate the interpretation stage of sensemaking.

Table 4.5: Exemplary quotes on the temporal interpretation of uncertainties

	Theme and Codes	Exemplary quotes
1.	Temporal influence on the impact of current uncertainties	
A	Impact of current macro-environmental uncertainties	<p>Aviation chief executive of Aviation C:</p> <p><i>“... whereas I think climate control (Present) and the impact of what we do and being linked to climate control again (Present) I think we will start noticing different governmental agendas and how they are pushing us to do certain things and re-educating us habitually...(Future) with regards to environment piece , fire-fighting across Europe, (Present) you will have seen this summer it was much higher, that’s then having an impact on the hours that we are flying because we are doing a lot more fire-fighting hours flown doesn’t directly translate into paid work because actually you are paying for a service not necessarily paying for the hours that are flown and whether that impacts supply chain, obviously the cost everything is going up</i></p>

and so again our cost base goes up but because we have fixed contract with our customers, it doesn't pass through, so that's having an impact in that sense...(Present) we have done a lot of in the last two years (Past) that is now getting eroded because that's the inflation piece that's definitely hitting our bottom line (Present) ...legislation wise again, (Present) I think that's the hardest part is when all these uncertainties become part of the governmental agenda because than it does naturally have a knock-on effect into rest of society... but also than the consideration of what that means for union negotiation for pay rises..." (Present).

Chief operations officer of Technology

A: *"unfortunately in the UK, Brexit has impacted external risk factors (Past) and the current financial climate, because we're going into recession..." (Present).*

<p>B Impact of current internal environmental uncertainties</p>	<p>Founder of Digital Marketing: “...so that's causing a big problem if we can fill in the roles which means I don't know that have enough staff to bring new customers on board (Present), which means we can't grow because we will not have the staff to actually do the work so that's big issue of the mind...(Future) also for example, they don't know that they can sell tickets taking essentially send 10 emails at the same time, instead of having to do it, one by one. or they can generate a report and do multiple reports in one go... (Present) I've got I've had two roles open for coming up to nine weeks now...and I haven't been able to hire one (Past) is you can't find the quality of candidates and the second is the ones you find want to come in on a much higher pay bracket ones in the middle and seem to have disappeared I don't know where I think either they are still on furlough or working from home or just not working also for example, they don't know that they</p>
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		<p><i>can sell tickets taking essentially send 10 emails at the same time, instead of having to do it, one by one. or they can generate a report and do multiple reports in one go...”</i> (Present).</p> <p>Senior project manager of Nuclear: <i>“...some of our projects, a level of uncertainty, some unknowns, some known unknowns are affecting us (Present), but what’s frustrating is that increasingly ability of the project manager to deliver is dependent upon things that will be outside of the immediate project delivery environment and it’s so reliance on resources and whatever you need to deliver...”</i> (Future)</p>
C	Impact of current industry uncertainties	<p>Senior strategy manager A of Energy: <i>“...cost to the consumer of the public purse of delivering (Present), and they're saying no, this is too expensive as it's going to cost, you know bill payers, taxpayers too much money (Present) we should push other</i></p>

		<p><i>options that will help, you know, decarbonize to some extent, but not, you know, not fully ambitious... (Future) how do we ensure that we are continuing to protect consumers and the development and the plans that we have to ensure that we keep the cost of delivering our network to the, you know, a minimal level, that is, it continues to be a proportionate and affordable for consumers in the UK which is also very challenging... (Present) competition, increased competition so I should say that there's competition within the sector currently (Present), and you know more, much of the projects that we do, involve competitive a tender exercise and thus it makes allocation of contracts for these projects competitive (Present), but hopefully if you start to possibly see that they will be parts of the network (Future) than you're actually carving out and offering those up to other non-utility or</i></p>
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		<p><i>non-transmission operator a owners...”</i></p> <p>(Present).</p> <p>Investment director of Fintech B: <i>“so the concern is that traditionally a lot of capital is pulling around a fewer number of account fund... healthy aging... old age effectively with huge amounts of wealth in that area... (Past) and that they you know they don't limit a home so what does that mean and all these kinds of grand sectors where you've got huge like you know sways of the population...and that kinds of impact the business”</i> (Present).</p>
2	Temporal influence on the impact of future uncertainties	
A	Impact of future macro-environmental uncertainties	<p>Chief advisor of Nuclear:<i>“...we've already had to be part of setting up a UK equivalent to the European Atomic Energy Agency because we had to have our own when we were no longer part of Europe (Past, Present) and then the global politics of particularly the US-China that will affect</i></p>

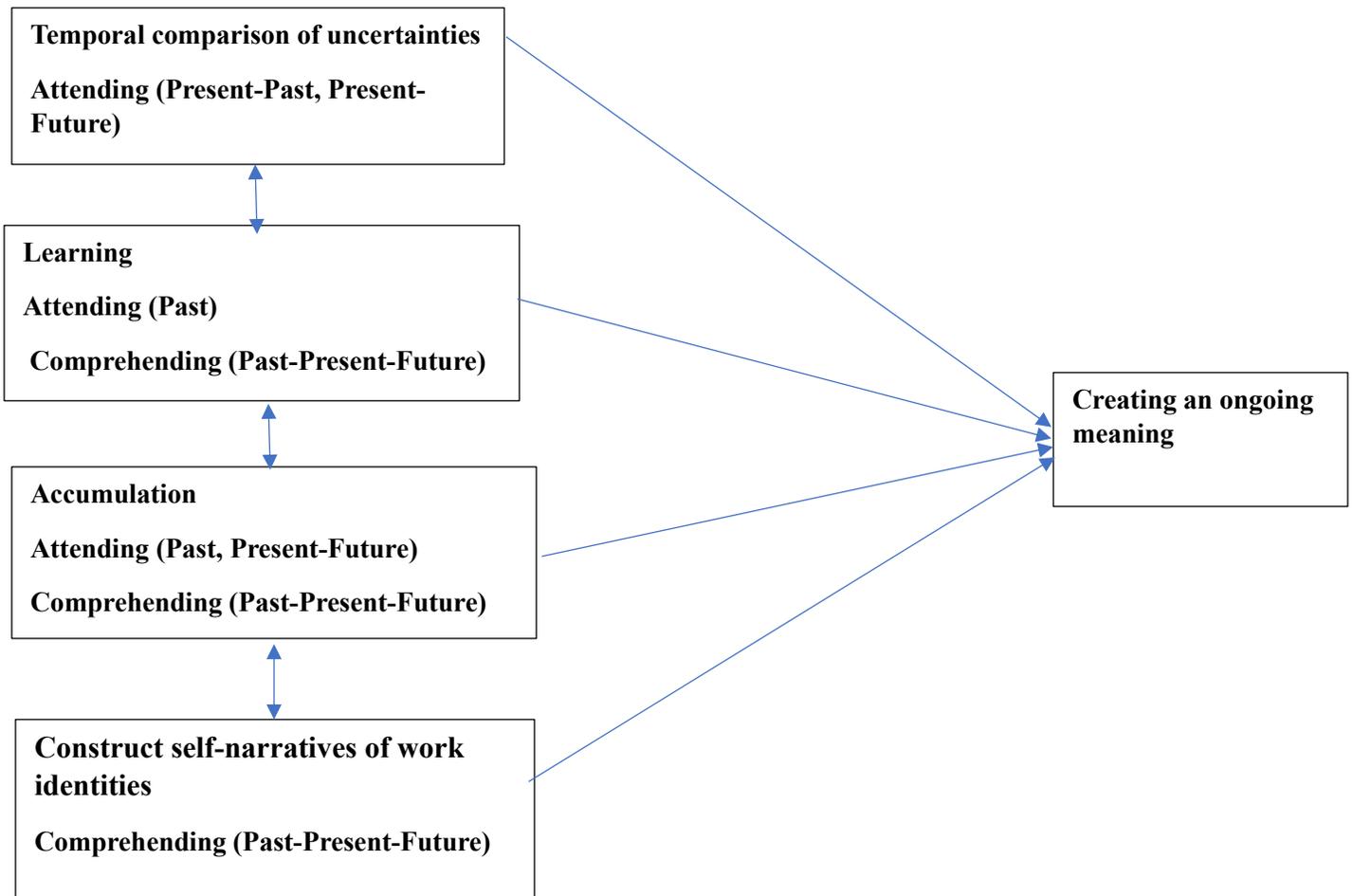
		<p><i>the number of attacks on ourselves (Future) but it will affect whether they increase dramatically and the relationship post Brexit, the relationship with the various atomic decommissioning regulators and the atomic regulators in general worldwide will affects us ...” (Future).</i></p> <p>CEO of consultancy D: <i>“...all the economic, political situation... the war in Ukraine will have huge impacts on businesses, especially if you're in tech and dealing with companies, not just based in the UK (Future)...so I afraid that's one of those and that will have a direct impact on you know the relations with clients or potential clients that holders but at the same time, you know impacts the prices and everything you have to take in consideration so absolutely this is one of the key...” (Future).</i></p>
B	Impact of future internal environmental uncertainties	<p>Senior strategy manager B of Energy: <i>“...you know, availability of right people to</i></p>

		<p><i>be able to deliver and the growth that we have forecast...so that's concerning... (Future) we will not be able to get to that point, operating in the same way that we have done until now... you know, availability of right people to be able to deliver and the growth that we have forecast..." (Future).</i></p> <p>Founder of Fintech E: <i>"...so overall you know what can happen is if we lose you know about 40 to 50% of our clients (Future), it's a question of rebuilding ourselves so, we might sustain, but if we don't have this client, this our portfolio reduces so that would also mean that you know that will prevent us from moving our strategy forward..." (Future).</i></p>
C	Impact of future industry uncertainties	<p>Aviation chief executive of Aviation C:</p> <p><i>"...so technology will definitely have an impact (Future), especially in the next five to ten years electric vehicles flying (Present, Future), is that a real thing? Is</i></p>

		<p><i>that a viable, cost-effective thing? That definitely plays into it (Present, Future) there are already limitations on where you can fly without it being safe beyond line of sight...” (Past, Present).</i></p> <p>Chief insurance officer of Insurance:</p> <p><i>“...but the fact is that these funds and investors will have a huge choice of potential companies in which to invest so from that reason... (Present, Future) whilst we will be confident in the business model, we will still completely depend on being able to raise funds that if we can’t then that you know that would threaten the future of the business completely” (Future).</i></p>
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4.6 Ongoing Meaning

Figure 4.6: Ongoing Meaning



This section elaborates on figure 4.6, during which managers discussed the significance of understanding the past, present, and future experiences related to uncertainties and work identities. Attending and comprehending function influenced the creation of an ongoing meaning. Temporal comparison, learning and accumulation have been associated with the attending function, and narratives correspond to the comprehending function (Shipp and Jansen, 2021). Nevertheless, it emerged during the analysis, that the learning and accumulation can also function via the simultaneous integration of past, present and future temporal zones. Hence it can be established that learning and accumulation can also correspond to the comprehending function of subjective

time (Branzei and Fathallah, 2023), while managers are creating an ongoing meaning of uncertainties. Temporal comparison of uncertainties, learning, accumulation and construct self-narratives of work identities, has facilitated the creation of an ongoing meaning. Table 4.6 also includes some more exemplary quotes on creating an ongoing meaning.

4.6.1 Temporal comparison of uncertainties

Managers discussed that they create an ongoing meaning of uncertainties, by comparing present with either past or future temporal zones, so that they can compare the impact of current uncertainties with the past uncertainties and can compare the impact of current uncertainties with future uncertainties respectively.

4.6.1.1 Compare current vs past uncertainties

Managers discussed that they draw attention to the present and past temporal zones, to compare the impact of current uncertainties with the past uncertainties, so that they can create an ongoing meaning of these uncertainties, and thus can understand their significance for their respective organizations. CEO of Technology A, discussed that he creates an ongoing meaning of the industry uncertainties by comparing the impact of current technology uncertainty *“I think that what’s happening in the technical world is a convergence, and it’s all happening at the same time everything’s going at a certain speed, and people are finding it difficult to keep up with it...”*, with the past technological uncertainty *“...so I don’t think it’s ever gone as quickly as this, in the 30 years that I’ve been involved in technology...”*, which assists him in understanding the importance of embracing such speed of change in the present *“...so that is definitely something which is not unexpected, but something that we’re dealing with now...”*, where he also compares the impact of present *“...the two other areas are really on the global stage, what’s going on, with the war, and the impact on people’s livelihoods...”*, and past macro-environmental uncertainties *“...and things like Brexit, that wasn’t there with the previous government, it wasn’t there...”*, to create an ongoing

meaning of such macro-environmental uncertainties, so that he can also think about a suitable response towards them in the present “ ... so now it's how do we deal domestically, and how do we deal internationally? now, it has changed considerably, and how we work now, and the cultures that we build, have got to be more risk-aware cultures, and more cybersecurity-aware cultures and adaptive cultures...”.

4.6.1.2 Compare current vs future uncertainties

Managers discussed that they draw attention to the present and future temporal zones, to compare the impact of current uncertainties with the future uncertainties, so that they can create an ongoing meaning of these uncertainties, and thus can understand their significance for their respective organizations. As the founder and strategic advisor of Fintech C, discussed that he creates an ongoing meaning of the macro-environmental uncertainties by comparing the impact of current legislative uncertainty “...legislation to allow us to be portable with that data and then comes open banking and once open banking hit with GDPR and Australia and Brazil adopt an even better standards in the UK, around citizens data rights ... now happening...”, with the future direction of the legislation uncertainty “...that's actually trajectory ...that direction of travel... enabled through legislation... and that is going to be a global movement so you can see where it's come from open bank into open finance...”, that enables him to understand that the impact of such legislative uncertainties will keep on getting intense, which will also give rise to the future industry uncertainties via digital finance, that will make the existing products in the financial markets redundant “ ... legislation it will enable the interoperability, transportability of data from one organization to another so, you can see where finance could have an impact at the intersection of health... or how does that banking go into loyalty and disrupt the plastic loyalty cards and all of that because you can move your bank and data yet purchased data through a retailer and vice versa...”, where such comparison between present and future temporal zones, also aids his

understanding regarding the importance of incorporating ethics in the organization around digital finance “...let's open energy data up and lets open and mobile data up to ensure that the individuals are protected around trust, ethics, security, privacy and consent all of that to maintain the citizens' rights to data to create this story is to say like...”, in the wake of such disruption and transition in the financial markets in the present and future “...we're moving from open bag at the open finance and ultimately to open life...”.

4.6.2 Learning

Learnings also assisted managers in creating an ongoing meaning of uncertainties. Managers discussed that recalling the way they have tackled uncertainties in past can assist them in developing better understanding of the present and future uncertainties. Learning illustrated an interplay of attending and comprehending function, as managers attended to past learnings (Attending), and simultaneously integrated past, present and future temporals zones (Comprehending), to utilize these past learnings in the present and future. Learnings from past uncertainties, learnings from previous mistakes and learning from other companies were discussed here.

4.6.2.1 Learning from past uncertainties

Managers discussed that reflecting on the learnings amassed from facing uncertainties in the past, can assist them in creating an ongoing meaning of current and future uncertainties. Attending function showed its influence, as the head of the department of the University B, discussed that he draws attention to the learnings from covid by reflecting on the university's response that had worked well for it in the past “...we come back from the pandemic and challenge is to learn from our response to keep the things that worked well about educating and working remotely...”, to create an ongoing meaning of covid that is causing uncertainty in the present “...I don't think that the pandemic has gone away, Covid is here...”, and will continue to cause uncertainty in the future

“...but we are talking about covid-19, how long before we start talking about covid-20, 21...”, where the interaction between the attending and comprehending function also got evident, as the manager discussed how he simultaneously integrates these past learnings *“... so a lot of lessons to be learnt...”*, with the present and future understanding of the impact caused by covid *“...we also need to pose and recognize the impact on our colleagues, our PGRs...there needs to be a recognition that there will be time to recover at an individual level, some colleagues have been impacted directly by covid (loss of parents, social issues, mental health)...”,* to think about the possible current and future responses against such uncertainties caused by covid *“...keep the good things but also bring up what may be a fresh insight about the things that we used to do... try to make sense of that from competing voices... so it’s about a measured response but also about recognizing the impact on the individuals...”*.

4.6.2.2 Learning from previous mistakes

Managers discussed that they recall the learnings from mistakes that their organizations have committed while facing uncertainties in the past, so that they don’t repeat the same mistakes in the present and future. Attending function was evident, as the CEO of Consultancy D, attended to the past temporal zone, and reflected on the learnings from the past mistake of keeping too many employees to create an ongoing meaning of the internal uncertainties *“...at the beginning...let's have 5 project managers...it was just very expensive...in the past, we had a bit of a different checks we had the team of junior people working sort of on project operations, operations all logistic wise and then the expert delivering, and I think that was after 2014...”*, where the interplay between attending and comprehending function again got unveiled, as the manager discussed that she simultaneously integrates these past learnings with the present and future ways of working *“... so we learnt and realized that we don't necessarily need to keep them to have a business..”,* to understand that the workforce needs to be streamlined, and only the employees who can work well

with robust changes due to technological uncertainty are kept in the organization in present and future “...*business to slim down to actually... technology elements that are more robust to make sure that actually you know anyone working in a project knows exactly what's going on...*”, so that the organization don’t repeat the past mistake of incurring extra expenses due to extra employees in the present and future “...*if the time gets hard, we are, cost efficient and we can survive we don't necessarily need to have people in office...*”.

4.6.2.3 Learning from other companies

Managers also discussed that they reflect on the way their competitors have tackled uncertainties in the past, to create an ongoing meaning of current and future uncertainties. Attending function had shown its influence as the chief engineer of Aviation B, had discussed that he attends to the past learnings from competitors, to understand and thus create the ongoing meaning of the ongoing industry uncertainty, which required his organization to get compatible with the digitalization “...*that’s not my company, I think a lot of companies nowadays are looking into the trends of digitalization, they have started to look into their processes and the way they do things in a different way and trying to prepare themselves with processes that are compatible with digitalization...*”, and he also discussed that he attends to the past learnings from other companies, regarding the way they were leveraging digitalization, despite the inertia caused by the large size of their organization “*I think that most of the big companies, what they are doing, because the culture is so sluggish and it’s so difficult to move the culture because it’s thousands of people, a lot of them they try to leverage on these digital tools for people to go use them to promote their ideas in these digital tools...*”, where the interplay between attending and comprehending function was also evident, as the manager simultaneously integrated these past learnings with the present and future work environment, and discussed that these past learnings can be beneficial in understanding what the organization needs to do to make it’s environment more innovative in the present and future “...*so*

we have learnt that we need to work almost like a social network for innovation inside the company, where people can speak and this will create this environment for innovation”.

Therefore, the way managers have tackled challenging situations in the past, assist them significantly in make sense of uncertainties (Jain and Kondayya, 2023). More precisely, three particular types of learnings (past uncertainties, previous mistakes, and other companies), are pivotal in making sense of uncertainties, during which an ongoing meaning of the current and future uncertainties emerge. Moreover, these different types of learnings also unveiled the strategic thinking of top-level managers, because these managers discussed the potential use of these different types of learnings in making an ongoing meaning of current and future uncertainties, to contemplate the current and future responses against them. Therefore, learnings can guide the strategic thinking of the top managers (Yorks and Nicolaides, 2012), that is contingent upon the way these different types of past learnings are temporally utilized to create an ongoing meaning of the current and future uncertainties (Berends and Antonacopoulou, 2014).

4.6.3 Accumulation

Previously managers discussed that they utilize past learnings in the present and future, to create an ongoing meaning of the current and future uncertainties. Once the past reached its threshold, managers discussed the cons of being over reliant on the past, and thus suggested a departure from the past in the present and future. Accumulation was characterized by the limitations of past and temporally unlearn past.

4.6.3.1 Limitations of past

Managers discussed the shortcomings of resorting to past temporal zone to create the meaning of current and future uncertainties. Director of projects of Yacht, discussed how he attends to the limitations of past “...*the past does not predict the future, so, you can only use past learnings where they have a direct correlation to the uncertainty, you're facing...*”, where the interplay

between attending and comprehending function was also evident, as the manager simultaneously integrated the limitations of past with the present and future temporal zone, to understand the adverse consequences of using past to create meaning of the current and future uncertainties “...so, you know, the downside to using lessons is if you apply them blindly, they can lead to future uncertainty themselves”.

4.6.3.2 Temporally unlearn past

Managers discussed that they break frame with the past experiences in the present and future and draw a more prospective focus on the present and future temporal zones, to create an ongoing meaning of the current and future uncertainties. CEO of Consultancy B, had drawn attention towards the need of distancing from the past experiences “...as opposed to knowing the experience that I had last year and it's a fundamental problem...”, where the interplay between attending and comprehending function was evident, because the manager simultaneously integrated past, present and future temporal zones, to break frame with past experiences in the present and future, as solely relying on past experiences can lead to the false assumptions regarding the understanding of current and future uncertainties “...and lots of experience is built up in the idea that you can fix it... it immediately assumes you could actually understand what the problem is, so you immediately have excluded wicked problems and complexity...”, and he also accentuated the importance of having more prospective focus on the present and future temporal zones, to create an ongoing meaning of the changing nature of the current and future uncertainties “... you're dealing with a complex environment ...uncertainty is about is how do you actually start to work out what moving parts...”. Hence, it's established that during the phase of accumulation, ongoing meanings of uncertainties is also contingent upon the interplay of comprehending (past-present-future, via breaking frame with the past in present and future) and attending (attention to past, present-future).

4.6.4 Construct self-narratives of work identities

Managers discussed how they simultaneously created stories on their past, present and future work self, to create an ongoing meaning of the transition in their work roles amidst the uncertainties, which also guided their self-directed behaviors towards the desired futures of work. For instance, the associate director A of Consultancy A, referred to the stories on his past self, to identify the discrepancies in his past work role, which accentuates the limitation of the past work identity “ *my background has been in logistics and things like the Defense industry so haven’t done it before...* ”, where he simultaneously engages with the stories on the present self, to understand the transition from the past to the present work role in relation to dealing with uncertainty, that creates a new present work identity “ *but now I work with strategic uncertainty and work with mid-sized organizations divisions of corporates and then actually like working on the strategies as to how they grow*”, and also creates a story on his future self, by directing his behavior towards working with organizations that would assist him in achieving his desired future of creating new propositions, which results in the reconstruction of a new future work identity “*so, work with organizations that are looking to see where their next stage, might be so we work with them in terms of developing longer term business plans I will be them in terms of creating new propositions and work with them in terms of looking at acquisitions and the whole range of different things*”. Comprehending function was evident here via narratives (Shipp and Jansen, 2021), as managers form self-narratives with the simultaneous integration of past, present and future stories on the work selves, to alter and reconstruct their work identities. More precisely, managers craft meaning-imbued self-narratives of work identities with the simultaneous integration of past, present, and future, to discern what has altered or will get altered in their work identities (Ybema, 2010), amidst the various current and future uncertainties faced by their respective organizations.

Overall, ongoing meaning was constructed via the attending and comprehending function, or the interactions between these two functions. Predominantly, the importance of simultaneous integration of all three temporal zones (Comprehending), was evident in the creation of an ongoing meaning of uncertainties and the individual work identities. Nevertheless, via temporal comparison, managers had specifically drawn attention to only two temporal zones (Past-Present, or Present-Future) (Attending), to construct an ongoing meaning of uncertainties. Therefore, this thesis theorizes that meaning can also be constructed via attending function, where attention is given to two temporal zones, instead of just via comprehending function, where meaning is created through the simultaneous integration of the past, present and future temporal zones (Shipp and Jansen, 2021). Most significantly, all the four stages of prospective sensemaking in figure 4.2, theorizes the essence of a dual focus on both the divisible and indivisible present (Hernes and Obstfeld, 2022), in managerial sensemaking. Divisible present (past, present, future are disintegrated), where this disintegration of different temporal zones, has been facilitated via attending function of subjective time, as attention is given to either one or two temporal zones. Indivisible present (past, present, future are simultaneously integrated), where this simultaneous integration of all the three temporal zones, has been facilitated via comprehending function of subjective time.

Table 4.6 Exemplary quotes on creating an ongoing meaning

1	Temporal Comparison of uncertainties	
A	Compare current vs past uncertainties	<p>Chief Innovation officer of Software C: <i>“...but again, with facilities, we were looking at, a couple of years ago, opening other office spaces for staff to work (Past) in but again, the price of an office space has gone up because the price of heating that office space and lighting it has gone up (Present) so that's something that we weren't particularly concerned about a couple of years ago, or three years ago (Past) whereas now it's a key decision maker as to whether we continue to operate the business in that way or do we operate the business virtually, get rid of offices, base people at home, meet with clients virtually more, which actually we are doing...? so that's been a huge shift in our ways</i></p>

		<p><i>of operating as a business”</i></p> <p><i>(Present).</i></p> <p>Associate director of</p> <p>Consultancy E: <i>“...going back to the pandemic (Past) it's opened up new opportunities around the way people are working now... (Present) the point, in fact, that the standard status quo previously was that if you worked in an environment you were expected to be present in that environment for a large percentage of time so, it was around being in a centralized office environment, and you tended to work in the project environments that were quite regionally best (Past) whereas the adaptation of technology in the move to remote working in the acceptance of remote working and it's opened up new avenues and opportunities and actually in the</i></p>
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		<p><i>context of uncertainty, it's reduced and enabled better management of uncertainty...” (Present).</i></p>
<p>B</p>	<p>Compare current vs future uncertainties</p>	<p>Director of University A: ‘...I think the Post Brexit situation is likely to stabilize.... that point in the future (Future) so, I think we’re in the extraordinary situation right now where off the back of Brexit, we have a global pandemic and then a war in Ukraine more recently, you know, all of these things have really destabilized people...(Present) so projecting three or four years’ time, cost of living is going to be higher than it's ever been or, you know, higher than any example record, and that won't last forever...and I think the impact of technologies will be significant as well...” (Future).</p> <p>Founder and director of Coworking space: “...this obviously totally depends on some</p>

		<p><i>businesses as some are going back to, we have to come into the office... (Present) I think that will be short-lived where if you just say you have to come in, people will look for the jobs... that's what I think will be a big change... and I think that's the move away from, this is what you do (Future), it's the first time that you have some control in where you work, and I think that's the biggest thing because that then has so many different ramifications that knock on from that, like you ...you could just stay where you are, you could choose to go there, you can, in fact, relocate your whole family and keeping your same job so, the agency and where, and when you work is huge... the biggest thing is employees for the first time have agency in where they work</i></p>
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		<p><i>now...So, then culture, then spirals on from that and then as a focus on culture, there's a focus on mental health...because that's how you get people, actually bought in and it's accessible now ...” (Present).</i></p>
2	Learning	
A	Learning from past uncertainties	<p>Currency strategy head of Foreign Exchange : “<i>...January 2019, January 2020... we set a plan for the year and it's this amount of growth with this amount of new employment with this amount of locations with this amount of regulation, and this is how we intend to grow up business, this is where our office locations...and then march 2020 and we are two years into the pandemic... so march 2020 pandemic hits and all of a sudden,</i></p>

		<p><i>the plan that we made for January has completely disappeared because this has happened (Past) people are now working from home and you know this massive issue to supply chains things aren't open in various different parts of the world you know makeup of a country have reduced and so we will work a segment that needs trade to be done". (Present, Future).</i></p> <p>Associate director of project delivery Consultancy E:</p> <p><i>"...Covid 19... so, it was quite a reactive event itself, you know, from where we're all sitting there in office one day to everybody working at home... so, we lost over 250 people in redundancies to protect the organization (Past) obviously now there has to be a level of rigor around protecting</i></p>
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		<p><i>the organizations from the resource and financial perspective...” (Present, Future)</i></p>
<p>B</p>	<p>Learning from previous mistakes</p>	<p>Senior strategy manager A of Energy: “<i>...but we have lots of learnings from the process that we went through for the previous business plan... I guess there were, a lot of useful lessons learned in that process... (Past) for 2021 to 2026, which is kind of current one that we're in... (Present, Future) particularly when it came to how to develop our strategy and so things like that there wasn't enough kind of early engagement with the delivery parts of the business...because you have to own the strategy, you know, I think that's a really important aspect that I've certainly learned (Past) a lot is there's no point in making strategy</i></p>

		<p><i>like every five years and then like, put it in a cupboard and then forget about it” (Present, Future).</i></p> <p>Senior manager B of Energy: <i>“I think still not fully understood within the business that the nature of what we have had to do in the past is right (Past), we need to do this on the network, because we've got this generator that's going to, it's going to connect and we just need to get it done and that has been the driver behind them and not so much about, you know, they can have the strategic context stonewall...” (Present, Future).</i></p>
<p>C</p>	<p>Learning from other companies</p>	<p>Fluid and mechanical system lead of Aviation A: <i>“...large OEMs, the Airbus, Boeing, Mitsubishi's...running their own programs developing relatively similar aircraft from my experience and the experience of</i></p>

		<p><i>many of the people who come from similar industries, the speed at which they are capable of moving... (Past) means they will not be early to market they will get there in the end (Future), but the historic inertia they have and the level of processes, toolsets, capability organizational inertia means (Past) they just cannot engineer things as fast as we can with a much smaller team, much lighter weight” (Present, Future).</i></p> <p>Founder and Strategic Advisor</p> <p>Fintech C: <i>“...green banks, have done investments (Past), so green banks like Bank T are giving loans and credit cards and automating the impact on the environment and why... (Present) you see a rise (Future)...because the fact is there's going to be trillions of currencies going into the</i></p>
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		<p><i>environmental projects, so we need to follow the money ...”</i></p> <p>(Present, Future).</p>
3	Accumulation	
A	Limitations of past	<p>Associate director B of Consultancy A: <i>“you have to exercise extreme caution using past events that because the caution that you have to be careful about is that every past event is a unique set of scenario (Past) and if you try an overlay a past event onto a current events, you may convince yourself that the two are very similar but I guarantee some of the scenarios and some of the some of the issues behind it will be different”</i>. (Present, Future).</p> <p>Founder and CEO of Consultancy F: <i>“...the current and future uncertainties are different (Present, Future) to the</i></p>

		<p><i>past learnings about uncertainties...” (Past).</i></p>
B	Temporally unlearn past	<p>CEO of Consultancy C: “...it places too much weight on individual lessons from the past (Past), especially if they've been negative this is extremely dangerous so, we have to be open, we have to be scanning and we have to be constantly looking at the horizon, constantly looking around us... you are looking at something that's happening...” (Present, Future).</p> <p>Brand and marketing head of Fintech A: “...I just think it's being open and looking forwards is probably more important (Present, Future) than sitting, looking at data from the last five years...” (Past).</p>

4	Construct self-narratives of work identities	
A	<p>Create story on past self and work role</p> <p>Create story on present self and work role</p> <p>Create story on future self and work role</p>	<p>Director of University A:</p> <p><i>“...when I first probably within a year of joining my first university management role where I've been asked to look at the filming TV curriculum, which was terrible ...I mean there were some quite talented, capable people there, but the curriculum was terrible the links with the industry were nonexistent and it was at a time post the big economic well, the big banking crisis, if you know, 15,16 years ago, hmm, where there was no investment in television, people weren't making programs...(Past) so something changed, now... you can imagine how different it was when I started... how do we devise a course so, I am just looking at what others are doing at other universities trying to come up with</i></p>

		<p><i>a program of study...I mean, I still am in touch through LinkedIn with alumni now... It's like, oh, what do I do with this? It's like the BBC's going to die, you know, an ITV aren't making programs and Nora, Channel 4, but actually there was this little kind of light at the end of a tunnel that actually is the right thing to pursue... (Present) one humility, will try it despite the hierarchy at the university I will try to run the flattest structure I can a culture whereby everyone feels to be able to speak up at any time... essence of everything around progress is a culture whereby the best idea can float to the top quickly wherever it comes from, but I think it will be about a culture of management that exudes mutual confidence and understanding and encourages</i></p>
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		<p><i>genuine leadership as well, and progress and progression” (Future).</i></p> <p>Founder and strategic advisor of Fintech C: “<i>...but historically and since I was 23 I’ve run companies that are founded in the technology space, venture capital bank tech companies primarily focusing on financial sector but also in other sections... (Past) it’s only relatively recently...that I’ve been focusing my time on the trade association mission... (Present), I have meetings scheduled near the Black Sea on the Black Sea, at the end of March near the position where there’s disputed territory between Russia and Ukraine and I’ll be there as a guest of the Russian central bank... setting the direction of the business...” (Future).</i></p>
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4.7 Conclusion

In retrospect, this chapter has elaborated on how managers identify current and future uncertainties, develop awareness on their current and future business environment to aid the identification of current and future uncertainties, interpret the impact of current and future uncertainties, and eventually create an ongoing meaning of these uncertainties. All of these stages were influenced by the attending/comprehending function, or the interactions between the attending and comprehending function of subjective time. Attending function was evident, because managers had focused on one temporal zone or had drawn a concomitant attention to two temporal zones to inform their present experiences. Comprehending function was also evident, as managers simultaneously integrated past, present and future temporal zones, to explain their experiences over the passage of time.

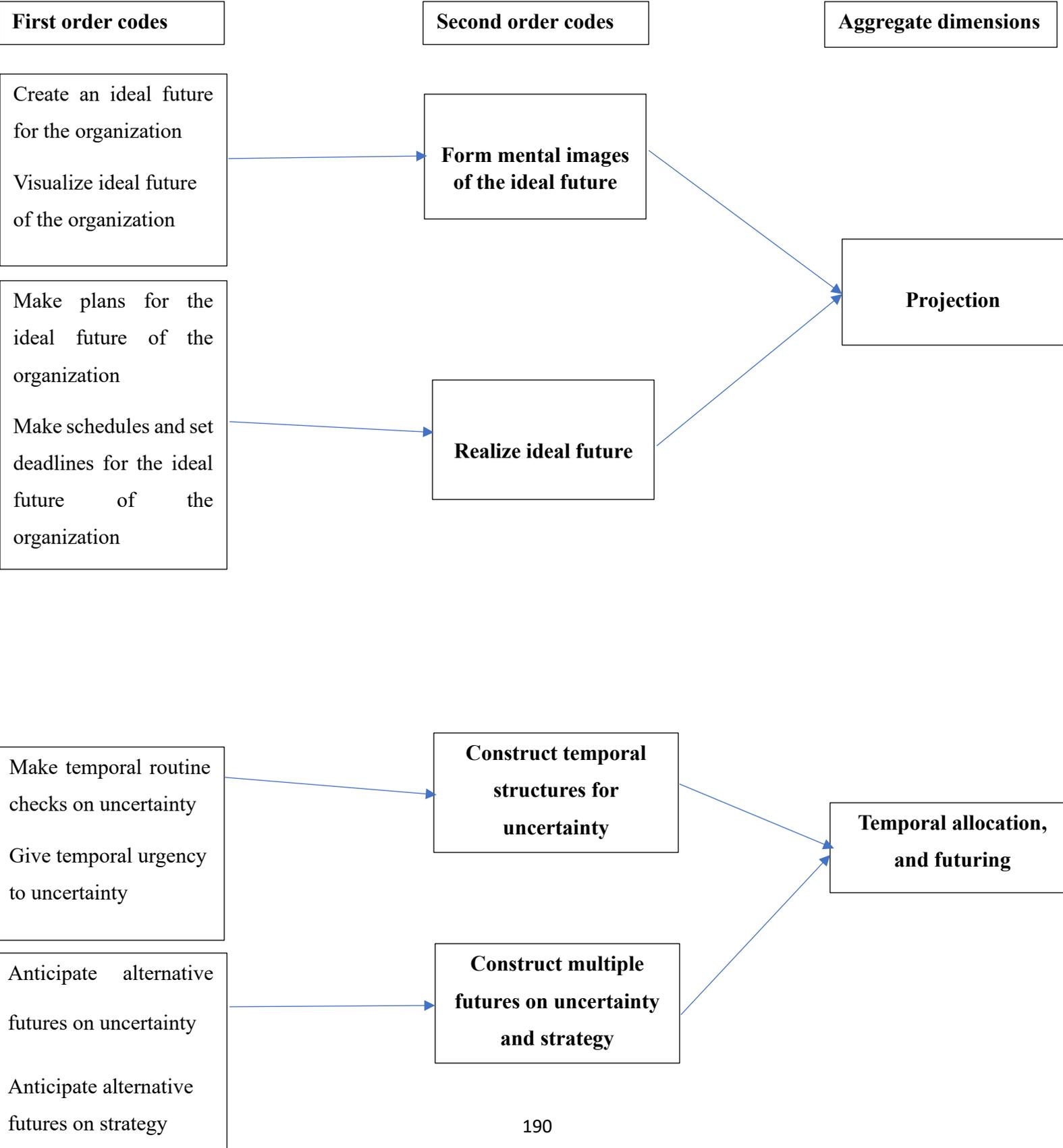
Now the next section discusses chapter 5, which addresses the second research objective of this thesis.

Chapter 5: Strategy development amidst uncertainty

5.0 Introduction

Previous chapter discussed how managers identified and interpreted uncertainties, raised awareness on their business environment, and eventually made meaning of these uncertainties. This chapter builds on that and explores the enactment phase of sensemaking and addresses the second research objective of this thesis “*how the functions of subjective time or interactions between them influence the development of strategies amidst uncertainty?*”. Predominantly, preparing and comprehending function were evident at this stage of analysis. The preparation mechanism demonstrated how managers acted towards the future by developing actions in the present. Comprehending function was also evident during this phase, in which managers simultaneously integrated past, present and future temporal zones to adjust and implement strategies, and to enable strategic change. Attending function was evident only during the temporal construal stage, where managers had drawn exclusive focus on the present and near future temporal zones, to have increased focused on the current and near future uncertainties. This chapter has identified eight aggregated themes: Projection; Temporal allocation, and futuring; Temporal strategies for uncertainties; Temporal evaluation; Temporal construal; Temporal implementation of strategies; External entrainment; and Strategic change. Figure 5.1 has depicted the data structure that encapsulates codes, themes, and aggregate dimensions. Figure 5.2 has presented the empirical framework that represents the interactions between different aggregate dimensions.

Figure 5.1: Data Structure



Current strategizing for the impact of current macroenvironmental uncertainties
Current strategizing for the impact of current internal uncertainties
Current strategizing for the impact of current industry uncertainties

Strategies for the impact of current uncertainties

Current strategizing for the impact of future macroenvironmental uncertainties
Current strategizing for the impact of future internal uncertainties
Current strategizing for the impact of future industry uncertainties

Strategies for the impact of future uncertainties

Temporal strategies for uncertainties

Play Devil's Advocate
Evaluate future financial performance.

Temporal evaluation of strategies for vision

Use Intuition
Recall experience

Temporal evaluation of strategies for uncertainties

Temporal evaluation of strategies

Increased focus on the current and near future uncertainties.
Allocate short-term horizon to strategies for uncertainties

Temporal discounting of long-term future in strategies for uncertainties

Align long and short-term strategies for vision
Align short term strategies for uncertainties with the long-term strategies for vision

Temporal alignment of strategies with vision

Implement past strategies for the similar uncertainty over the years
Implement different strategies for the different uncertainty over the years

Form narratives of implementation

Recall past and anticipate future roles in the implementation of strategies.
Review past strategies to improve the implementation of strategies in present and future.

Enact temporal roles and review

Temporal construal

Temporal implementation of strategies

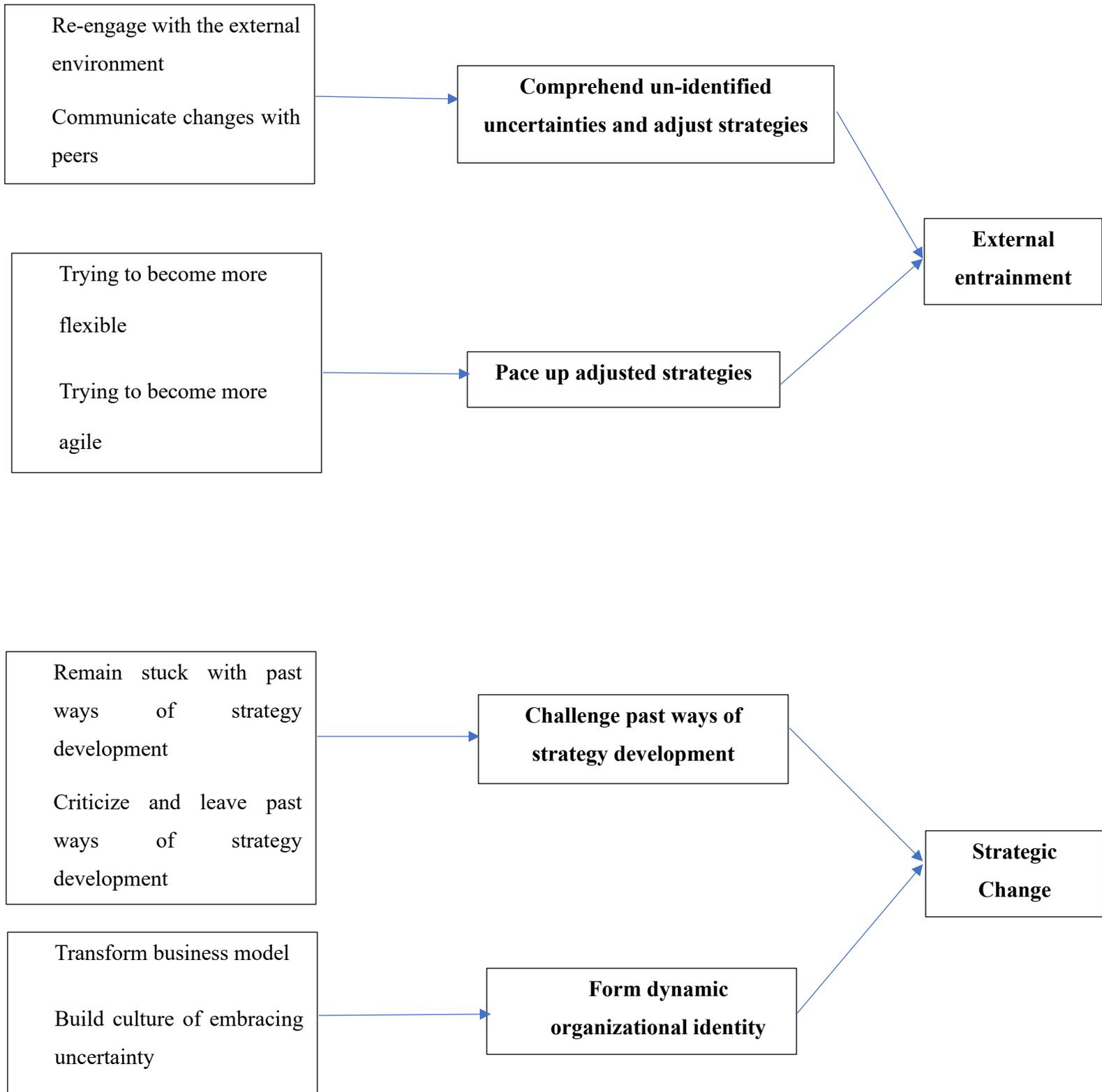
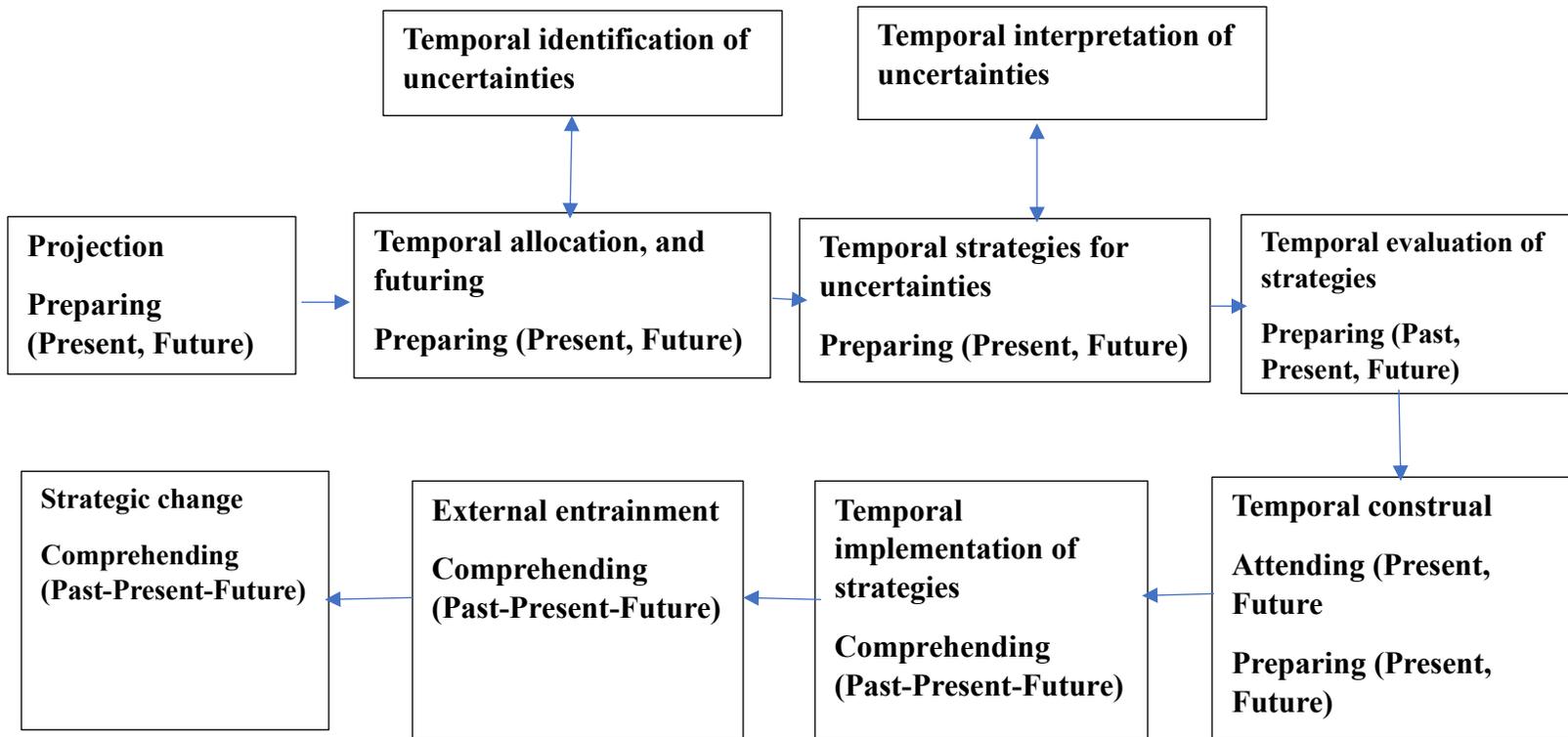


Figure 5.2: Empirical Framework



Now this chapter unpacks each stage in figure 5.2, and thus explains it in detail.

5.3 Projection

Figure 5.3: Projection

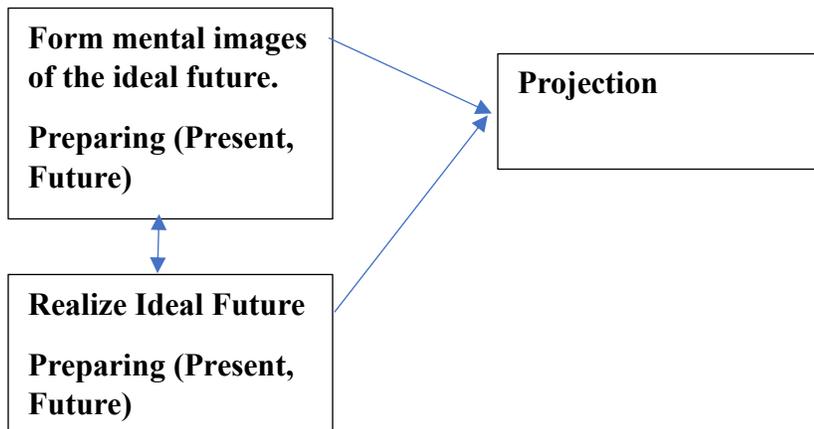


Figure 5.3 illustrates the projection mechanism of the preparing function (Shipp and Jansen, 2021), because managers discussed that they engage in a mental time travel into the future to set a vision for their respective organizations and prepare strategic actions for this vision in the present. Form mental images of the ideal future and realize ideal future has been discussed in this phase. Table 5.3 presents other exemplary quotes on projection.

5.3.1 Form mental images of the ideal future

Managers discussed that they resort to their future-oriented cognitions to anticipate, illustrate, and communicate the ideal future of their organization and environment in the present. Create and visualize ideal future had laid the foundation of forming mental images of the ideal future.

5.3.1.1 Create an ideal future for the organization

Managers discussed that they mentally travelled ahead in future to create a vision for their organizations in the present. Chief innovation officer of Software C, discussed that he time travels into the future to create a vision of not just his organization “...so not just our organization... we couldn't possibly just look at our organization in isolation, it wouldn't make any sense...”, but

also the external environment in which his organization operates “...it’s external environments as well...”, to form future prescriptive mental models of adaptive change, that allows him to develop a more comprehensive understanding of the changes in the external environment “...we need to look at the full picture... understand our purpose in that so what role do we play in evolving healthcare... and is there a grey area in between where we might play or we might not...”, where he also anticipates the future uncertainty in the external environment due the changing demand of their clients “...the documentation that they put out every two years and saying, okay, the key things in there are: we need to improve the patient experience; we need to reduce cost; we need to increase efficiency; we need to get rid of the backlog caused by the pandemic...”, to create a vision of his organization “...to create the vision in our vision statement...”, with his future prescriptive mental model, that causes him to constantly adapt the mission with respect to the changes in the external environment, so that it can be integrated with the overall vision in the present “...the vision then is more aligned to taking on board the mission to evolve healthcare... the vision then is aligned to... we’ll align our mission and our purpose to that...”.

5.3.1.2 Visualize ideal future of the organization

Managers also discussed that they illustrate the ideal future of their organizations via visual artifacts to depict their individual thinking, and also discussed that they use these visual artifacts as an interactive communication tool with their peers in present. CEO of Consultancy of D, stated that she visualizes her mental images of the organization’s ideal future by putting various things on drawing board in present “mental images of the future... can sit down to the drawing board and start plumbing and that’s what you have physically in front of your eyes...”, where these images are viewed concurrently with the images formed by other members in strategy team to influence collective thinking “... sometimes it’s also influenced by looking at others what they’re doing and yeah, so there are a lot of elements...” , that assists her in developing a current and

prospective thinking and communication with other members in the strategy team “...*that you think like oh well I thought I'd be here and I'm doing here*’, *this has changed and then...start forming and imagine thinking, how about that maybe we should push more towards that...*”, and also aids her comprehension of various elements in the external environment in present “...*all the environment that you and your network so the higher you go...all the elements together for pieces together and that forms a certain picture...*”.

5.3.2 Realize ideal future

Managers also discussed that they craft strategic action in the present, to achieve the goals of the envisioned ideal future at the designated time in future. Make plans and schedules for the ideal future of the organization has characterized this phase.

5.3.2.1 Make plans for the ideal future of the organization

Managers discussed that they currently prepare plans to realize the ideal future at the designated time future. Senior strategy manager B of Energy, discussed that he integrates present “...*you know more infrastructure being put in to facilitate these increases in power generation.... and that's kind of the plan that we used ...*”, and the future plans “...*and the things we have to do to facilitate that and we need to enable that, so what investment that we have to set into our network in order to make that happen so potentially bigger cables...*”, to realize all the goals set in envisioned ideal future of his organization “...*we have a strategic objective... ...helping the country, UK and the world in achieving ambitions to hit net zero carbon emissions...*”, at the designated time in future “...*by 2045 to 2050 in Scotland...*”.

5.3.2.2 Make schedule and set deadlines for the ideal future of the organization

This stage reflects the interaction between the time allocation and time awareness mechanism of the preparing function of subjective time (Shipp and Jansen, 2021), in which managers scheduled (temporal allocation mechanism of preparing function) and set deadlines (time awareness

mechanism of preparing function), for all the future years in present, so that the ideal future is realized at the designated time in future. Primarily, managers discussed that they converted their plans to yearly and weekly targets in the present, in order to realize their ideal future at the designated time in future. Founder of Fintech E, discussed that he adheres to the present time to allocate schedules of workload to everyone in the strategy team at the very beginning of every year “...everything is well calculated since the beginning as you are recruited, department heads would already give you an idea...which company we are dealing with what we are doing... because at the beginning of the year all employees, have their KPIs, so while we are setting these KPIs, that strategy is already inherent...”, where he also increases time awareness and thus constantly monitors the passage of time by setting weekly and yearly deadlines “...so, for each deliverable there is already a weekly target that is set in terms of these percentages, every week in every year the accounts report will be up to date...”, to achieve all the goals on the designated time in future “...like revenues and all that, at the end of December...”. Hence the analysis of this phase showed that managers have drawn increased attention to the future goals of their organization which increased their awareness of deadlines, and thus spurred timely planning for these future goals in the present.

Overall, this thesis theorizes that projection is first stage of enactment, which is facilitated by the preparing function of subjective time (Shipp and Jansen, 2021), as interaction between present and future enabled the development of vision and strategic plans in the present. More precisely, this thesis found that vision development in the present is driven by the future prescriptive mental models (Mumford and Strange, 2013), instead of the abstractions form the mental models of past (Strange and Mumford, 2005). In a similar vein, the projection function of preparing mechanism also enabled the visualization and articulation of this vision in the present, via the use of visual

artifacts. Hence this thesis argues that discourse can be extended beyond written and spoken words, where visual modes of communication bolster managerial sensemaking (Garreau, Mouricou and Grimand, 2015). Moreover, such use of visuals and creative technologies also enabled managers in their sense-giving of the vision (Bansal, King and Meglio, 2022), during which they influenced the thinking of other peers regarding it. In addition, this thesis theorizes that the projection, temporal allocation and time awareness mechanism of the preparing function (Shipp and Jansen, 2021), facilitate the development and scheduling of strategic plans in the present, so that the goals set in the vision can be achieved at the designated time in the future.

Table 5.3: Exemplary quotes on Projection

	Themes and codes	Exemplary quotes
1	Form mental images of the ideal future	
A	Create an ideal future for the organization	Associate director of project delivery of Consultancy E: “... <i>vision and achieving its outcomes... both organization and external environment, I think the two go hand in hand, to be honest...you can't, you can't really have one without the other... (Future) new tools and techniques, particularly in the digital and, you know, new spaces such as artificial intelligence and how we implement those growth strategies and tools to enable us to be a better organization as a whole and improve on our</i>

		<p><i>delivery for our clients... (Future)... creating a vision...</i>” (Present).</p> <p>Founder and director of Coworking space:</p> <p><i>“...vision...ideal future... I think organization and environment are intrinsically linked because if the external environment changes, we have to pivot with it... (Future) I believe that this will be the ideal future of work and people can travel a bit more and there's that flexibility ...I don't know why any office building would want to go back to renting a huge floor that just is wasted; it's just a colossal waste of money... there's still a lot of unknown...so yes I think it's internally and external factors...they are linked... (Future) so yes that's how we have gotten this vision now and that's how we create this vision of the ideal future”</i> (Present).</p>
B	Visualize ideal future of the organization	<p>Director of University A: <i>“...I like the idea that every everyone's got buy in to the general direction of travel (Future) to the bullet points, and then we break it down into (Present), you know, not only what we're going to try and plan for next academic year...(Future) so, it's</i></p>

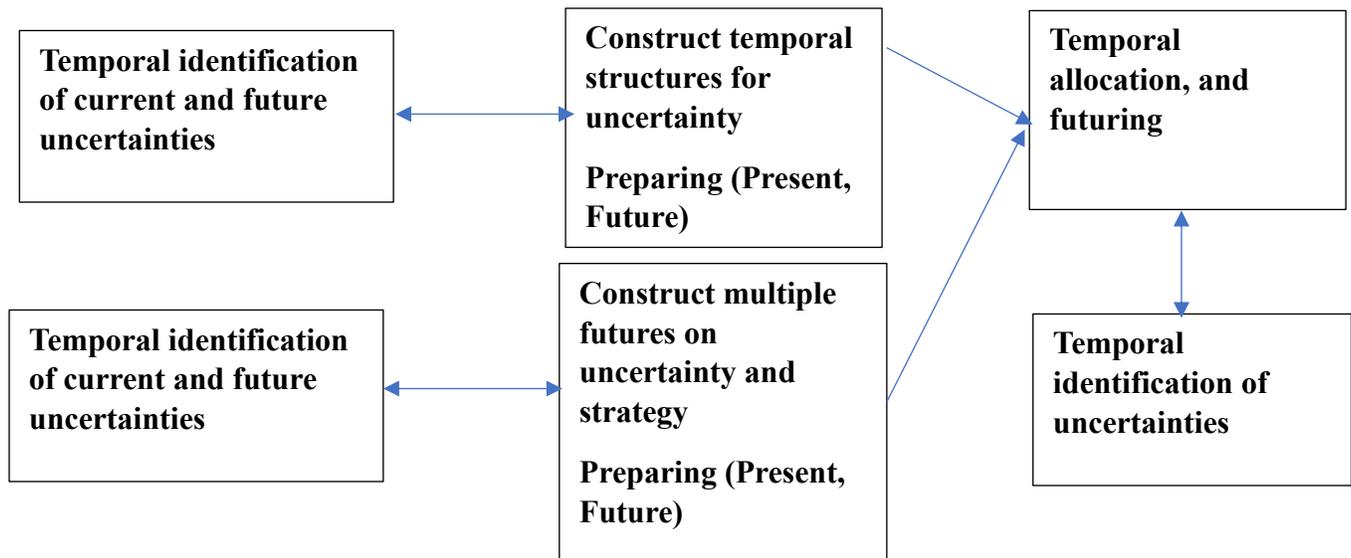
	<p><i>relevant around kind of creative technologies, you know some clearly defined things and just leave it at that, not, 2530 pages of why because this is unnecessary beyond that... ” (Present).</i></p> <p>CEO of Consultancy C: <i>“...I will have new mental pictures (Future) and I'll tend to turn them into diagrams and models ... (Present) it's through sharing the ideas with other people and having other people adapt those ideas of contributing to them that I learn best and keep them strong in my own head (Present)... I have produced a quite a lot of slides diagrams which I share with members of the team every now...because I am very focused on people including clients and their challenges and interested in them and their businesses, so I have always got an external focus, but of course, all the time you're thinking about what you're doing, what I'm doing myself, what we're doing is a group, the challenges, and problems that we're facing, the things that aren't working, you know (Present), how can we get better (Future) so it's definitely both” (Present).</i></p>
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2	Realize ideal Future	
A	Make plans for the ideal future of the organization	<p>Associate director B of Consultancy A:</p> <p><i>“...developing plans in terms of creating new propositions we work with them in terms of looking at acquisitions and the whole range of different things... broadly speaking supporting businesses grow... (Present) to establish ourselves as one of the predominant regional players in the next 5-10 years...” (Future).</i></p> <p>Founder of Software B: <i>“...plan of revenue targets...we have a people plan in terms of attracting the right level of people to the business for those milestones and then we end up with a plan that we are working towards and trying to manage and execute best we can... (Present) to achieve a certain level of annual recurring revenue within the next five years...” (Future).</i></p>
B	Make schedules and set deadlines for the ideal future of the organization	<p>Currency Strategy Head of Foreign Exchange : <i>“...but if you were to ask the business at a higher level, what is the strategy here with me and the strategy with me is grant is coming to work for the Australian team</i></p>

		<p>(Present) <i>he is going to have X number of clients, these are the products and Individual KPIs for grants, the services he's going to offer to the clients, this is the revenue that he's going to bring in, and these are behaviours on a KPI level that he's going to do. that's the strategy on a level... will manage those on a day-to-day basis a monthly basis or quarterly basis, an annual basis will put together to plan for next year (Future) and then we'll just get on with it that's what happens" (Present).</i></p> <p>Founder and strategic advisor of Fintech C:</p> <p><i>"It's where you'll be in six months, 12 months, 18 and then and then play that forward and then that'll help you inform you (Future) what plans you need in place to then deliver on those strategic objectives" (Present).</i></p>
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5.4 Temporal allocation, and futuring

Figure 5.4: Temporal allocation, and futuring



This section has discussed figure 5.2 where identification and enactment phase of sensemaking were linked via preparing function of subjective time (Shipp and Jansen, 2021), because managers discussed that they converse with the present and future temporal zones to develop all the strategies of their respective organizations (enactment), with respect to all the identified current and future uncertainties (identification). Construct temporal structures for uncertainty and construct multiple futures on uncertainty and strategy, signified this phase of temporal allocation, and futuring. Table 5.4 includes other exemplary quotes on the temporal allocation, and futuring.

5.4.1 Construct temporal structures for uncertainty

Managers discussed that they interpret temporal structures of the present and future temporal zones to prepare strategic action for all the identified current and future uncertainties. These temporal structures correspond to the preparing function of subjective time, and work by creating routines and urgency (Granqvist and Gustafsson, 2016). Make temporal routine checks on uncertainty and give temporal urgency to uncertainty has characterized this phase.

5.4.1.1 Make temporal routine checks on uncertainty

Managers discussed that they form an ongoing routine of checking current and future uncertainties with their peers, to prepare strategic action for them in the present and future. This also accentuated the aspect of immanent sensemaking (Introna, 2019), during which individuals routinely engage with the task environment to proceed in uncertain situations (Niemi et al., 2022). As evident from the words of currency strategy head of Foreign Exchange, who had discussed that he temporally structures present and future temporal zones, by forming an ongoing routine (temporal allocation mechanism of preparing function) of discussing all the identified current and future uncertainties, and by reviewing the risks related to these uncertainties every day in the managerial meetings “...we're constantly monitoring what's happening in in in each of those segments, there are you know regular managerial meetings in each geographic location...”, that assists him in focusing on the critical risks brought by these uncertainties “...we're much more likely to focus on these key critical risks across these departments across these management teams in these different regions...”, which eventually assist him in preparing strategic action for these uncertainties in present and future “...regions to be able to set a strategic plan for the upcoming year or whatever period...”

5.4.1.2 Create temporal urgency to uncertainties

Managers also discussed that they create immediate alert on all the current and future uncertainties to prepare strategic action for these uncertainties in present. Founder of Fintech E, discussed that he temporally structures present and future, by creating urgency (temporal allocation mechanism of preparing function) on all the current and future uncertainties with the help of red alerts “...so, then it depends on where this red alert is...”, that causes him to immediately report it to other senior managers in the strategy team “...first it will go through a department head if it is very serious it will get reported to the senior management...”, because he perceives time to be scarce,

and thus strategies against these uncertainties need to be immediately crafted either in the present “...and will be taken up and urgent meeting will be called..”, or in the near future “...or else if it can wait so we will wait...until the next senior management meeting, which is done on weekly basis so, it will go like that...”

5.4.2 Construct multiple futures for uncertainty and strategy

Managers then discussed that they view strategies and uncertainties at different times in the future, which assisted them in crafting strategies for uncertainties and the underlying vision in the present. Hence this accentuates the aspect of futuring, which also corresponds to the preparing function of subjective time (Shipp and Jansen, 2021), because again an interaction between the present and future temporal zones was evident, as managers formed multiple futures on uncertainties and strategies, which aided the preparation of the strategies in the present. Anticipate alternative futures on uncertainty and anticipate alternative futures on strategy has characterized this stage.

5.4.2.1 Anticipate alternative futures on uncertainty

Managers discussed that they anticipate various future scenarios around the current and future uncertainties, to strategize for them in the present. As evident from the strategic actions of associate director B of Consultancy A, during which he engages in the mental time travel into the future to anticipate the positive scenarios around the economic uncertainty in the macro-environment “...you know sort of a very positive macro environmental scenarios that trade will increase protectionism is going to decrease...”, and negative future scenarios around the political uncertainty related to war and sanctions that will adversely affect his organization “...you might have another scenario in which now we're going to go into a series of trade wars and actually it's going to be quite a heavily tariff driven environment and we're not going to...the free trade that we've had before, there may even be a trade war between the Western block and Russia might be you know sort of economic sanctions China might be difficult, etc...”, so that he can compare these different

scenarios and thus decide which out of them would mostly likely transpire in the near future “...so that’s an example of scenario A, sort of perfect scenario in which free trade will increase scenario two is actually effectively economic standoff you might put them in the middle, which is probably going to be closest to the truth, which is sort between them...”, which eventually helps him in crafting a strategic action against such a negative scenario in the present ...”and you think right okay, we have to work on our time scale scenario two... the key to it you're not going to get it right so plan for more than one option...”.

5.4.2.2 Anticipate alternative futures on strategy

Managers discussed how they construct various scenarios on the strategic plans of the envisioned ideal future with respect to the current and future uncertainties to develop a strategic action for this vision in the present. Senior strategy manager A of Energy, discussed how he mentally time travels into the future “...these projects are going to take 10 years...”, to anticipate various scenarios on the strategic plans they have made for the envisioned ideal future “...it comes what we call it as future energy scenarios so, looking at where we think electricity consumption will be where we think energy generation will be...”, where he links these scenarios with the scenarios on current and future uncertainties “...and what are ... the uncertainties...but we need to think about it now but also probably they would all be successful, or they won't all be delivered...”, and also compares the different scenarios around strategic plans “...further development of that future energy scenario planning so looking into that and a lot more detail for that particular time period...kind of benchmarking, different scenarios and looking...”, to anticipate how exactly a particular strategy in these different scenarios will benefit them over a period of time “I guess looking at likelihoods of different scenarios ...the scenario planning aspects comes down to sort of risk rewards... is this a good investment of this amount of money over this period of time...”, which assists him in preparing a suitable strategic action for the underlying vision in the present “...right this we've

decided that this is the most likely scenario and so we are going to develop a strategy around developing that... and actually what it will deliver in terms of well, returns to us as an organization...economy...local environment”.

Overall, this thesis theorizes that the preparing function and its mechanism of temporal allocation (Shipp and Jansen, 2021), facilitate an interaction between the enactment and identification stages of sensemaking. Hence this thesis links the analytically different stages of sensemaking (enactment, identification), by unveiling interactions between them, where both the temporalities (present, future) and the environment (identification of the current and future uncertainties), are significant in developing strategies for all these uncertainties and the vision. Moreover, as routines were pivotal for the development of strategies for uncertainties, this thesis outlines the routine perspectives of managers, as managers form an ongoing routine of discussing the current and future uncertainties, so that strategies can be crafted for them. Similarly, temporal structures created via urgency were also pivotal in quickly developing strategies for the current and future uncertainties. In addition, findings related to futuring accentuated that managers don't just resort to a single future, and instead can also construct multiple future scenarios to prepare strategic action for uncertainties and vision in present. In a similar vein, managers didn't resort to the past temporal zone to construct these future scenarios. Managers were actually accustomed to forming future scenarios and navigated multiple futures on uncertainty and strategy, reflecting the fact that their present strategic actions were embodied in their alternative future scenarios, instead of the past memories.

Table 5.4: Exemplary quotes on Temporal allocation, and futuring

	Themes and codes	Exemplary quotes
1	Construct temporal structures for uncertainty	
A	Make temporal routine checks on uncertainty	<p>Executive chair of Fintech D: "... such as the geopolitical environment we've discussed them from time to time...(Present) create a risk register and don't just have it like a risk register that's written down once and is in the drawer and is never reviewed, but have your risk register as a working document and make sure that when the risk registers brought to the executive table or to the board table for discussion that Is not just sort of looked at it's not just going to peripheral review, but there's actually not peripheral not just a superficial review but the actually pick out a few points and lead the discussion to make sure that everybody's thinking about things in</p>

		<p><i>the correct way... you would then want to have some welcome you know constructive input into review of the of your risk logger or your risk register...(Present) things that help you anticipate would be to use those good risk processes and rate... (Future) we still got to plan ahead for various events and conversations taking place without any certainty that there will be a peaceful outcome... (Future) and then you would want to sort of show that there was some planned actions and mitigation depending on the severity of the unfolding issue...” (Present, Future).</i></p> <p>CEO of Technology A: <i>“.... I think what we would do, on a weekly basis, anyway we’d look at things which are current (Present), and future uncertainties (Future), that we need to make decisions on, which</i></p>
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		<p><i>some of them, as I say, mightn't have any precedence, there's nothing to base it on..." (Present, Future).</i></p>
B	Create temporal urgency to uncertainty	<p>CEO of Consultancy B: <i>"you can manage by dashboards ...you move into dashboards in uncertainty when there's a red or a green what you need to understand is why and what you didn't need to understand when the stability is white...(Present, Future) so how do you want incentivize people when there is no ability for them to control the outcome of which being asked to deliver so you have to completely rethink incentives, motivations, purposes, what you're doing, why you're doing, how you're actually giving work, who you're giving the work to..."(Present).</i></p> <p>Certification head of Aviation A: <i>"so we can review issues (Present, Future), progress problems and risk</i></p>

		<p><i>at the appropriate level, what we can control within that level, we can control what we can't control we escalate for the for the company to make that informed decision..."</i></p> <p>(Present).</p>
2	Construct multiple futures on uncertainty and strategy	
A	Anticipate alternative futures on uncertainty	<p>Associate director of project delivery Consultancy E: <i>"...it depends on the depth and breadth and gravity of the particular uncertain event (Present, Future) we've been talking about recession...in the UK, but actually, we haven't really seen any depth or gravity of that recession (Present) so, it's factoring what the best case and worst-case scenarios are around that particular event so, you know, it could be a matter for factor it's business as usual if that particular uncertain event isn't,</i></p>

		<p><i>hasn't got a deep impact within our organization, our industry (Future)... and than prepare for every single eventuality answer” (Present).</i></p> <p>Fluid and mechanical system lead of Aviation A: <i>“...the absolute worst-case scenario is we run out of money, and we fold, and we don't get some markets... what we're looking at doing is a number of different scenario plans for a different production ramp up rates”(Future)</i></p> <p><i>“...at the moment we're very much a pre-revenue company we need to get the aircraft design built certified to be able to start generating the revenue well... (Present) that is a worst-case scenario (Future) we are planning to avoid that (Present) rather than letting that happen...” (Future).</i></p>
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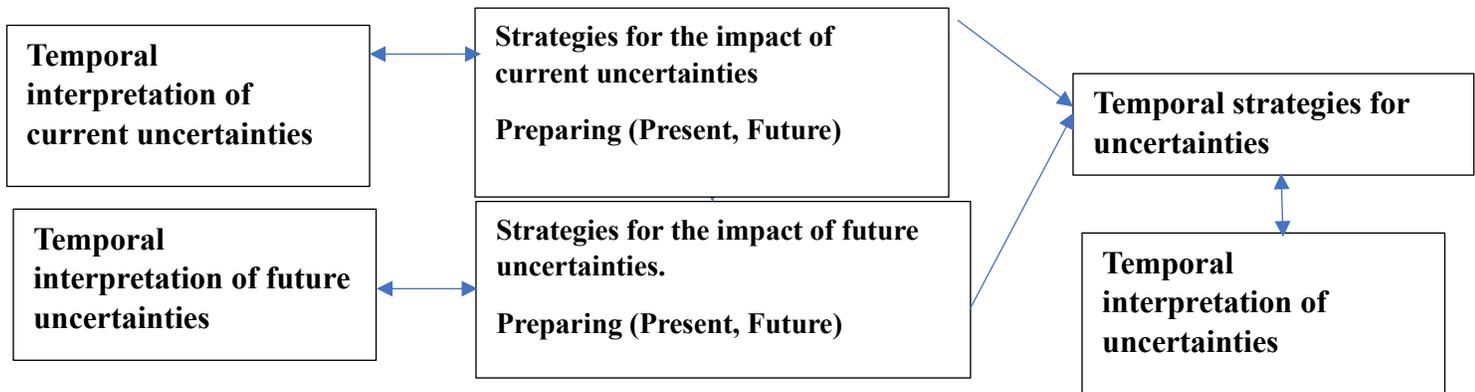
<p>B</p>	<p>Anticipate alternative futures on strategy</p>	<p>Chief insurance officer of Insurance : “...we look at scenario plans Plan A, Plan B plan C and no plan... so plan A will be to launch three products in six months, but Plan B would happen if product one or product 2 was not successful or too long, or we did not find a partnership in which case, our plan B would be that the third product would wait until later next year before we launch so we just changed the length of time and plan C on the product to be if we had a fantastic opportunity for a completely new product that was not in the plan, then could we adapt to our business to then bring it in as a plan C so maybe it becomes the third product and everything else moves down the line, one and in my case products are more successful or less successful than you thought, but</p>
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		<p><i>also through a scenario where you have an unexpected opportunity comes that might only happen once in the next five years, so you have to decide whether to Immediately jump to plan C and drop, which means stopping doing stuff focusing all of your effort on something else... (Future) also including the effect of uncertainties (Present, Future), and experience teaches you how to deal with this...”(Present, Future).</i></p> <p>Chief engineer of Aviation B:</p> <p><i>“...well, one of the things is you start to screen what is coming you start to create comprehensive plans with potential scenarios (Present, Future) and the mitigations that you can put sometimes, you can actually go straightaway to alternative solutions... (Present) the first one is, of course, that your strategy then is going to give away different</i></p>
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		<p><i>alternatives at the very beginning (Future) you have a well-established set of requirements and you do your analysis of alternatives in terms of, well, how they meet the requirements...yes, so you need to benchmark the alternatives against a well-defined list of requirements...”(Present).</i></p>
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5.5 Temporal strategies for uncertainties

Figure 5.5: Temporal strategies for uncertainties



Managers also discussed the different strategies they had prepared for different uncertainties faced by their respective organizations. Here, preparing function, facilitated the interaction between enactment and interpretation phases of sensemaking, via facilitating an interaction between present and future temporal zones, because managers discussed how the strategies, they have prepared in present (enactment), will mitigate the current or future impact of the current or future uncertainties (interpretation). Strategies for the impact of current uncertainties and strategies for the impact of

future uncertainties have characterized this phase. Table 5.5 also includes other exemplary quotes on the temporal strategies for uncertainties.

5.5.1 Strategies for the impact of current uncertainties

Managers discussed how the strategies they have made in the present will tackle the current or future impact of all the current uncertainties. Current strategizing for the impact of current macroenvironmental uncertainties, current strategizing for the impact of current internal uncertainties and current strategizing for the impact of current industry uncertainties were discussed here.

5.5.1.1 Current strategizing for the impact of current macroenvironmental uncertainties

Managers discussed how the strategies they have currently made for the current macro environmental uncertainties would mitigate the current or future impact of these uncertainties. Aviation chief executive of Aviation C, elaborated on how the current strategy of having a hybrid virtual working “...*actually, that hybrid working and virtual working is great... because, now that... actually being able to do it from afar, it starts opening up a different world... as a business, we're quite good on reflecting on successes and working out how to utilize them...*”, will tackle the current and future impact of the uncertainty caused by Brexit “...*now that we've got Brexit and we don't have the right to work in Europe...*”.

Interestingly managers also discussed that some current macroenvironmental uncertainties also brought future opportunities, and how crafting strategies for such future opportunities in the present, can help their organization in leveraging the positive impact of these uncertainties. Founder and CEO of Consultancy F, discussed how the current macroenvironmental uncertainty like Covid-19 also brings future opportunities “...*definitely brings opportunities for sure I mean like the Covid opportunity turned out that actually we can build a much bigger network online than we can face to face so our business has the potential to be much bigger as a result of*

Covid... ”, and therefore developing strategies for such future opportunities in the present, can assist the organization in leveraging the positive impact of such uncertainties “...you've figure your strategy out ...and you've also looking for opportunities in that as well, so, you know, does that uncertainty create an opportunity, and if so, what can you do to exploit it... it's probably just having a positive mindset and looking for the opportunities... ”.

5.5.1.2 Current strategizing for the impact of current internal uncertainties

Managers discussed how the strategies they have currently made for the current internal uncertainties would mitigate the current or future impact of these uncertainties. Founder of Digital Marketing, discussed how the current strategy of maintaining accounting systems “...*from day one, with all the accounting systems in place we've got the business analytics systems in place, so we have enough data to start looking for investors...*”, would mitigate the current impact of internal uncertainties that are stemming from the small size of the organization “*when it comes to funding, even though we are as I'd say small startup of five people...*”, during which he also discussed the strategy of training staff about the use of new software in the organization, to reduce the current and future impact of current uncertainty resulting from the lack of staff's knowledge about this new software “...*we're still learning the actual systems, so essentially just train the staff of today, so that they understand the software's that are in place to actually utilize them to its maximum value...*”.

5.5.1.3 Current strategizing for the impact of current industry uncertainties

Managers discussed how the strategies they have currently made for the current industry uncertainties would mitigate the current or future impact of these uncertainties. Associate director A of Consultancy A, discussed how the current strategy of maintaining good reputation in the industry to retain and grow clients “...*while we're very credible in the market and we go out and win a lot of business in that sector...it's more than maintenance...you got to maintain your*

reputation, maintaining, positioning”, and the current strategy to continuously work with clients would mitigate the impact of current and future uncertainty that can stem from the varying demands of different clients *“and we do key account management...so...that’s our tool a mechanism is that we try to position as quite a dynamic yet conservative company... they’re a good outfit that they know what they’re doing...you’re in a safe pair of hands with them and you can go straight to discuss a project with them...so that does help...”*, where he also discussed how he currently monitors different trends in the industry using various frameworks, and develops a commercial marketing strategy to counter the current and future impact of copious other uncertainties in the industry *“...we also use some models for plotting commercial strategy things like, risk model, things like an Ansoff, Porter, generic strategy or might use five forces...might use market positioning, simple market positioning for commercial marketing strategy”*.

5.5.2 Strategies for the impact of future uncertainties

Managers discussed how the strategies they have made in the present will help their organizations in proactively tackling the anticipated future impact of the different future uncertainties. Hence, they discussed three sorts of strategies in this context: current strategizing for the impact of future macroenvironmental uncertainties, current strategizing for the impact of future internal uncertainties, current strategizing for the impact of future industry uncertainties.

5.5.2.1 Current strategies for the impact of future macroenvironmental uncertainties

Managers discussed how the strategies they have currently made for the future macroenvironmental uncertainties will mitigate their anticipated future impact on their respective organizations. Certification head of Aviation A, discussed how understanding the intent of regulatory bodies and thus working closely with them *“the biggest strategy we use is intent what is the intent of regulation and what requirements already exist because if we can understand the intent...for the authority at the end of the day, it all comes down to safety so, if we understand*

what's safe is for them... ”, helps him in making a strategy in the present“...and then we can actually put together a plan or set of justification that would actually get us there so, this is how we'll go about demonstrating it... ”, against the anticipated future impact of the future regulatory uncertainty, that will be caused by the changing needs of the authority“...we may not understand how the authority will react... we don't understand what you want to see... there are certain things that they don't know about safety because of the technology and we do so, it's a case of what safe looks like for us overlaid with what safe looks like for them envelope from the extremes... ”, during which he also discussed the current strategy of embracing the known and unknown parts of this future uncertainty “...we just have to accept that there is a risk of the unknown and we progress around it which again is a valid strategy because if we can't understand it than put that to one side and then we will manage the interfaces of round that block of uncertainty... ”, to proactively strategize for the known future impact of such uncertainties in the present “...and then we'll fill it in as and when we get to it when we get a better understanding of the various things..... and control what we can control that's quite an important thing”. Therefore, it's evident how preparing function facilitated the interaction between the enactment and interpretation phases of sensemaking, via facilitating an interaction between the present and future temporal zones, as managers proactively strategized in the present (enactment), for the anticipated future impact of the future macro-environmental uncertainties. (interpretation).

5.5.2.2 Current strategizing for the impact of future internal uncertainties

Managers discussed how the strategies they have currently made for the future internal uncertainties will mitigate their anticipated future impact on their respective organizations. Head of the department of University B, discussed how the present strategies related to the employees “...keeping an eye on wellbeing... we need to be more generous and tolerant... ”, and finances of the organization “...and also a clear eye on your income stream... make sure there are strong

robust systems in place... ”, will help the organization in tackling the anticipated future impact of the future behavioral uncertainty of the employees, while they are acclimatizing to the changing work conditions “...in the next few years as our colleagues readjust... ”, and will also assist the organization in tackling the future impact of future financial uncertainty, that can possibly stem from the lack of funds “...to make sure our income streams bounce back, research income come back, our capital investment continues not just physical infrastructure but also digital infrastructure... because as long as you can secure income, manage your expenses produce a surplus”.

5.5.2.3 Current strategizing for the impact of future industry uncertainties

Managers discussed how the strategies they have currently made for the future industry uncertainties will mitigate their anticipated future impact on their respective organizations. Vice president of Software A, discussed how the current strategy of using their technological stack “...what we're doing is we're taking an existing technology stack and we are looking at areas that could use that markets, if you like, you could use that same technology to deliver benefit... ”, and modifying existing product “...what we need to do is simply deliver a product that makes sense... we need to build X we're going to take what we have and say okay is X close enough...then we can make the jump more easily... ”, will assist the organization in tackling the possible future impact of uncertainty that might be caused by the new market niche “...new market niche ... suddenly say right clean sheet of paper we want to go after that market... go away reinvent the whole wheel... so what we need to do at that stage... create a new product...”

Hence, this thesis again theorizes that the preparing function enables an interaction between the present and future temporal zones (Shipp and Jansen, 2021), which facilitates an interaction between the enactment (strategies developed for the current and future uncertainties), and the

interpretation (impact of current and future uncertainties), stages of sensemaking. Also, this thesis theorizes that both the temporalities (present, future), and the environment (interpretation of the current and future uncertainties), are pivotal in developing strategies for all these uncertainties. Moreover, due to the different impact of the different types of current and future uncertainties (macroenvironmental, internal and industrial), managers crafted different strategies for all these distinct uncertainties. Similarly, this thesis finds that enactment can also be proactive (Bleda et al., 2023), as managers developed strategies in the present, for the probable future negative impact of the future uncertainties. In addition, managers not only developed strategies for the adverse impact of the current and future uncertainties. Rather they also developed strategies to capitalize on the positive impact of some current-macro environmental uncertainties. Subsequently, this thesis argues that prospective sensemaking can be triggered both by the negative (Kundra and Dwivedi, 2023), and positive events (Kent, 2019).

Table 5.5: Exemplary quotes on temporal strategies for uncertainties

	Themes and codes	Exemplary quotes
1	Strategies for the impact of current uncertainties.	
A	Current strategizing for the impact of current macroenvironmental uncertainties	Brand and marketing head Fintech A: “...so for economic uncertainty... (Present), it's building, helping companies that come on to our platform, helping them with resilience and building resilience so, risk

		<p><i>management strategies, such as ESG, making sure that they have good cap table management in place” (Present, Future).</i></p> <p>CEO of Consultancy D: <i>“I always say to their opportunities...uncertainties if they are challenging and you have a hard time for a while (Present, Future) there are always opportunities (Future), you know Brexit ...(Present) so, I thought like well yes, but there will be a lot of business coming from other places (Future) also right now Covid happened (Present) I feel like, well, opportunity is the tech will need more sales and there will be more interesting projects coming out of the tech sector (Future)... you just have to readjust and strategize (Present)</i></p>
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		<p><i>so it's more of an opportunity than difficulty whether you are speaking of the referendum, whether we were talking about, you know, oh, obviously crisis is not great thing, but on the other hand, you know, if you, there are a lot of companies that will thrive in crisis still (Future) so, yeah, you just need to, have to see what can you change (Present) to take advantage of what's coming there's always an opportunity somewhere” (Future).</i></p>
<p>B</p>	<p>Current strategizing for the impact of current internal uncertainties</p>	<p>Investment director of Fintech B: <i>“...trying to get better information out of each one, with certain systems and data and making sure that kind of processes files are up to date (Present) ...” uncertainties...as for companies that we invest in</i></p>

		<p><i>as an organization our biggest ... every investment manager and portfolio as around relationships and stuff...is that we lose a member of staff really rather than anything else mitigated...but...still that...people can go into the contacts and the network with them which is a hard one...”</i></p> <p><i>(Present, Future).</i></p> <p>Currency strategy head of Foreign Exchange : <i>“...we are expanding our operational teams... so we're growing teams were adding people to deal with that uncertainty (Present) as we grow on the front-end and so, for instance on the recruitment side you know we brought in specific recruiters within the team on the marketing side, rather than going to an external</i></p>
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		<p><i>marketing organization so board that all in house, what we are doing is we're bringing as much of our decision-making process in house so that we're all closer to the business, we all understand what's going on in each different segment..."</i></p> <p>(Present, Future).</p>
<p>C</p>	<p>Current strategizing for the impact of current industry uncertainties</p>	<p>Founder and Strategic advisor of Fintech C: <i>"...building up data sandboxes and those sandboxes are accessed by other organizations to accelerate the innovation, and we reduce the cost of the penetration, so we know that they lack debt or its availability for these organizations to use there we solve that problem by creating that product offer now we know the addressable audience we know that the likely demand and</i></p>

		<p><i>we know that education organization has and how to use it...(Present) or you might have a strategy that says there's someone exist in the market, and we've got something better so we are going to tackle that market and we're going to get share of that market from the existing players you see a lot of that in Fintech for example you see the bank in market is probably hasn't addressable spend of X so, you're coming in into that market... so, I'm going to take a slice of that market and then over time I might be dominant and take a larger share than bank and the payments..." (Present Future).</i></p> <p>CEO of Consultancy D:</p> <p><i>"...logging into your CRMs into your system and you see what</i></p>
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		<p><i>happens... (Present) it's an ongoing process (Present, Future) of this is where we are, this what happens...looking at, yeah, what's available resources or opportunities are out there to tackle those uncertainties" (Present).</i></p>
2	Strategies for the impact of future uncertainties.	
A	Current strategizing for the impact of future macroenvironmental uncertainties	<p>Senior strategy manager B of Energy: <i>"... for example gas you will probably still have gas and it's used for either heating or per generation by it by that point... you will see more a nuclear energy being developed by that point as well but the idea being is to offer a far greater amount of renewable low carbon sources such as wind, solar and things like hydrogen and likely... (Future) a</i></p>

		<p><i>regulated place control period, which is a five year period of time (Future) that we have effectively this is what we are going to spend on the network in order to upgrade or to expand the network to facilitate new connections and the effectively a guarantee to allow us to clean that money back from and that's what we all pay for in our in our admin part very small part that we all pay for that, as part of our energy bill (Present)...which is just started the place control period 2021 to 2026 and we're going to deliver that which is 2.3 billion pounds of investment into the network, but a potential for another 2 billion on top of that... and so you know great opportunity there for us to really play a role (Present) in that</i></p>
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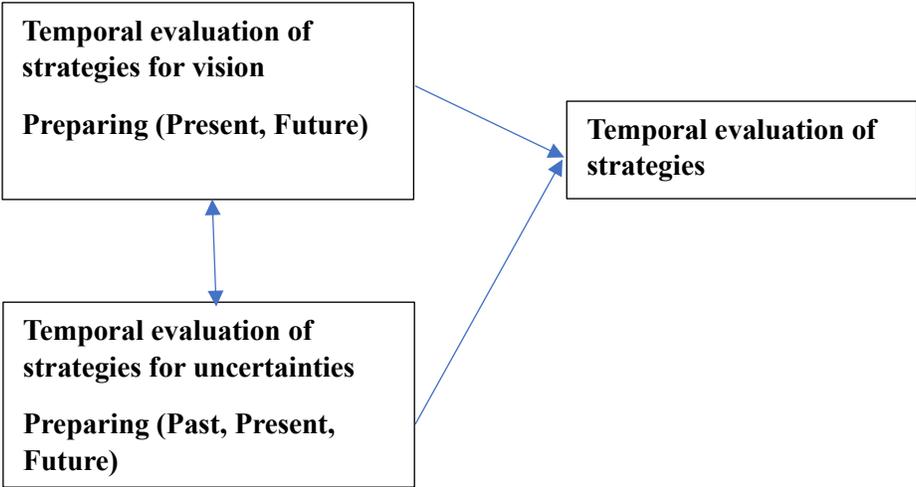
		<p><i>decarbonization of the energy system by 2035... ” (Future).</i></p> <p>Fluid and mechanical system lead of Aviation A: <i>“...so a lot of that will be about reducing the weight of the aircraft... (Future) so to industrialize and ramp up and being able to keep the costs appropriate as well” (Present).</i></p>
B	<p>Current strategizing for the impact of future internal uncertainties</p>	<p>Chief engineer of Aviation B: <i>“...in terms of future technical uncertainties... if everyone is speaking the same language... (Future) what the company is doing is really starting to be a more inclusive environment as a company...to promote diversity and then really to create the right environment for the different people to flourish, to create an environment that everyone can speak their</i></p>

		<p><i>opinion and promote diversity in this way, you start to attract more talent and retain the talent” (Present).</i></p> <p>Director of Business support :</p> <p><i>“...we have a new managing director in place...now she has been made permanent (Present), so she has a platform to be able to look at priorities and restructure management and resources...” (Future).</i></p>
<p>C</p>	<p>Current strategizing for the impact of future industry uncertainties</p>	<p>Investment director of Fintech B: <i>“...and basically trying to do that time travel so their business can reach ambition in in 10 years ... (Future) so, as an organization, we are working with a lot of companies where that's what we're trying to do so we're investing in companies” (Present).</i></p>

		<p>Currency strategy head of Foreign Exchange: “...as we grow, we will have more cyber security type situations that we have to address... (Future) we are constantly looking) at the likes of as we grow (Present, Future), so we are looking to external advisors to tell us how best to mitigate” (Present).</p>
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5.6 Temporal evaluation of strategies

Figure 5.6: Temporal evaluation of strategies



During this phase, managers discussed how they evaluate the strategies for vision and uncertainties. Temporal evaluation of strategies again showed the influence of the preparing function, as the interaction between the present and future temporal zones was evident. During the temporal evaluation of strategies for vision, managers evaluated all the strategies in the present,

based upon their expected future performance. Whereas, during the evaluation of strategies for uncertainties, managers engaged in mental time travel either in the future or past, to evaluate these strategies in the present. This established the fact that the preparing function can also facilitate mental time travel into the past, to enable action in the present. Temporal evaluation of strategies for vision and temporal evaluation of strategies for uncertainties has characterized this phase of enactment in sensemaking. Table 5.6 presents more exemplary quotes on the temporal evaluation of strategies.

5.6.1 Temporal evaluation of strategies for vision

Managers discussed how they currently evaluate all the strategies for vision by keeping a focus on the future ramifications of these strategies. Play devil's advocate and evaluate the future financial performance laid the foundation of this stage.

5.6.1.1 Play devil's advocate

Managers discussed how they evaluate strategies for vision with other peers in the strategy team in the present, by either focusing upon how they would work in the future, or by subjecting these strategies to various hypothetical future questions in the present. Associate director A of Consultancy A, explained how he evaluates all the strategies for vision with his strategy team by incorporating everyone's view in the present *"so it's a collective view... lots of these things are just obvious...when you get there you can see what really you should do, what you shouldn't do but you need to discuss it..."*, during which different peers challenge each other's view *"... if you're offering something as a theme or part of the theme or merging strategy... but maybe the three out of 10, you'll say look, I'm not too sure whether this is going to work... it's interesting... I didn't know that so okay..."*, based upon how these strategies would function in the future *"...to see which one it fits in... then we go forward on it..."*. Whereas CEO of Technology A, discussed how he evaluates the business strategy related to customers and growth with his strategy team in

the present “...when we meet to look at a particular business strategy, like the people strategy we'll take on board...”, and subject them to various hypothetical future questions related to sales and marketing in the present “...what else is happening elsewhere? what's happening in sales? what's happening with marketing... what would people want to see and do?...”, to evaluate what these strategies need to do in the present “...what needs to happen...”, and where he also focuses on the future time to evaluate how these strategies would support future growth “... are we continuing to grow and therefore can we effectively recruit people or put the budget in place to enable recruitment during that period...”, to achieve the envisioned ideal future of the organization in the future “...for the future state to be realized?”, and where he also scrutinizes these strategies with different hypothetical future questions in present “ ...you can have plans, you can say, that's where we're going, and that's the exit, and that's what the cap table looks like? and that's what we're going to look at, year two, year three, year five?...”, to evaluate which markets to enter or exit in the future “...you could exit, at that point, by year seven by the time different areas have really flourished say the metaverse, and other areas which are dependencies, but then it depends on how the world turns in the next 12 to 24 months...”.

5.6.1.2 Evaluate future financial performance

Managers also elaborated on how they assess the strategies for vision in the present, to evaluate how they would bring the intended financial benefits for their organizations in the future. Founder and strategic advisor of Fintech C, discussed how he uses online engines in the present “...to start... you got your Googles and your comparison engines, and now there's direct market...”, to assess the strategies for vision in the present “...you have to define product and offer value and the impact you want to make in that market and then you have to get the practical things together around organizing your capital, organizing your structure, target operating model...”, which eventually helps him in evaluating the magnitude of the financial benefits that these strategies will

bring to the organization in future “...you've got first to spot, the opportunity and the size of the prize.. how they do it and then create paths and predictions”.

5.6.2 Temporal evaluation of strategies for uncertainties

Managers discussed how they currently evaluate all the strategies for uncertainties, by resorting to either the future or past experiences related to what strategies would work the best for different uncertainties.

5.6.2.1 Use intuition

Managers elaborated on how they utilize guesses and gut feel about how the strategies for uncertainties would function in the future to evaluate them in the present. Vice president of Software A, discussed the use of guesses “...this is all educated guesses...”, intuition “...so some of that is part of the intuition of the managers involved...”, and gut feel “somebody's going by gut feel within their own self...”, about how the strategies for uncertainties would function in the future “...there's a little bit of flying by the seat of your pants...or 60% opportunity a chance of such happening...”, to evaluate these strategies in the present “to be able to apply ...therefore, we need to do whatever it is a gap close the gap to be able to take advantage of whatever that is ...”.

5.6.2.2 Recall experience

Finally, managers discussed how they reflect on the prior knowledge and experience, to evaluate strategies for uncertainties in the present. Managers discussed the use of both their individual experience and the experience of their team members to evaluate the strategies for uncertainties in the present. CEO of Consultancy C, discussed how recalling the collective past experience of everyone in the strategy team “...with the level of experience that we have got individually and collectively...what I do really is that I combine all the experience that I've had in the past and what it's taught me with what I've have read, listened to...”, and resorting to present time to integrate his personal new information on all the uncertainties “...I am reading, listening to, so, I'm

devouring, you know, new information all the time about leadership and about what great organizations look like and how they behave and how they respond to uncertainty and adversity”, with his own past experience on uncertainties “...combining those principles, with my own experience from the past ...”, helps him in evaluating what strategy should be utilized in the present “...so I know what the principles are and applying those...”. Whereas chief engineer of Aviation B, solely reflected on how he recalls his individual experience of working in a different company in the past “...because I worked for a Japanese company that is quite strong in strategy, and how they do things is quite methodical, also because of the training that I did, that I have been doing...”, to evaluate, and thus select the viable strategy for uncertainty in the present “... and I understand what are the different steps of choosing the strategy”.

Hence the preparing function facilitates the enactment phase of sensemaking, via enabling an interaction between present and future temporal zones (Shipp and Jansen, 2021), as managers evaluated the strategies for vision and uncertainties in the present, based upon the future ramifications of these strategies. Nevertheless, this thesis also argues that the preparing function can also facilitate the evaluation of strategies for uncertainties in present, by enabling an interaction between past and present temporal zones. In addition, evaluation of strategies for uncertainties in present was also driven by the managerial intuition about the future. Hence, the evaluation of these strategies wasn't rational as managers didn't form alternatives to consciously arrive at a logical choice (Sadler-Smith and Shefy, 2004). Instead, this evaluation in the present was guided by the managerial gut feel and guesses about the future, regarding how these strategies might function in future. Overall, this thesis theorizes that present can be inextricably tied with either future or past, to enact strategies in the present, where strategies are evaluated, and the final course of strategic action is decided.

Table 5.6: Exemplary quotes on temporal evaluation of strategies

	Themes and codes	Exemplary quotes
1	Temporal evaluation of strategies for vision	
A	Play devil’s advocate	<p>Executive chair of Fintech D: “...so typically, an inner company, you have executive and non-executive responsibilities so you would expect your executive, so the full time staff to be prepared to answer relevant questions (Present) about what might appear to be a relatively obvious array strategies... (Present, Future) and then the non-executive directors would then come with questions and probe and in the event that they weren't satisfied with the answer they may come forward with advice and say look...”(Present).</p> <p>Senior strategy manager A of Energy: “...why are we doing this? what is the that the proposition, you know to your stakeholders? and how we put these things across? (Present, Future) because we have to make sure that people work with us, not against us...” (Present).</p>

<p>B</p>	<p>Evaluate future financial performance</p>	<p>Aviation chief executive of Aviation C:</p> <p><i>“...It's probably the feasibility of it, do we think it's realistic or not... (Present) If the decision that you're making isn't going to have a financial implication on the business, you're probably going to take a bit of a punt, whereas, if it's going to have a long-term financial impact, you're not going to want to make that much of a decision based on something you've got no idea about... (Future) so you think this can work you've got an opportunity to test that theory right now”</i>(Present).</p> <p>Chief engineer of Aviation B: <i>“the strategy itself needs to pay off something, strategy, we put it together, but it's not just because we want a strategy...”</i> (Present)</p> <p><i>“...somehow, it needs to benefit the company ultimately, it needs to benefit the shareholders”.</i> (Future)</p>
<p>2</p>	<p>Temporal evaluation of strategies for uncertainties</p>	

<p>A</p>	<p>Use intuition</p>	<p>Director of Business support: “...<i>there's an element of you know instinctively... what sort of change tends to market opportunities</i> (Future) <i>you have an idea what you know what needs to be done</i>” (Present).</p> <p>CEO of Fintech A: “...<i>gut instincts... (Future) because that has a massive impact in your decision-making process.</i>” (Present).</p>
<p>B</p>	<p>Recall experience</p>	<p>Senior project manager of Nuclear: “...<i>where there's a level of uncertainty... (Present, Future) experience can help (Past) to inform and qualify where those senses of certainty and uncertainty lie so, there's certain steps that you can take with confidence... (Present) as how we are going to get there...(Present) many of the employees have had their family working in that context for generations so, they're obviously quite encultured...(Past) arriving on the scene they can take in what's happening, bring all their years and qualifications and experience...</i>” (Present).</p>

		<p>Head of the department of University B:</p> <p><i>“...I have been the head of department in the other institutions as well and I have been into leadership roles in other institutions... (Past) to decide the action” (Present).</i></p>
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5.7 Temporal construal

Figure 5.7: Temporal construal

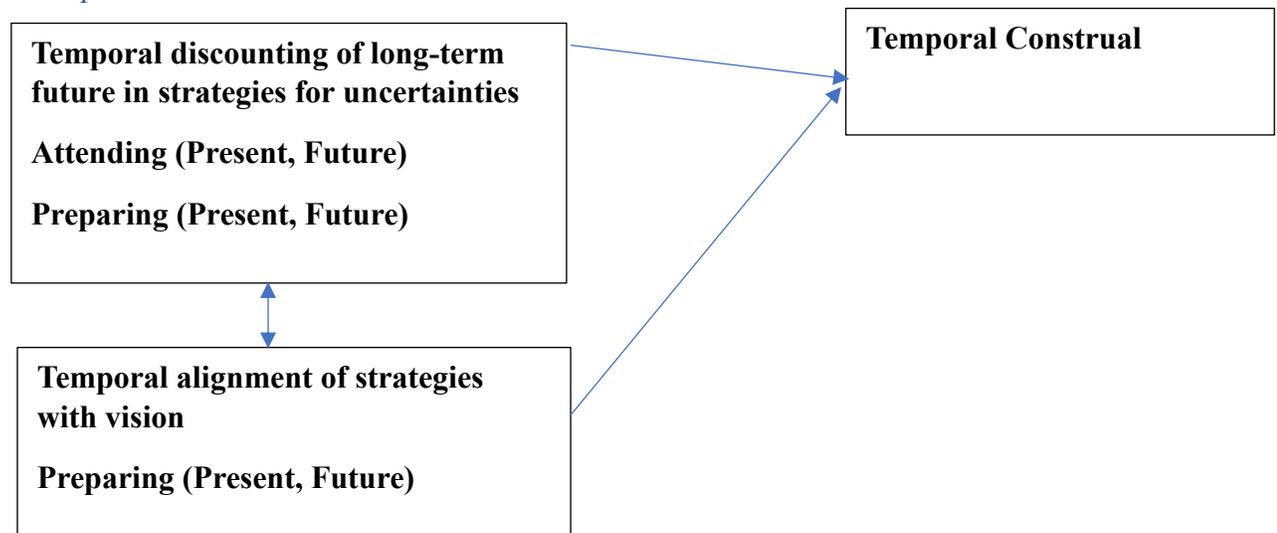


Figure 5.7 depicts the temporal construal mechanism of preparing function (Shipp and Jansen, 2021), as managers mentally represented the temporal distance between the present and future events to allocate, discount or align the temporal horizons of all of their strategic actions. Moreover, attending function (via its mechanism of focus) (Shipp and Jansen, 2021), also surfaced during the temporal discounting of long-term future in strategies for uncertainties. So, interaction of attending and preparing function was also evidenced at this stage. This phase has been characterized by an ongoing interaction between the temporal discounting of long-term future in

strategies for uncertainties and temporal alignment of strategies with vision. Table 5.7 also includes more exemplary quotes on temporal construal.

5.7.1 Temporal discounting of long-term future in strategies for uncertainties

Managers perceived that uncertainties are always changing which causes long-term futuring myopia, and thus they only kept short-term horizons for all the strategic actions prepared for different uncertainties in the present. Increased focus on the current and near future uncertainties and allocate short-term horizon to strategies for uncertainties has characterized this phase.

5.7.1.1 Increased focus on the current and near future uncertainties

Managers discussed that they augment their focus on the current and near future uncertainties, because it was difficult for them to anticipate long-term uncertainties. Attending function facilitated this stage via its mechanism of focus, as managers had selectively drawn focus on the present and near future temporal zone to increase their attention towards such uncertainties. Director of projects of Yacht, discussed that he attends to the most beneficial time frames of the present and near future, to have increase focus on the uncertainties in these time frames “... *In terms of uncertainty we tend to look at that in terms of the next 18 months...*”, because it becomes cumbersome to anticipate long-term uncertainties, “...*anything beyond that, the funnel just gets too wide the possibilities, the probabilities you know they become too many and it's difficult...*”, which helps him in construing the uncertainties in the present and near future in more detail “... *I think the important thing is to try and cut down on the noise and focus on the real uncertainty that's going to hurt you...*”, that are having more impact on the organization in the present “...*that's predominantly we look at that now in terms of is it going to hurt our customer? Is it going to change our customer's behavior*”.

5.7.1.2 Allocate short-term horizon to strategies for uncertainties

Previously, attending function was evident as individuals augmented their focus on the current and near future uncertainties. Now the preparation function was evident, as managers discussed that they allocate a short-term horizon of the strategies for uncertainties in the present, by discounting long-term future in these strategies. Senior project manager of Nuclear, discussed that he allocates a short-term horizon to all the strategic actions crafted against uncertainties in the present “... *I think the short term...*”, and thus discounts the long-term future in these short-term strategic actions by actively managing them “...*definitely for the reasons I've described and navigating the storm...there's a lot more uncertainty about what direction I should steer in at any one moment...*”, because he perceives that the long-term strategic actions can quickly become unreasonable due to unanticipated ways in which these uncertainties might change in the future “...*I think we have to be realistic and appreciate that where we've got the significant control over the environment and delivery and the resources, we need that might be to a degree reasonable, but it could very quickly become unreasonable and given those increasing uncertainties...*”.

5.7.2 Temporal alignment of strategies with vision

Managers discussed that they align different long and short-term strategies based upon their perceived distance from the present. This also assisted them in understanding the overall implications of these short-term strategies for the long-term strategies for vision. Therefore, the temporal alignment of strategies was also influenced by the preparing function, as the strategic action in the present (alignment), has been facilitated with the interaction between present and future temporal zones. Align long and short-term strategies for vision and align short-term strategies for uncertainties with the long-term strategies for vision has characterized this stage.

5.7.2.1 Align long and short-term strategies for vision

Managers discussed that they adhere to the distant future to align the long and short-term strategies for vision in the present. Founder and CEO of Consultancy F, discussed that he resorts to the distant future “...*in the future...*”, and thus the long-term strategies for vision “...*long term as the business grows and we have greater cash reserves then I think the opportunity to invest, for example in the software increases which could impact our strategy...*”, to align them with the short-term strategies for vision in present “...*main distinction is level of investment really so short term, medium strategies...*”, to make sure that these short-term strategies support the overall long-term strategy for vision in the future “...*are more doing more of the same and doing more within the confines of being able to do stuff without having to invest lots of money...*”.

5.7.2.2 Align short term strategies for uncertainties with the long-term strategies for vision

Managers also resorted to the present and distant future to align their short-term strategies for uncertainties with the long-term strategies for vision in the present. Head of the department of University B, discussed that he adheres to the present time “...*every day...*” and thus to the short-term strategies for uncertainties “...*as a manager ... you have to react to the moment...*”, where he also resorts to both the distant future and present, to align these short-term strategies for uncertainties, with the long-term strategies for vision in the present “...*looking forward... so you need to be ambidextrous on one hand you are working with the immediate solution also you are keeping an eye on the longer run...*”, so that he can understand the consequences that these short-term strategies for uncertainties would have on the overall long-term strategies for vision in the future “...*thinking that if we do that what will be the implications what are the options what are the possible outcomes which we don't know yet, so, let's take a position that would us to flex depending on the what the outcome will be...*”.

Hence, this phase of enactment, reveals the influence of temporal construal function of the preparing function, where strategies were developed in the present, via the mental representation of uncertainty and strategy in future, based upon their psychological distance from present (Paine, Byron and Higgins, 2023). More precisely, the type of temporal orientation (short or long-term), that was allotted to the different types of strategies, was dictated by the type of conditions. Uncertainty caused the managers to focus on the current and near future uncertainties, and thus the strategies for uncertainties were allotted a short-term orientation. Therefore, this thesis accentuates the interaction between the attending (the mechanism of focus), and the preparing function (the mechanism of temporal construal) (Shipp and Jansen, 2021), in the allocation of short-term horizon to the strategies for uncertainties. Subsequently this thesis argues that the attending function can create fodder for the preparing function. In addition, as the vision entailed a long-term future, long-term strategies for vision were aligned with the short-term strategies for vision and uncertainties. Therefore, this thesis argues that the temporal reference points (short and long-term), are vital elements in strategy development (Das, 2004). Overall, this thesis theorizes the influence of both the temporal construal mechanism of the preparing function, and the interaction between the attending and preparing function (Shipp and Jansen, 2021), in facilitating enactment (developing both the short and long-term strategies), which signified the essence of developing strategies in a multi-temporal way (Le Breton-Miller and Miller, 2011).

Table 5.7: Exemplary quotes on Temporal construal

	Themes and codes	Exemplary quotes
1	Temporal discounting of long-term future in strategies for uncertainties	
A	Increased focus on the current and near future uncertainties	<p>CEO of Consultancy D: “...every month is different right now (Present, Future), so that's also short term... (Present) you know we can be surprised, how fast time flies... so you look like what's you know within the next few months ...and in let's say three years but obviously you have to readjust...” (Present, Future).</p> <p>Chief advisor of Nuclear: “...we've got a 98-year program (Future), I'm not sure we predict the uncertainties quite that far ...so those kinds of uncertainties are certainly unknown... it's too unknown...” (Present, Future).</p>
B	Allocate short-term horizon to strategies for uncertainties	<p>Director of University A: “...given the situation for the university, the prioritization of the here and now is</p>

		<p><i>obvious it's an existential threat so, a lot of emphasis and a lot operational focus is on how to recruit, support the new cohorts of international students (Present) if that can manifest then the future might that featured worth considering if it can't be manifest, then there is there may be no future (Future), so I would say the emphasis is on now it's strategic thinking is miniscule, right now for the university (Present), there is an appreciation of what needs to be the future focus around technology and emerging kind of job markets and things like that (Future), but really the operation the emphasis is on the here and now understandably..."</i></p> <p>(Present).</p> <p>Associate director of project delivery of Consultancy E: <i>"...so, short term strategies around uncertainties probably, you know,</i></p>
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		<p><i>around the known events that occur such as recession, such as, you know, what we experienced through global pandemic and economic downturn, does sort of short term strategies that are easy to surmise and, well, not anticipate, but understand how they've been dealt with before... so, it's definitely the short term (Present), but the long term, it presents a bigger unknown to be honest ...whatever we perceive as an uncertain event today, might not be the uncertain events of tomorrow so, there might be new dynamics or new situations where we haven't really factored in or accounted for once again going back to the scenario around Covid...I don't think anybody's got the hindsight to say in 100 years' time, we're going to experience a life change in uncertain event (Future), and so from a</i></p>
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		<p><i>perception of managing uncertainty it tends to be quite shallow and focused on the here and now (Present) so, rather than strategizing about very long-term uncertain events (Future), it tends to be quite tactical around, you know...what potentially the impact of the market might be, or you know, potentially, if the rise of covid again occurs, how can we manage that the effect of that particular event in the here and now...” (Present).</i></p>
2	Temporal alignment of strategies with vision	
A	Align long and short-term strategies for vision	<p>Director of Business support:</p> <p><i>“...horizon scanning, in terms of looking at inward investment opportunities and how those fit with local and regional capabilities (Future) those determine in a sense, quite how realizable and then we do</i></p>

		<p><i>some gap analysis in there, that will help you think about well what would you need to do to you know to chain to change them and we would need to look at where the biggest gains could be made, but also look at what are the easiest gains to be made which is really big and you know what would change, you know would give a step change, but perhaps not realizable against things which are you know easy wins and capable of being delivered and reasonably cheap but perhaps have some more limited outputs nice counting the right balance of some of those things...”</i></p> <p>(Present).</p> <p>Brand and marketing head of Fintech A: <i>“...but like if the opportunity arises (Present, Future) you just think is this meeting my long-term goals? (Future) yes or no (Present), if it is then it's an</i></p>
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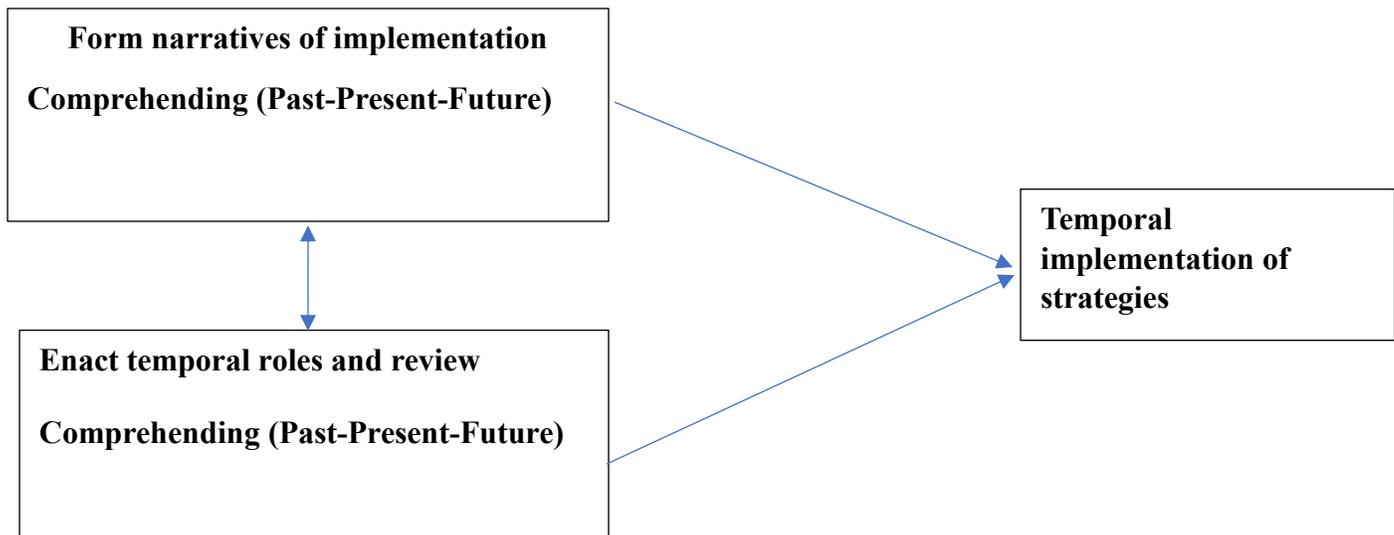
		<p><i>interesting opportunity but also, you've got to ask, is this opportunity something that I should be open to because it might serve me in the future if X changes, you know and so, it's kept on that basis..." (Present, Future).</i></p>
<p>B</p>	<p>Align short-term strategies for uncertainties with the long-term strategies for vision</p>	<p>CEO of Consultancy D: <i>"...both, I think, obviously you have to have the long term (Future) in order so if you were just looking at the short term (Present), then your kind of, you know, you may end up going in same space I think you have to have that long term strategy... (Future) looking long term is more like what partners we need to have, what kind of organizations we need to engage with, if we are looking at working with more companies expanding into the US and long-term strategy for us is very much making a lot of connections in the US make sure that</i></p>

		<p><i>when they are launching there is a very soft cushion for them... (Future) current strategies as like your profile your clients have parked a project on a shelf and it's hard to say whether it's going to be two months, or six months, you need to make sure that arrival there is a lot of cash flow in the company that if we have a quick time and there are not enough projects (Present) and you have a team of very trusty associates, they may actually drift away somewhere or because they will not be easy (Future) so, you know, the short term are likely looking alright, well if they're the parked projects, how would we make sure that we have the resources to keep going until the projects move on, so that would be very much like, ok, do we have a different solution, different service we can offer some of the clients to go</i></p>
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		<p><i>through that period and sometimes we do that or maybe we need to look for a bridging or whatever...”</i></p> <p><i>(Present).</i></p> <p>Founder and director of Coworking space: <i>“...short term... what is going to happen in the next 12 months, how we are looking at quarter one quarter two, who's doing what, so, the vast majority is because it's still a small team...(Present, Future) long term is to have a connected workspace across Northeastern Cumbria that is the only long term strategy and that in four years we have a sellable asset, that's very high level strategy, , so I think long term plans, when you've got a bigger team and you've got someone that can manage the overall growth, you've got a vision of where you're going otherwise you wouldn't be able to get there...”</i> <i>(Future).</i></p>
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5.8 Temporal implementation of strategies

Figure 5.8: Temporal implementation of strategies



Comprehending function of subjective time influenced this stage of enactment via the simultaneous integration of past, present and future (Shipp and Jansen, 2021), because managers discussed how simultaneously connecting the implementation experiences of past, present, and future, helps them in implementing strategies in the present. This phase has been characterized by an ongoing interaction between the implement similar or different strategies and enact temporal roles and review. Table 5.8 also shows other exemplary quotes on the temporal implementation of strategies.

5.8.1 Form narratives of implementation

Managers discussed how they comprehend storied accounts of an issue that is causing similar or different uncertainties over past, present, and future to implement similar or different strategies in the present.

5.8.1.1 Implement past strategies for the similar uncertainty over the years

Managers discussed how they form storied accounts on issues that have caused similar uncertainty over past, present, and future to comprehend past strategies, so that they can implement this similar past strategy in the present. Associate director A of Consultancy A, discussed how he forms storied accounts on the issue of Covid that has caused similar uncertainty over the past, present and future “...so we have less revenue during covid...so, for about 3 months from the covid, first kicked off, I would say between, uh the latter half of 2020 was the was the most difficult after the first lock down because people were just panicking...”, to comprehend the strategies implemented against Covid in the past “...you are continuing your work... we're just going to do less work we going to charge higher fees were going to network remotely... during covid put our prices up to try and maintain our profit...”, which helps him in implementing the similar past strategy against Covid in the present “...but I don't think our fundamental strategy is changed due to Covid, it's very similar and I guess that what we have done, and this is a more operational strategy... we become better at managing projects remotely...”.

5.8.1.2 Implement different strategies for the different uncertainty over the years

Managers discussed how they form storied accounts on issues that have caused different uncertainties over past, present, and future to implement a tailored and thus distinct strategy in the present. As the currency strategic head of Foreign Exchange, discussed how he forms and comprehends storied account on an issue that is causing different uncertainties over past “...how does history and the known parts of it...”, present “...what remains in terms of the unknowns or what we can't work out and what we can work out...”, and the future “...what are the known parts that we know we can play forward...”, to implement a distinct and thus suitable strategy in the present “...and then implementing a strategy that tries to address the odds to that”. Hence, the way this manager implemented a strategy in the present was influenced by the known and unknown

aspect of an event that was causing different uncertainties over past, present, and future. Therefore, instead of simply implementing a similar past strategy in the present, the manager tried to comprehend the known parts of such an uncertainty to implement a different strategy in the present.

5.8.2 *Enact temporal roles and review*

Managers simultaneously remembered past and imagined the future events on behalf of their peers, to discuss the way they expect their strategy team to implement strategies, where they also discussed the way their team assess the strategies implemented in the past to effectively implement the strategies in present and future. Recall past and anticipate future roles in the implementation of strategies and review past strategies to improve the implementation of strategies in present and future has characterized this phase.

5.8.2.1 *Recall past and anticipate future roles in the implementation of strategies*

Managers discussed how they simultaneously reminisce past and imagine future events related to the implementation of strategies on the behalf of their strategy team, to reflect and anticipate their roles in the implementation of strategy in the present and future. Senior strategy manager B of Energy, reflected on the strategy meetings of his organization to discuss how his team collectively recalls past “*when we were building these projects...*”, and collectively imagine the future roles in the implementation of strategies “*...my team will be working across the business, across different areas to ensure that we get these top level plans...*”, during which he also comprehends his present and future individual role in the implementation of strategies “*...I’m still trying to get my head round around it myself in terms of what I need to be doing...*”, and the role he expects his team to have in the present and future “*...and what are our team needs to do... it's got to be a top down and bottom up process....*”, to effectively implement a strategy in the present and future “*...and we should be using that process... to translate that into a strategy that can be implemented effectively...*”.

5.8.2.2 Review past strategies to improve the implementation of strategies in present and future

Managers discussed how they simultaneously remembers past and anticipate future events on the behalf of their strategy team, to continuously review the strategies implemented in the past, so that they can improve the implementation of these strategies in present and future. Founder of Software B, elaborated on how his team collectively review the strategies implemented in the past “*once a month we do more of a deep dive where we reflect on the main month, and then each quarter we go deeper again and spend more time reflecting on what's worked what hasn't...*”, to analyze whether these strategies would still work in the present “*...to see whether the original thesis a narrative still hold...*”, where they also anticipate how these past strategies would function in the future “*...and we compare them with the expected milestone progress using slack as the main communication tool...*”, to improve the implementation of these strategies in the present and future “*...we use our own software to track their day-to-day tasks and then we course correct...*”.

Hence, where the previous five stages of enactment were facilitated by the preparing function, this stage of enactment i.e. the temporal implementation of strategies, was facilitated by the comprehending function (Shipp and Jansen, 2021), as narrative accounts of uncertainty were simultaneously interwoven across past, present and future, to implement strategies. More precisely, this thesis found that past narratives play a pivotal role in implementing past strategies, amidst the similar uncertainty over past, present and future. On the contrary, present and future narratives play a vital role in implementing a distinct strategy, for a different uncertainty over the past, present and future. In addition, managers didn't only think about their own futures, but they simultaneously recalled past and anticipated future roles of other members in the strategy team, to implement strategies in the present and future. Therefore, this thesis surfaces the influence of the individual form of the collective mental time travel (Hacıbektaşoğlu et al., 2023), in the prospective sensemaking of uncertainties. Furthermore, this thesis found that the managers expected their team

to evaluate the strategies implemented in past, by temporally coordinating and comparing the results produced by these strategies in the past and present, with the expected future performance, to improve the implementation of the strategies in the present and future. This surfaced the aspect of internal entrainment (integrating the pace and cycle of the day-to-day tasks as per the past and the anticipated progress) (Dibrell, Fairclough and Davis, 2015). Overall, this thesis theorizes, that enactment is also facilitated by the comprehending function, and its mechanism of narratives (Shipp and Jansen, 2021), as the temporal implementation of strategies involve the simultaneous interplay of the past, present and future temporal zones.

Table 5.8: Exemplary quotes on Temporal implementation of strategies

	Themes and codes	Exemplary quotes
1	Form narratives of implementation	
A	Implement past strategies for the similar uncertainty over the years.	Vice President of Software A: <i>"...is that we know the technology we got (Past) is applicable in other markets, but maybe applied slightly differently (Present, Future) but it means that our existing engineering efforts and our existing IP stack (Past) is reusable (Present, Future), so what I'm doing at the moment (Present) is identifying markets</i>

		<p><i>where that (Past) can be done multiple times so most markets within fintech, other markets within software licensing etc (Present, Future) ... as you move forward into the future.... eventually you get the point you know whether it's something off the wall like avionics or automotive..." (Future).</i></p> <p>Director of projects of Yacht:</p> <p><i>"...one of our ambitions (Future) is to do the same amount of business (Past) but with less people (Present, Future) because it'd be more profitable (Future) ...at the moment, we've responded to customer demand (Present) and we've done it the old, way, money exchanging more hands, more people (Past) we think we've grown to the point beyond</i></p>
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		<p><i>which our growth will be it'll be more, less, less linear and more organic, yeah so, the only way to continue to increase the profitability of the company (Future) is to reduce the cost of the operation, simple but that's tactical...that's just good management, good business management” (Present, Future).</i></p>
<p>B</p>	<p>Implement different strategies for the different uncertainty over the years.</p>	<p>Chief Innovation Officer of Software C: “...and in the past, there's been a different problem with cashflow, because the pipeline wasn't there, or the revenue wasn't there so therefore there was no cashflow, there was no money in the business the strategy previously was go and win more business, but actually, if we went and won more business (Past) now, that would make the situation worse</p>

		<p>(Present) <i>because we'd have to recruit more people and we'd have less money (Future) so we had to look at both scenarios and say well okay this needs to be a different strategy... (Past) get the appropriate level of support from our accountant, or whoever, to see us through this problem statement, and again, look at different solutions..."</i></p> <p>(Present, Future).</p> <p>Chief Engineer of Aviation B:</p> <p><i>"...whereas in the past they would say, you are an exception, or the lobbying from aerospace and defence would work better (Past) than nowadays, now, if aerospace wants to say that it is an exception and therefore you don't need to have a strategy for a specific subject (Present), then the regulators and policymakers</i></p>
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		<p><i>require more substantiation (Future) than 10 years ago ,so 10 years ago, 15 years ago, there was less need for innovation and really thinking about strategy (Past) than nowadays because even if it's a conservative and a low-pace sector, the policymakers now are more on top of it (Present)... you need really to get to the point that it meets the requirements and that the time that you want to implement your alternative meets the requirements not only in terms of engineering requirements but also in terms of procurement, quality, manufacturability (Future), but then you need also to ensure that people know how to operate with them you need to ensure that they actually are</i></p>
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		<p><i>known in the supply chain, implemented in the supply chain, because there is no point to find something that is not ready...” (Present, Future).</i></p>
2	Enact temporal roles and review	
A	Recall past and anticipate future roles in the implementation of strategies	<p>Certification head of Aviation</p> <p>A: <i>“...in any given year the delegation... I trusted that they did it and they acted in good faith (Past) and we can then reassess and maybe change that decision if that's necessary (Present, Future) so actually empowerment of people at the right level to start the actions or an understanding that you acted in the best interests (Present, Future) so if it's a case of maybe I need to wait for a formal decision (Future) but actually, can I start getting stuff moving now (Present) so that we are</i></p>

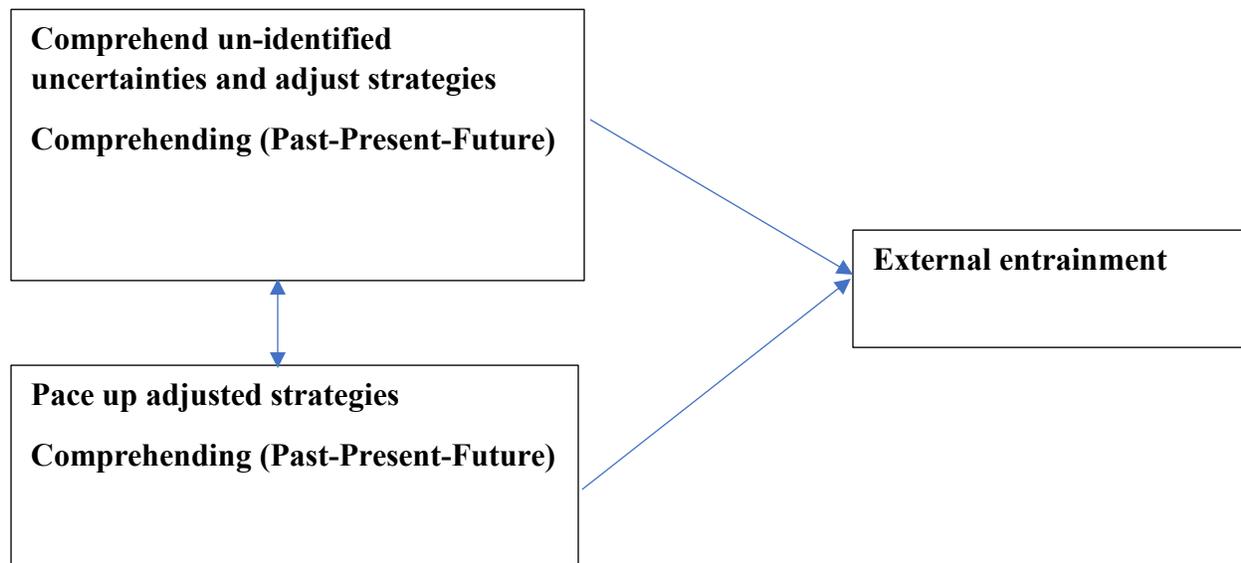
		<p><i>much closer, we are further along the line when that formal decision comes through I trust my team that if I'm not around they can exercise their best judgment to get things moving if whatever reason I get back alright they then become available, and I disagree with that there's no there's no repercussions” (Future).</i></p> <p>Director of Consultancy A:</p> <p><i>“...understand...we tend to think in quarters...(Past) and who's going to do them... (Present, Future) think about the future... will we do that, rather than which month for or who will think about why q3 next year, for example, or when we're going to open another office to use that (Future) and</i></p>
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		<i>who will lead that...” (Present, Future).</i>
B	Review past strategies to improve the implementation of strategies in present and future	<p>Founder and Director of Coworking space: “...so, last week, we sat down with Barclays and we're like, ok, let's look over the last year and one of the things that really is important for coworking is events and what speakers you bring in, and we looked at, what worked, what didn't work, and we realized this last year, we were very ad hoc, and we had no strategy... we've gone, ok, last year that was good, but we knew a bit too ad hoc and there wasn't that much clarity (Past), so, what we're doing for this year is (Present) we're breaking it up into different quarters... (Future) so, let's have a strategy</p>

		<p><i>and that's now implemented (Present, Future) and we'll start rolling out next year” (Future).</i></p> <p>Aviation chief executive of Aviation C: <i>“...we have invested in technology (Past), there's quite a lot of review over what that looks like as a project (Present, Future), is it delivering to the timelines that people have projected it would (Future) how is it doing against its budgeted performance (Future), has it overspent those types of things (Past), I mean we capture what we're doing...” (Present, Future).</i></p>

5.9 External entrainment

Figure 5.9: External entrainment



Managers then explained the new sensemaking process which has been characterized as the external entrainment (Figure 5.9). During external entrainment managers discussed how they understand new uncertainties, change existing strategies, and quickly select the adjusted strategies in the wake of new and thus unidentified uncertainties in the external environment (Lervik, Fahy and Easterby-Smith, 2010). Comprehending function facilitated this new sensemaking process, as managers simultaneously integrated past, present and future to entrain strategies as per the new uncertainties. Comprehend un-identified uncertainties and adjust strategies, and pace up adjusted strategies characterized this phase. Table 5.9 shows more exemplary quotes on the external entrainment.

5.9.1 Comprehend un-identified uncertainties and adjust strategies

Managers discussed how they try to understand the changes brought by unidentified uncertainties, which emerge as a consequence of the ever-changing nature of the external environment. Such comprehension of the external business environment assisted them in adjusting their strategies

with respect to the change brought by these new and thus unidentified uncertainties. Re-engagement with the external environment and communicate changes with peers has characterized this phase.

5.9.1.1 Re-engagement with the external environment

Managers discussed how they integrate past, present, and future temporal zones, to re-engage with the changing external environment, to identify, interpret, and understand the meaning of the unidentified uncertainties, and thus to adjust the strategies as per these new uncertainties in the present and future. Senior project manager of Nuclear, reflected on how he resorts to past to understand that how briskly his organization could lose control on the past external environment “...I think we have to be realistic and appreciate that where we've got the significant control over the environment and delivery and the resources...but it could become very quickly become unreasonable...”, due to which a new sensemaking process begins, causing the manager to re-engage with the external environment to monitor the ongoing changes caused by the new uncertainties “...by developing situational awareness and situational understanding so being aware, first of all, that something's changed and having the built-in process to recognize and deal with that there was I need to be aware of what significant change has there been...”, which leads to the identification of new current “given those increasing uncertainties...” and future uncertainties in the external environment “there's a lot more uncertainty about what direction I should steer in at any one moment in order to maintain that long story, long term goal...”, where he first interprets the changes caused by these new uncertainties “...so that focus on reporting by exception in a similar way, we need to...recognize where there's exception significant changes that means driving teams that are sensitized to that kind of stuff as well...”, and then comprehends the ongoing meaning of these uncertainties by understanding what part of these uncertainties is predictable “...is this an ordered predictable situation... the ability to realize which bit of this is

all just structured... predictable”, and un-predictable in the present “...within a complex because you can have that in a complex world... and which is uncertain”, to adjust all the strategies in the present and future “...that any particular tactics have got to be strategic... I've got to be conditional and provisional because we must be keeping the longer-term strategy as opposed to the tactics in mind... you will recognize throughout the project life cycle that any changes that are inevitable along the way... and how we might need to change...”, as per the ongoing changes brought by these new uncertainties in the present and future “...by building in an expectation of ongoing sensemaking... with increasing maturity going forward...”.

5.9.1.2 Communicate changes with peers

Managers then discussed how they simultaneously integrate past, present, and future temporal zones, while communicating the changes in the external environment with other peers in their respective organizations, to understand new uncertainties in the external environment, and to adjust strategies as per the unidentified uncertainties. Chief innovation officer of Software C, shed light on how he uses communication with peers to understand new changes in the external environment in present “*now communication is the key in that...*”, which assists him in bringing in all the team members together to change past strategies “*...every time we have changed the strategy we've brought the entire team together, not just the leadership team we've got everybody, at all levels of the organization, and explained to them why we're doing what we're doing we've made sure that we've got their buy in ...*”, where he also discussed how this communication with peers is subjected to visual representation via sticky notes in the present “*...actually, that tool that we operate allows people to put sticky notes on so we'll post... everybody will chip in and if we've got two people saying the same thing, we'll put them together and agree on a common statement...*”, which assists him and his strategy team in developing comprehension on new uncertainties in the present “*a problem statement saying this is happening...*” and also assist them in developing understanding

on how strategies can be adjusted as per these new uncertainties in the present and future “...*how might we overcome that...because they brought a piece of information and said It needs to change...*” *we'll assess it, we'll vote as a team... we need to make sure that everybody's on board and fully understands why we're doing what we're doing...*”, which eventually help them in adjusting these strategies in the present and future “...*the strategy needs to change... we'll decide if we're going to change direction and do that...*”.

5.9.2 Pace up adjusted strategies

Managers then discussed how they quickly select and implement the adjusted strategies in the wake of such unidentified uncertainties, with the simultaneous integration of past, present, and future temporal zones. Trying to become more flexible and agile has characterized this stage.

5.9.2.1 Trying to become more flexible

Managers discussed the need to become more flexible with various strategic options to aptly select the best strategies in the wake of unidentified uncertainties, with the simultaneous integration of past, present and future. Senior strategy manager B of Energy, discussed that although past ways to respond to uncertainties could be helpful “*given what you've responded to in the past...*”, but he needs to be flexible with copious strategic alternatives “...*and what can you do to give yourself as much as many options as possible and to try...*”, to quickly select the appropriate strategy in present and future as per the new uncertainties “...*and address such uncertain events, and what you think is the best response to that event...become more dynamic in that planning process*”.

5.9.2.2 Trying to become more agile

Managers also discussed the need to become more agile to implement strategies quickly amidst such unidentified uncertainties, with the simultaneous integration of past, present, and future. As the CEO of Software C, discussed how he believed in becoming more agile in present and future by not anticipating a very distant future “... *so finding agile ways to do things... we will consider*

the future, to a point, up to two years...”, and by not adhering too long to the past “...but we tend to not dwell on things...”, which enables him to briskly interpret the new changes brought by new uncertainties “...we'll take stock of things as quickly as we can, assess them...”, so that the implementation of strategies can become more agile in the present and future “...I guess, the way that we operate as a business, we don't take too much time to reach a decision... make a decision, and move on...we like to just reach a decision as quickly as possible... whilst maintaining the quality is a key part of our delivery strategy...”, and where he also discusses how he recalls his past experience related to taking quick decisions “...being ex-military, it was like, decision making time costs lives...”, that helps him in taking better decisions in present and future “...very conscious of that as well...we'll consider the past, in terms of lessons learned, over time, from experience, making mistakes and learning from them, you get better at making decisions...”.

Hence, this stage of enactment was characterized as external entrainment (Lervick, Fahy and Easterby-Smith, 2010), because managers had to adjust their strategies as per the comprehension of the new uncertainties in the external environment. Both aspects of entrainment i.e. the phase, and pace entrainment were evident (Dibrell, Fairclough, and Davis, 2015), as managers adjusted strategies as per the comprehension of new uncertainties (phase entrainment), and quickly selected and implemented these strategies (pace entrainment). More precisely, this thesis theorizes that sensemaking can be an iterative process, because enactment can take place simultaneously with the identification, interpretation and meaning construction stage of sensemaking. This iteration between all the stages of sensemaking, has been facilitated via the comprehending function of subjective time, as past, present and future were simultaneously integrated (Shipp and Jansen, 2021), during this external entrainment phase of enactment. Nevertheless, managers reflected on the past external environment, primacy was given to adjusting strategic actions as per the new

current and future uncertainties in external environment, accentuating the significance of action over reflection in the external entrainment (Sandra, Segers and Giacalone, 2023).

Table 5.9: Exemplary quotes on external entrainment

	Themes and codes	Exemplary quotes
1	Comprehend un-identified uncertainties and adjust strategies	
A	Re-engagement with the external environment	<p>Founder and Strategic Advisor of Fintech C: “...you are under attack, you've got a burning bridge in your old model (Past) and it will not be fit for the future (Future) and you might not have the talent in and of how to do this (Past), but here is a bunch of people that's been working on it, can we work together and help you reinvent or improve what you're currently doing (Present) and to take advantage of the new world so that might be in many different ways ...” (Present, Future).</p> <p>Executive chair of Fintech D: “...and ideally...as a business a good way of thinking about it is try not to have the fire drill during the fire, try to have a fire drill prior to the fire (Past)... having said that the scenarios meet play out slightly differently, in the changing situation (Present, Future), so the most important thing, from my perspective if you're in some kind of crisis in</p>

		<p><i>the business is to remain vigilant to the unfolding situation (Present, Future) and not, as they say bury your head in the sand so, the ability to have confidence improves with more testing” (Present, Future).</i></p>
B	<p>Communicate changes with peers</p>	<p>CEO of Consultancy C: “...by encouraging people to bring to the table any issues or concerns or they've spotted something that isn't working properly (Past), let's get it out on the table straight away and deal with it, to have a no blame culture, the issue is we have a problem here how can we improve and fix this problem but because we have the core principles that come from empirical research it's about coming back to the principles all the time and saying what's going on here (Present) and how do these core principles help us to determine what our response should be...” (Present, Future).</p> <p>Founder of Digital Marketing: “...usually, it's just a discussion we're a small team, so we don't have a say 20 board of directors to sit down and discuss and debate with for us it's a little bit more straightforward, you know you sit down, you have a list of points and the new biggest strategy (Present), they do you think is going to work, not just through a financial point of view, but also</p>

		<p><i>from a customer's perspective as well to ensuring you can provide the quality of service (Future) and not lose any to any of the existing lines (Past), but also, it needs to work financially it's usually it's just like a roundtable meeting you know we sit down, we go through it, make a list of actions see what we trying to achieve and which is the best way to do it in the most cost efficient and time efficient way... ” (Present, Future).</i></p>
2	Pace up adjusted strategies	
A	Trying to become more flexible	<p>Founder of Software B: <i>“so, there's value in creating the plan (Present), but we're not absolutely married to it in terms of the definite guidelines (Past) we've had to build in some flexibility into the plan ...” (Present, Future).</i></p> <p>Broking Director A of Insurance: <i>“... it's not knowing when you failed (Past) it's knowing when you've got sort of change... (Present, Future) you can't predict everything beforehand... (Past) it's knowing when you've got sort of change... (Present, Future) so you've got to be you've got to be flexible...what do we do in that circumstance, do we forward emails remotely do we hotspot from a mobile phone, do we have someone dial in and there's different options, so we just go through,</i></p>

		<p><i>and try and think of all the possible sort of solutions to these problems...to be able to keep going” (Present, Future).</i></p>
B	<p>Trying to become more agile</p>	<p>Cofounder of Insurance: “...we would look at all the four components and what's affected by the changes... (Past) and we would do that instantaneously through click up mainly with a work stream so that the right people are on top of it, and we've got visible access to how that project's progressing, and we then move that model very agilely between market to market and different challenges that we get within different vertical markets as well, so, from that, we can use that information very, very fast we're a small agile team when it comes to the leadership so, we can very much take action (Present, Future) instantly off the back of looking at the four components... (Past) but ultimately as it stands currently, I think that we have got a kind of clear, defined way of, of handling it (Past), the workflow that comes off them and making sure that we deal with any problems as they come up as efficient as possible...” (Present, Future)</p> <p>Certification head of Aviation A: “...at this sort of crux moment for the company as well, where we're</p>

	<p><i>moving from a very agile tech type company, where you just get on and do it and try things and experience things, we've taken all of that learning... (Past) being able to get the information quickly, the right information and the full information... the ability to make a decision so the quicker we could make a decision, the quicker we can move on to a parallel path to get us to the same goal...the more streamlined we can make that decision process, the more empowerment we can put down to individuals at the right level will actually allow us to go quicker now it makes us more resilient to the core (Present, Future) and there will be businesses in aerospace in particular there are plenty of surprises out there... (Future) it's the right decision at the right level quickly because if you can do that, I think it actually takes some of the uncertainty away from your team as well but what's really not a good corporate solution is having either doing work which we know is now going to be dead end or wasted, or worse just sitting around doing nothing and worrying while the decision is made... so make a decision and be agile with that decision is..." (Present, Future).</i></p>
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5.10 Strategic change

Figure 5.10: Strategic change

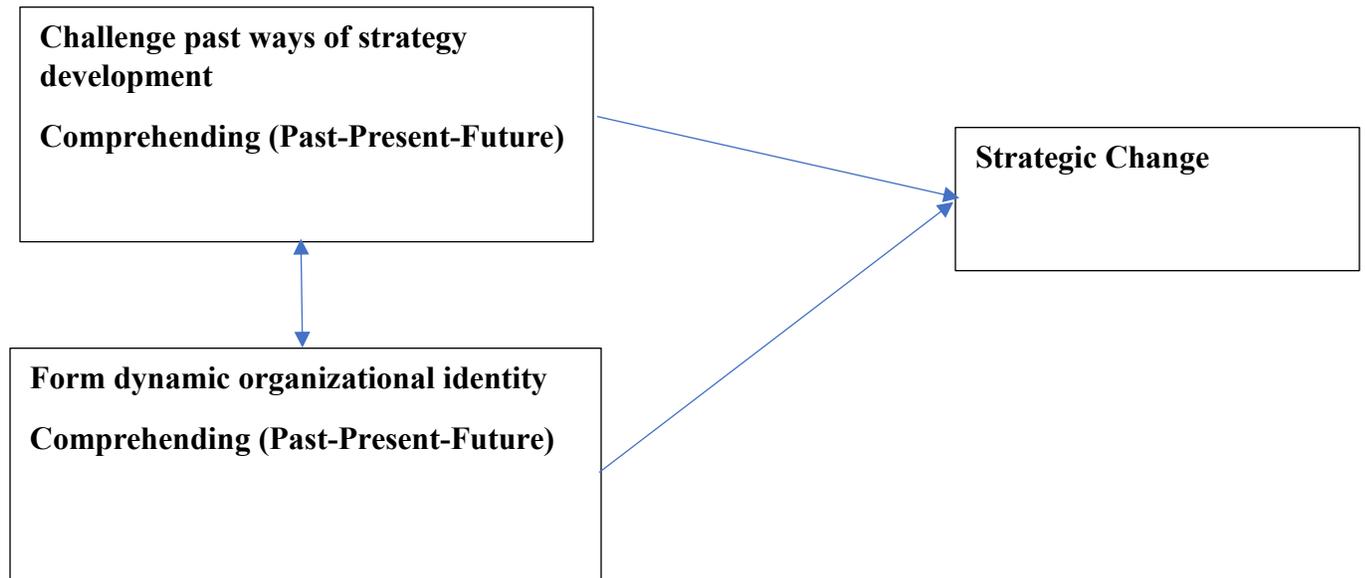


Figure 5.10 depicts the strategic change phase in sensemaking, in which managers discussed that they want to alter their existing strategy development and organizational identity in the present and future, by changing the way they have done things in the past. Comprehending function influenced this strategic change, because managers simultaneously integrated past, present and future temporal zones, to enable continuous change in their respective organizations. Challenge past ways of strategy development and form dynamic organizational identity characterized this final stage of sensemaking. Table 5.8 presents other exemplary quotes on the strategic change.

5.10.1 Challenge past ways of strategy development

Managers discussed that the strategy development in present and future can be adversely affected by confirming to the past ways of developing strategies, and thus also discussed the need to part ways with such past ways, to have better development of strategies in the present and future.

5.10.1.1 Remain stuck with the past ways of strategy development

Managers here discussed that the inertia of past can adversely affect the strategy development in present and future, and also discussed the need of challenging this past inertia to have better development of strategies in present and future. Founder and CEO of Consultancy F, discussed the inertia of past, that can cause him to get comfortable with the past ways of developing a strategy “...I think that the risk is that you may be if you've been doing something along time in a particular way is that you get lazy on the analysis of ...”, which adversely affects the strategy development in present “...whether it's...still adding value or not...” and future “...so you might make a decision, we've invested in this particular marketing campaign or this particular community software in the past, so therefore we'll continue to do it in the future through habit...”, where he also discussed the need to constantly challenge the past ways of strategy development “...challenge is to make sure you're analyzing all those decisions...”, to have better strategy development in the present and future “... and that they continue to be the right decision and the context of the future uncertainties...”.

5.10.1.2 Criticize and leave past ways of strategy development

Managers scrutinized the past ways of strategy development and discussed how they part ways with these ways to have better implementation of strategies in the present and future. Director of projects of Yacht, criticized past “...you don't even think about the past...” and discussed the efficacy of leaving these past ways in present and future “...don't use past... blindly doing tomorrow, what you did yesterday is a guaranteed route to failure, I think that we recognize that...”, to have better implementation of strategies in the present and future “...to implement the strategic or the tactical response to the curveball...”.

5.10.2 Form dynamic organizational identity

Managers also discussed the need to continuously change various past aspects of their respective organizations, to have better business models and to have better strategy development in the present and future. Business transformation and culture of embracing uncertainty characterized this stage.

5.10.2.1 Transform business model

Managers discussed the constant need to alter their existing business model as per the external impetus of change, so that they can eventually improve the business model in the present and future. CEO of Technology A, discussed the issues with the existing business model of his organization “...if I look at the company one reason , because of which it’s still fledgling, we’re using industry standard frameworks...”, where he discussed the need of transforming this business model by adapting it to ongoing robust change in the market on a regular basis “...I think what we need to do is to adapt them to the real world and the metaverse...” and thus also elaborated on the significance of transforming this business model via agile governance in the present and future “...so the governance will have to be a lot more agile...”, because this past business model wouldn’t be a fit for changes brought by the uncertainties in the present and future “..I don’t think they will all work for the company... I think there’s a vast number of uncertainties and risks in the company that people don’t even appreciate, even just looking around privacy...”.

5.10.2.2 Build a culture of embracing uncertainty

Managers finally discussed that due to various uncertainties in the environment, they need to constantly build a culture where these uncertainties are not only actively monitored, but are also more aptly managed, to have better strategy development in the present and future. This was evident from the views of the senior project manager of Nuclear, who reflected on the past culture of his organization where despite actively monitoring uncertainties “... I’ve got people out there,

they are my sensors in the field they, they know more about what's going on, that they're in the environment than I do...”, the strategy team can’t identify all the uncertainties “...not least that they don't know everything...”, therefore he discussed the need of transitioning into an inclusive culture “... and I need to be able to welcome everybody in the room to contribute...”, of embracing uncertainty in the present and future, so that they are comfortable in dealing with these uncertainties “...we would need to see a culture where people are not so unsettled and uncomfortable with dealing with uncertainty...”, and so they can also have better implementation of strategies moving forward “...to implementing the tactics based on that larger scale strategy...”.

Overall, this thesis theorizes that this final stage of enactment (strategic change), has been facilitated by the comprehending function of subjective time (Shipp and Jansen, 2021), as it involved the simultaneous integration of the past, present and future temporal zones. Nevertheless, this thesis argues, that an overreliance on the past ways of strategy development, and the past business models, should be avoided, where more emphasis should be given to the present and future temporal zones, to have better strategy development in the present and future.

Table 5.10: Exemplary quotes on strategic change

	Themes and codes	Exemplary quotes
1	Challenge past ways of strategy development	
A	Remain stuck with the past ways of strategy development	Chief engineer of Aviation B: “...because we have been doing things for 40 years in the same way... (Past) sometimes, to do this, you need to be thinking out of the

		<p><i>box and you need also to challenge a lot the status quo...” (Present, Future).</i></p> <p>Aviation Chief executive of Aviation C: “...when you think about everything that you've done in the past and how it has been successful, it becomes complacent... because familiarity makes people feel comfortable (Past) they want to do the same thing again, they know what they're doing... you miss the opportunity of going, okay, well, it's a new thing how do we rethink about it and re-challenge ourselves to do something different...” (Present, Future).</p>
B	Criticize and leave past ways of strategy development	<p>CEO of Consultancy D: “...it's madness to do the same thing (Past) all over again, and you know, expect a difference...(Present, Future) so, you may not end up, you know, sorting out the challenge completely by implementing something (Present, Future) that you that you did in the past worked for a similar situation... (Past) always be more inquisitive...” (Present, Future).</p> <p>Associate director of project delivery of Consultancy E: “...I've seen over recent years transformational change implemented in really bad ways where it's been imposed rather than informed...” (Past) and I think, the</p>

		<p><i>key to imposing any change, whether that's organization or transformational change is engagement and it's engagement at every single level and, you know, people within the organization want to feel engaged and involved, and actually if you diversify your strategy and bring it and yield it into implementation... it's diversifying the understanding of what the strategy should look like and broadening your spectrum of how the implementation should be, progressed... (Present, Future) it might be a better outcome in the long run” (Future).</i></p>
2	Form dynamic organizational identity	
A	Transform business model	<p>CEO of Fintech A: <i>“...we have to have a robust business model which you know, has multiple revenue streams (Present, Future) and it's not purely focused on...raising capital for companies like we did before... (Past)... and when they do hit you want to make sure that you have a robust enough model to stand and also be able to adapt to change pretty quickly” (Present, Future).</i></p> <p>Director of University A: <i>“...I think universities historically have suffered to hierarchy, It's the paradox in a nutshell...the government wanted to see a better</i></p>

		<p><i>return on its investment so, the government puts a lot of money into universities every year and there's been dissatisfied by the evidence that you can see what it's return, what it wants is for universities to have a more demonstrable positive impact on the world, the outside world, local communities, the sectors they face and so on...(Past) university increasingly need to relate to the outside world...so, the essence of that is a need for greater currency in leadership, leaders who are both astute intellectually capable, but connected with the current world... universities have their own ecosystems where people if they're allowed to, we'll just talk with each other rather than speaking with the outside world ... so it's keeping leadership, maintaining leadership, which is connected with the outside world, whether that's whether the universities are other industries, are the sectors, but it's the connectedness of university leadership, that's for me will be pivotal” (Present, Future).</i></p>
B	Build a culture of embracing uncertainty	<p>Senior strategy manager B of Energy: “...and actually utilize changing few things... (Past) the culture is really important...but certainly culture processes (Present, Future) and then implementing a strategy which is in</p>

		<p><i>some cases, in some ways, future proofed to some of that uncertainty that's been built in... ” (Present, Future).</i></p> <p>Fluid and mechanical system Lead of Aviation A:</p> <p><i>“...so, we have seen that it's the sort of startup mentality (Past), it's partly bringing the people in that are happy to deal with that and they're working on something truly new and novel, there are some people that thrive more in it than others it's culture... (Present, Future) so as a company, we're trying to encourage people to take known risks, so, if we've got areas we don't know much about and go actually we could do it this way and they might save a few kilos, but there are these concerns that okay how do we try and get that opportunity, how do we try and bank that, can we do some tests thing can we do a bit of a thought experiment what would it mean if we took that risk, and it went wrong so, trying to drive that culture that within some limited bounds” (Present, Future).</i></p>
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5.11 Conclusion

In retrospect this chapter has elaborated on how managers craft and implement strategic actions amidst the various current and future uncertainties faced by their respective organizations. This enactment phase of sensemaking was facilitated by all the all three functions of subjective time: attending, preparing, and comprehending (Shipp and Jansen, 2021). Attending (via its mechanism of focus) was only evidenced during the temporal discounting and thus temporal construal stage,

where managers selectively focused on the present and near future temporal zones, to draw increased attention to the present and near future uncertainties. Overall, the preparing or comprehending function had shown its preponderance during this phase of enactment. Preparing function influenced the phase of enactment, as managers acted towards the future expectations by crafting strategic actions in the present (Shipp and Jansen, 2021). Therefore, the influence of preparing function was evident during the stages of projection, temporal allocation, and futuring, temporal strategies for uncertainties, temporal evaluation of strategies, and temporal construal. Nevertheless, during the temporal evaluation of strategies for uncertainties, it was established that the preparing function can also facilitate mental time travel in the past to evaluate strategies in the present. In addition, managers simultaneously integrated past-present-future temporal zones to implement strategies, which evidenced the influence of the comprehending function. Comprehending function also facilitated the external entrainment phase via the simultaneous integration of the past, present and future temporal zones, which signified a new sensemaking process of managers, during which they understood new uncertainties in the external environment, and adjusted strategies as per these new uncertainties. Comprehending function also enabled the strategic change, via the simultaneous integration of the past, present and future temporal zones, where disintegration from the past ways of developing strategies was suggested, and new organizational identities were recursively formed. Consequently, comprehending function influenced the stages of temporal implementation of strategies, external entrainment, and strategic change.

Chapter 6: Discussion

6.1 Chapter Overview

This thesis has aimed to answer the research question i.e. *“how do managers make sense of uncertainties?”* by dividing it into the following research objectives: (i) *to explore how functions of subjective time or interactions between them facilitate the identification, interpretation and meaning construction of uncertainty;* and (ii) *to explore how functions of subjective time or interactions between them facilitate the development of strategies amidst uncertainty* (enactment).

The previous chapters (chapter 4 and 5) have presented the findings on these two research objectives. This chapter discusses the findings presented in these two chapters. Consequently, this chapter synthesizes the discussion on these two chapters of analysis, and sheds light on how the amalgamated results of these findings have fulfilled the aims and objectives of this thesis, and how they have produced three major theoretical contributions to the theory on sensemaking. Finally, this chapter culminates in the chapter on conclusion, where the three broad contributions of this thesis are reiterated, and the limitations and directions for future research are discussed.

6.2 Prospective sensemaking: The role of functions of subjective time

Findings of this thesis (empirical model 4.2, 5.2), revealed that all the three functions of subjective time (Attending, Preparing, Comprehending) (Shipp and Jansen, 2021), or interactions between these three functions, facilitate the different stages of prospective sensemaking. Extant literature has majorly identified only three stages of sensemaking: Identification, Interpretation and Enactment (Moqaddamerad and Tapinos, 2023; Tapinos and Pyper, 2018). Nevertheless, this thesis revealed five stages of sensemaking: temporal identification of uncertainties, temporal awareness of business environment, temporal interpretation of uncertainties, creating an ongoing meaning and enactment. In addition, enactment had eight distinct stages of strategy development. Moreover, the temporal awareness of business environment and the temporal identification of uncertainties took place simultaneously. Predominantly, sensemaking has been considered a linear process, that

commences with the identification, and is followed with interpretation and enactment (Jeong and Brower, 2018). In addition, certain studies have considered sensemaking to be iterative, in which enactment is intertwined with the stages of identification and interpretation (Sandberg and Tsoukas, 2015). Subsequently, this thesis advances the research on sensemaking theory, by first discussing that the prospective sensemaking process can have five distinct stages, where this process can also be iterative (Sandberg and Tsoukas, 2015), nevertheless awareness is intertwined with identification instead of enactment. Moreover, it also complements previous research that has deemed sensemaking process to be linear (Jeong and Brower, 2018), by discussing that the identification and awareness precedes the interpretation and enactment stages of sensemaking.

Nevertheless, this thesis further evidences that the prospective sensemaking can be iterative, by discussing that the enactment phase can take place simultaneously with the identification and interpretation phases of sensemaking. This was evident from the empirical framework 5.2, in which the enactment stages of the temporal allocation and futuring, and the temporal strategies for uncertainties, took place concurrently with the stages of the temporal identification of uncertainties and the temporal interpretation of uncertainties, from the empirical framework 4.2. Preparing function facilitated this interaction between the enactment and identification (during the temporal allocation and futuring phase), and the enactment and interpretation phase (during temporal strategies for uncertainties), via facilitating an interaction between present and future temporal zones (Shipp and Jansen, 2021). During the temporal allocation, managers developed strategies for uncertainties and vision in the present (enactment), as per the as per the current and future uncertainties identified before (identification). Moreover, the phase of futuring revealed, that managers formed multiple futures on the current and future uncertainties to develop strategies against them in the present. Moreover, managers integrated the multiple futures on various

strategic plans for their organizational vision, with the multiple futures on the current and future uncertainties, to develop strategies for their organizational vision. Hence, preparing function facilitated an integration between enactment and identification stages of sensemaking, via enabling an interaction between the present and future temporal zones (Shipp and Jansen, 2021), as managers engage in the mental time travel into future to construct alternative futures on the uncertainties and strategic plans, to enact strategies in present.

Similarly, the phase of temporal strategies for uncertainties indicated an interaction between enactment and interpretation stages of sensemaking. Preparing function, facilitated this interaction between the interpretation and enactment stages of sensemaking, across the present and future temporal zones, because managers discussed, that they prepare strategies in present (enactment), to mitigate the current or future impact of the current or future uncertainties (interpretation). Moreover, as managers also anticipated the future impact of different types of future uncertainties, they also proactively strategize for their probable adverse future impact in the present. Doing so, this thesis reaffirms the influence of the preparing function in sensemaking (interaction between interpretation and proactive enactment) (Bleda et al., 2023; Busch et al., 2020), where the development of proactive strategies in the present (proactive enactment) (Shimizu and Hitt, 2004), can assist managers in effectively handling the anticipated adverse future impacts of different future uncertainties (interpretation). Previous studies have argued that limited attention has been given to mapping the processes, in which the interpretation and enactment stages of sensemaking are connected to each other (Weber and Manning, 2001). Therefore, this thesis redresses this oversight in the extant research (Sandberg and Tsoukas, 2015; Weick, 2020), and contribute to only handful of studies that have explored the interplay between the interpretation and enactment stages of sensemaking (Tapinos and Pyper, 2018), and thus improves the understanding of the

sensemaking theory, by discussing the influence of preparing function, in integrating the enactment and interpretation stages of sensemaking, via enabling an interaction between the present and future temporal zones (Shipp and Jansen, 2021), as managers develop strategies for the current and future uncertainties in the present (enactment), based upon the interpretation of the current or future impact of these uncertainties (interpretation).

Interestingly, managers also interpreted the positive future impact of some current-macro environmental uncertainties, by considering the future opportunities brought by these uncertainties (interpretation) and discussed that developing strategies for such future opportunities in the present (enactment), can help their organization in leveraging the positive impact of these uncertainties. Rindova and Courtney (2020), have discussed the shaping posture towards uncertainty, in which strategies are developed to leverage the opportunities brought by uncertainty. Hence, this thesis establishes the influence of preparing function in developing shaping posture towards uncertainties, where managers' interpretation of the positive future impact of some uncertainties, lead to the development of shaping strategies in the present, so that they can realize the benefits of future opportunities brought by such uncertainties. In addition, sensemaking is predominantly associated with the negative triggering events (Kundra and Dwivedi, 2023; Maitlis, Vogus and Lawrence, 2013), which was evidenced in this thesis as well, because managers strategized for the adverse impacts of various current and future uncertainties. Nevertheless, the findings related to strategizing for the positive impact of some current-macro environmental uncertainties accentuate the fact that positive impact of uncertainty can also trigger sensemaking (Kent, 2019), in which the interpretation of the positive future impact of particular uncertainties, can also lead to the enactment of strategies in the present. Consequently, this thesis establishes the fact that the preparation function can facilitate the sensemaking of both positive and negative impact caused

by uncertainty (Rush, 2022). In a similar vein, such proactive strategies again signified the adoption of shaping posture, where managers actively shape the future of their organizations in the present (enactment), by considering the future impact of future uncertainties (interpretation), instead of simply waiting to respond to the future impact of future uncertainty reactively (Taghvaei and Talebi, 2023).

Furthermore, the external entrainment stage of enactment also revealed that the prospective sensemaking process can be iterative. External entrainment is associated with adjusting the phase/pace of the internal activities as per the changes in the external environment (Dibrell, Fairclough, and Davis, 2015). Nevertheless, a new sensemaking process was evident during this phase of the external entrainment, as managers identified, interpreted, and understood the meaning of new and thus unidentified uncertainties in the external environment, to adjust existing strategies (enactment via phase entrainment), and to quickly select and implement the adjusted strategies (enactment via pace entrainment). Comprehending function facilitated this new sensemaking process, as managers simultaneously integrated past, present and future temporal zones, to entrain strategies as per the understanding of new uncertainties in the external environment. Hence this thesis established the fact that enactment (adjustment of strategies and their implementation), takes place simultaneously with the identification, interpretation, and mean construction phases of sensemaking.

Hence, so far, this thesis discusses one major contribution to the sensemaking theory. This thesis contributes to the sensemaking theory (Sandberg and Tsoukas, 2015), by discussing that the prospective sensemaking process can also be iterative (non-linear), where the stages of identification and awareness take place simultaneously. Moreover, enactment can take place simultaneously with the identification or interpretation stage, via the preparing function of

subjective time, and enactment can also take place simultaneously with the identification, interpretation, and the meaning construction stage, via the comprehending function of subjective time.

Figure 4.2 and 5.2, reveals a prospective sensemaking to be a highly temporal process, where all the three functions of subjective time (Shipp and Jansen, 2021), or interactions between them, enable a sole focus on a particular temporal zone, or enable the simultaneous integration of two or three temporal zones, which facilitate all the five stages of prospective sensemaking: temporal identification of uncertainties, temporal awareness of business environment, temporal interpretation of uncertainties, and creating an ongoing meaning and enactment.

More precisely, attending and comprehending the function of subjective time (Shipp and Jansen, 2021), or the interaction between these two functions, aided the prospective identification of uncertainties. Managers' exclusive attention to present temporal zones aided the identification of all the current uncertainties that their respective organizations were facing at the moment. This converges with the view of divisible present in the sensemaking theory (Hernes and Obstfeld, 2022), in which past, present and future are considered distinct (Sandberg and Tsoukas, 2020). Furthermore, findings also revealed that the top-level managers' focus on the present time also resulted in the simultaneous integration of past, present, and future temporal zones, which aided the identification of current uncertainties. This established the fact that the temporal identification of current uncertainties is also contingent upon the interaction between the attending and comprehending function of subjective time (Branzei and Fathallah, 2023), where temporal focus on one particular zone (Attending), leads to the simultaneous integration of all the three temporal zones (Comprehending). Such findings thus converge with the view of indivisible present in the sensemaking theory (Hernes and Obstfeld, 2022), in which past and future are integrated with the

present (Tsoukas and Chia, 2002). Temporal focus on the future facilitated a mental time travel into the future, which allowed managers to anticipate and thus identify the future uncertainties that can emerge in the external and internal business environment in the coming years. Furthermore, the temporal focus on the future internal uncertainties (Attending), lead to a simultaneous focus on present and past of the current macro-environmental uncertainty (Comprehending). This reconsolidated the interactions between the attending and comprehending function over future, present and past temporal zones, that aided the identification of future uncertainties. Figure 4.2 illustrated that this dual focus on the divisible present via the attending function, and the indivisible present via the comprehending function, was also evident at the awareness, interpretation and meaning stage of the prospective sensemaking.

Temporal awareness of the business environment took place simultaneously with the temporal identification of uncertainties. Temporal awareness of business environment assisted top-level managers in developing an active awareness on the current and future business environment, that simultaneously aided the identification of current and future uncertainties respectively. Temporal awareness of the current business environment demonstrated the exclusive influence of the attending function (Shipp and Jansen, 2021), as managers had drawn attention to one temporal zone (present), or simultaneously attended to two temporal zones (present-past and present-future), to raise awareness on the current business environment, and to identify current uncertainties in this current business environment. Again, this converges with the view of divisible present in the sensemaking theory (Hernes and Obstfeld, 2022), as present was either considered distinct or it was integrated with either past, or future, instead of being simultaneously integrated with the past and future. Conversely, temporal awareness of the future business environment demonstrated the influence of both attending and comprehending function, as managers had either exclusively

focused on the future temporal zone (Attending), or simultaneously integrated past, present and future temporal zones (Comprehending), to develop awareness on the future business environment. Therefore, this simultaneous integration of the past, present and future temporal zones converge with the view of indivisible present in the sensemaking theory (Hernes and Obstfeld, 2022).

Identification and interpretation are the distinct stages of sensemaking (Tapinos and Pyper, 2018), yet they have been often conflated in the sensemaking studies (Sandberg and Tsoukas, 2015). This thesis instead draws divergence with such views, by establishing that interpretation comes after identification and awareness, where interpretation (i.e. how uncertainties are having an impact or will impact), is different to the identification (what are the uncertainties). Hence, this thesis re-substantiates the Weickian view, in which sensemaking is a process that encompass interpretation, and is not a synonym to interpretation (Weick, 1995). More precisely, the interpretation stage of sensemaking has also been facilitated via the attending and comprehending function of subjective time (Shipp and Jansen, 2021). Attending function was evident during the temporal influence on the impact of current uncertainties, as emotional reactions towards either the past experiences or the future anticipations (for instance, either worries of past or the anxiety of future), influenced the managerial interpretation of the impact of the current uncertainties on the current state of their organization. Moreover, exclusive temporal influence of the emotions related to the future anticipations (Attending), or the simultaneous influence of the emotional reactions towards the past experiences and future anticipations (Comprehending), influenced the managerial anticipation of the future impact of the future uncertainties on the future state of their organization. Therefore, again the dual focus on the divisible and indivisible present (Hernes and Obstfeld, 2022), has been highlighted as attention to either past or future emotions (Attending), and the simultaneous

integration of past, present, and future emotions (Comprehending), to interpret the impact of uncertainties.

The final stage that preceded enactment was the creation of an ongoing meaning. During this stage, top-level managers concluded the final meaning of uncertainties, and also construed the meaning of their individual-self and thus formed temporal identities. Temporal comparison, leaning and accumulation mechanism of the attending function (Shipp and Jansen, 2021), facilitated the construction of ongoing meaning of the current and future uncertainties.

Temporal comparison facilitated the ongoing meaning of uncertainties, as managers engaged in the mental time travel into the past or future, to temporally compare the impact of current uncertainties with the impact of past or future uncertainties. Doing so, the ongoing meaning of current and future uncertainties was constructed, during which they also discussed the need of thinking about a suitable response for these uncertainties. Consequently, this thesis establishes that meaning is not only formed using the comprehending function of subjective time, in which the experiences of past, present and future are simultaneously integrated (Shipp and Jansen, 2021), rather it can also be formed via the attending function (i.e. via temporal comparison of just Past/Present, Present/Future), which again empirically establishes the usefulness of attending function in facilitating a divisible present in the managerial sensemaking (Hernes and Obstfeld, 2022).

Learning and accumulation mechanism of attending function (Shipp and Jansen, 2021), also influenced the sensemaking process of managers by constructing an ongoing meaning of uncertainties. Nevertheless, at this stage interaction between the attending and comprehending function facilitated the construction of ongoing meaning, as managers first recalled the past learnings (Attending), which also triggered a simultaneous integration of these the past leanings

with the present and future meaning of uncertainties (Comprehending). Subsequently, these findings converge with the studies on meaning and sensemaking (Colville, Hennestad and Thoner, 2014), in which attending to specific learnings of the past, leads to the creation of an ongoing meaning in the present and future. Again, both the divisible and indivisible present i.e. exclusive attention to past learnings (Attending), and the simultaneous integration of past, present, and future learnings (Comprehending), facilitated the creation of an ongoing meaning of the current and future uncertainties. The ongoing meaning of current and future uncertainties was also facilitated by the accumulation mechanism of the attending function (Jansen and Shipp, 2019). Managers discussed that the past learnings can only provide limited understanding of the meaning of current and future uncertainties, and thus they discussed the limitations of being over reliant on past. Essentially, this was coupled with the temporal unlearning of the accumulated experiences of the past (Burt and Nair, 2020), so that managers can have more emphasis on present and future temporal zones to make meaning of uncertainties. Hence, this thesis revealed that managers break frame with the accumulated past experiences, due to their limited use in deciphering the meaning of current and future uncertainties. Again, interaction between attending and comprehending function, facilitated the sensemaking of uncertainty at this stage, in which the limitations of past built up to a breaking point (Attending), which cause managers to break frame with these past experiences in the present and future (Comprehending), so that they can have more prospective focus on the present and future temporal zones (Attending), to construct an ongoing meaning of the current and future uncertainties. Subsequently, this thesis again encompasses dual focus on the divisible and indivisible present i.e. attention to the accumulated past experiences (Attending), and the simultaneous integration of past, present and future temporal zones, via breaking frame with

the past experiences in the present and future (Comprehending), to create an ongoing meaning of the current and future uncertainties.

In order to fully realize the potential of sensemaking theory, it needs to be explored via both the divisible present (past, present and future are disintegrated) and indivisible present (past, present and future are integrated) (Hernes and Obstfeld, 2022). Moreover, previous studies have argued that subjective time can be pivotal in explaining a particular organizational phenomenon (Akkermans et al., 2016; Claessens et al., 2004; Huy, 2001), where the consolidation of different functions of subjective time can shed light on the black box, regarding how exactly these functions operate together to explain this particular organizational phenomenon (Tang, Richter and Nadkarni, 2020). Hence, figure 4.2 forms the basis of the second contribution to the theory on sensemaking, by establishing the influence of (a) the attending function, (b) comprehending function, and (c) the interactions between attending and comprehending function of subjective time (Shipp and Jansen, 2021), in enabling the divisible and indivisible present (Hernes and Obstfeld, 2022), which facilitates the prospective sensemaking.

Finally, figure 5.2 illustrates eight stages of enactment (strategy development). Enactment was central in making sense of the environment, during which top-level managers developed, adjusted, or implemented strategic actions under situations of uncertainty (Barton et al., 2015). Interlinking various temporal zones (past, present, future), has been considered pivotal for enactment (Marshall and Rollinson, 2004). This was evident in all of the stages of enactment, as managers interlinked different temporal zones to develop strategies amidst uncertainty. To commence with, the projection mechanism of the preparing function interweaves the future with present to inform present actions of the individuals (Dwyer, Hardy and Maguire, 2021). Consequently, during the projection phase, managers mentally time travelled into future to create a vision, and also crafted

plans for this vision in the present. Such emphasis on the future re-establishes the importance of mental time travel into the future in guiding the present actions of the managers (Szpunar, 2010). Managers time travelled into the future to think about the ideal futures of their respective organizations, to eventually create a vision in the present. More precisely, managers formed the future prescriptive mental models of the adaptive change, so that they can develop a more comprehensive understanding of the changes in the external environment, and thus update their vision as per these ongoing changes. Hence this vision wasn't contingent upon the mental time travel in the past. Subsequently, this thesis draws convergence with the views of the extant studies (Sools, 2020), that have identified the importance of mental time travel into the future in facilitating sensemaking, by establishing that enactment can take place via prospection, in which the present actions of the managers are guided by the present and future, and thus are not a simple extrapolation from past (Cuhls, 2017; Seligman et al., 2013).

Managers also discussed how they realize the ideal future of their organization by making plans and setting schedules. Again, the projection mechanism of the preparing function facilitated this stage, as projections of the future spurred strategic action in the present (Rosness et al.2016; Zhang, Wang and Pearce, 2014). Managers discussed that in order to realize all the goals of the envisioned ideal future, at the designated time in the future, they craft strategic plans in the present. Consequently, this thesis draws convergence with the studies that have deemed future projections pivotal in the realization of the desired outcomes (Kooij et al., 2018), by allowing managers to enact plans for their organization's envisioned ideal future in the present (Kezar, 2013). Moreover, the future perfect perspective on prospective sensemaking accentuate the fact that the future should be construed as something that has already happened, instead of something that will happen (Fuglsang and Mattsson, 2011). Contrarily, this thesis converges with the future oriented (post-

Weickian) view on prospective sensemaking (Tapinos and Pyper, 2018), as managers think about their envisioned ideal future as to be something that will be realized in future, as opposed to something that has already been realized. Consequently, this thesis also converges with the view that the future cognition can precede the enactment of strategic actions (Smerek, 2011), as managers' future cognition related to realizing the goals at the designated time in future, spurred their planning in the present.

Managers also created temporal structures of time via schedules to break down the plans into weekly, yearly goals, and also simultaneously set deadlines to monitor the passage of time, to realize their ideal future at the designated time in future. Schedules correspond to the temporal allocation mechanism (preparing function) (Mohammed and Nadkarni, 2011), that help managers in finishing various tasks at the designated time in future, by creating reliable anticipations of the time at which particular actions will occur (Ellwood, Grimshaw and Pandza, 2017). Whereas deadlines correspond to the time awareness mechanism of the preparing function, because setting them increase the time awareness, which spur timely planning (Waller et al., 2001). Therefore, this thesis established the interaction between the projection (visions, planning), temporal allocation (schedules) and time awareness (deadlines) mechanisms of preparing function (Shipp and Jansen, 2021), in rendering the enactment of the ideal future in present, so that it can be realized at the designated time in future.

Temporal allocation is a mechanism of the preparing function, which also facilitated the strategic action via temporal routines and urgencies (Sirén et al., 2020). Managers formed an ongoing routine of checking current and future uncertainties with their peers, to prepare strategic action for them in the present and future. This accentuated the fact that sensemaking can also be immanent (Niemi et al., 2022), which is considered as a routinised form of prospective sensemaking (Weick,

2020), where making sense of current and future uncertainties can also be considered as an everyday task of managers. Consequently, this thesis establishes that strategy development over time can encompass various enactments of the similar practice (regular managerial meetings to discuss the identified current and future uncertainties), or specific practices can have particular processual structures (i.e. enactment of strategies as per the identified current and future uncertainties). Temporal allocation via routines was embedded with time urgency (Granqvist and Gustafsson, 2016). Managers discussed that they create an urgency on the current and future uncertainties by alerting their strategy team, because they perceive time to be scarce, which causes them to immediately craft strategies for these uncertainties in the present or near future. Interestingly, certain studies have deemed urgency to be detrimental in the situations of uncertainty because managers would try to quickly obtain the information about the environment to strategize against uncertainty, which could be wrong, as under the situations of uncertainty such instant information could be premature (Pérez-Nordtvedt, Shin, and Lee, 2023). Conversely, findings related to temporal urgency to uncertainties, instead draw parallel with the studies that have deemed time urgency to be pivotal under the situations of uncertainty (Van Laere, 2013), as managers had shown time urgency in creating an immediate response towards the current and future uncertainties, that are causing serious concerns to their respective organizations.

The stages of temporal allocation, and futuring, and the temporal strategies for uncertainties (figure 5.2), illustrated an interaction between the temporal identification of uncertainties and the temporal strategies for uncertainties (figure 4.2) respectively. Extant research has majorly resorted to the situational perspective in the strategy development (Nadkarni and Chen, 2014), where managers only learn from, and focus on the stimuli in the external environment, as compared to the individual's dispositions towards time (Chen and Nadkarni, 2017). This thesis has instead drawn

convergence with the studies, that have incorporated both situational and dispositional perspective (Chen and Nadkarni, 2017), by accentuating the interaction between situational and dispositional perspective, via discussing the influence of the preparing function and its mechanisms of the temporal allocation (Shipp and Jansen, 2021), as managers' disposition towards the present and future temporalities (dispositional perspective), are interlinked with the identification and interpretation of uncertainties, (situational perspective), so that they can quickly enact strategic responses amidst them.

Preparing function also influenced the temporal evaluation of strategies for vision and uncertainties. Preparing function influenced the temporal evaluation of strategies for vision in the present, via interaction between present and future temporal zones, as managers challenged the future cognition of other peers in the strategy team, regarding the future ramifications of these strategies. Similarly, managers subjected different strategies for vision to various hypothetical future questions, to evaluate these strategies in the present. Subsequently, this thesis draws convergence with the studies, that have established the influence of the hypothetical future possibilities on the present action (Dawson and Sykes, 2019), by re-establishing the influence of the preparing function in enactment, as managers evaluated strategies in the present based upon the hypothetical futures (future-oriented questions). Managers also evaluated the strategies for vision in the present based upon how these strategies would contribute to the intended future financial performance of their respective organizations. Extant studies have argued that the evaluation of strategic issues can be positive/negative or both (Plambeck and Weber, 2009). Findings of this thesis suggested that managers evaluate the strategies for vision; by solely focusing on the positives i.e. financial benefits that these strategies are meant to bring for their particular organizations in the future. Hence, although previous studies have identified the

ambivalent use of both positive and negative evaluation of strategies (Hahn et al., 2014), this thesis furthers the importance of the preparing function, in the univalent positive evaluation of strategies in the present, based upon their intended future benefits. Evaluation of strategies for uncertainties was contingent upon the intuition, prior knowledge, and experience of the managers. The evaluation of strategies for uncertainties was facilitated by the preparing function, as managers evaluated these strategies in the present, based upon their intuition (gut feeling and guesses) about how these strategies might function in the future. Nevertheless, managers also evaluated the strategies for uncertainties in the present, by reflecting on past knowledge and experience. Extant research has defined preparing function to be only associated with the future and present temporal zones, where individuals act towards the future expectations by acting in the present (Shipp and Jansen, 2021). Conversely, by depicting that managers can also engage in the mental time travel in the past, to reflect on the past knowledge and experiences, so that they can evaluate strategies for uncertainties in present, this thesis updates the conceptualization of the preparing function, in which managers can either engage in the mental time travel into the past or future, to develop strategic actions in the present.

Temporal construal mechanism of the preparing function (Kelly, Zeng and Cundall, 2023), also influenced enactment, as the mental representation of temporal distance between the present and future events (Paine, Byron and Higgins, 2023), allowed the managers to allocate, discount and align the temporal horizons (short or long-term) of both the strategies for uncertainties and vision. Nevertheless, interaction between the attending (via its mechanism of focus of attention) and preparing function (via its mechanism of temporal construal) (Shipp and Jansen, 2021), also influenced this stage of enactment (Shipp and Jansen, 2021), while managers were discounting the long-term future in the strategies for uncertainties. Particularly, findings of this thesis suggested

that the mental representation of uncertainties were more concrete (Trope and Liberman, 2010), as managers construed these uncertainties to be psychologically near to the present. Such lower construal levels, led to a long-term future myopia, causing managers to exclusively focus on the current and near future uncertainties (attending), so that they can eventually allocate a short-term horizon to the strategies developed for these uncertainties (preparing). Due to this short-termism that temporal myopia brings (Antia, Pantzalis and Park, 2021), prior studies have predominantly associated temporal myopia with negative consequences (Cunha et al, 2022). Conversely, the findings of this thesis suggested that although construal of uncertainties can cause long-term future myopia, the short-termism they bring can actually assist managers in crafting short-term strategies for the current and near future uncertainties. Prior studies also argue that the myopia of future can also restrict managers in anticipating the long-term uncertainties (Schmidt, 2020). Nevertheless, drawing attention to the long-term future to develop long-term strategies for uncertainties isn't effective anyways, because managers found it difficult to anticipate long-term uncertainties, and thus believed in allocating short-term horizons to the strategies for the current and near future uncertainties, to actively navigate these uncertainties. Although, managers had formed low levels of construal for the uncertainty, which was perceived more proximal to the present, they had also formed higher level of construal (long-term distance) on their distant envisioned ideal future, and thus aligned long and short-term strategies for vision, and aligned long-term strategies for vision with the short-term strategies for uncertainties. Subsequently, this thesis converges with the view that the construal of a phenomenon can be both high level (long-term distance) or a low level (short-term distance) (Tenbrunsel et al., 2010). Nevertheless, this thesis also reaffirms the view that such temporal orientations are contingent upon certain boundary conditions (Steinbach, Gamache and Johnson, 2019), where the construal of proximal uncertainty lead to the short-term

orientation of the managers, and the construal of distant vision lead to a long-term orientation of the managers.

Comprehending function influenced the temporal implementation of strategies via its mechanism of narrative (Shipp and Jansen, 2021), as managers simultaneously integrated the storied account of past, present, and future uncertainties to implement a strategy in present. Managers formed storied accounts on the issues that have caused similar uncertainty over past, present, and future to comprehend past strategies, so that they can implement this similar past strategy in the present. Hence, this thesis converges with the studies (Foster et al., 2017; Maclean et al., 2014), that have given more attention to the past than future in the construction of narratives, accentuating the fact that the formation of narratives can inform sensemaking (Fenton and Langley, 2011), but they borrow heavily from the past (Ybema, 2014). Nevertheless, managers also formed storied accounts on the issues that have caused different uncertainties over the past, present, and future to implement a tailored and thus distinct strategy in the present. Therefore, this thesis also highlights the fact that the narrative representations can also facilitate sensemaking, by giving equal primacy to the present and future experiences (Logemann, Piekkari Cornelissen, 2019), and they aren't solely recollected from past (Barry and Elmes and 2017). Consequently, this thesis also draws convergence with the studies that have deemed narratives to be a quintessential element in sensemaking (Landau and Drori, 2008; Logemann, Piekkari Cornelissen, 2019; Fenton and Langley, 2011), by discussing the influence of narratives which are a mechanism of the comprehending function (Shipp and Jansen, 2021), and involve the interweaving of past, present and future storied accounts, which aids the comprehension of similar or different uncertainties over the years, so that similar past strategies or distinct strategies can be implemented in the present. Managers also simultaneously reminisced past and imagined future events related to the

implementation of strategies on the behalf of their strategy team, to reflect, anticipate, and thus understand the roles of their peers in the implementation of strategy in the present and future. Comprehending function thus influenced this individual form of collective mental time travel (Michaelian and Sutton, 2019; Topcu and Hirst, 2022), with the simultaneous integration of past, present, and future temporal zones (Shipp and Jansen, 2021). Szpunar and Szpunar (2016), have discussed this individual form of collective mental time travel, exclusively in terms of mental time travel in the future. Conversely, as managers simultaneously recalled past and imagined future roles of their peers, this thesis establishes the fact that the individual form of collective mental time travel is not solely restricted to past, rather it can simultaneously take place across the past, present and future temporal zones (Michaelian and Sutton, 2019), to comprehend the team roles in the effective implementation of strategies in the present and future.

Similarly, managers also discussed that they simultaneously remembered past and anticipate future events, to continuously review the strategies implemented in the past, so that they can improve the implementation of these strategies in the present and future. Hence, this thesis evidenced the mechanism of internal entrainment (Dibrell, Fairclough and Davis, 2015), as managers integrated the pace and cycle of the day-to-day tasks as per the past and the anticipated progress, to improve the implementation of strategies. Extant research has accentuated that reflection is favored over action in internal entrainment (Sandra, Segers and Giacalone, 2023). Conversely, this thesis suggests that internal entrainment can favor both reflection (reviewing strategies implemented in past), and action (improving the implementation of strategies in present and future). Similarly, the external entrainment phase of enactment, was facilitated by the comprehending function, as managers simultaneously integrated past, present and future temporal zones, to entrain strategies as per the understanding of new uncertainties in the external environment. Therefore, this thesis

this thesis reaffirms the fact that both concepts of entrainment (external and internal), can also correspond to the comprehending function of subjective time (simultaneous integration of past, present and future), and are not the sole mechanisms of preparing function, which only encompass present and future temporal zones (Shipp and Jansen, 2021).

Finally, managers challenged their past ways of creating strategic action, and also discussed that they part ways with such past ways, to have better development of strategies in the present and future. More precisely, managers contended the complacency that inertia of past brings, and discussed the need of leaving such past ways of developing strategic actions, to have better development and implementation of strategies in the present and future. Doing so, this thesis again harnesses the understanding of multi-temporal realities of managers in their organizations (Maclean, Harvey and Suddaby, 2022), and thus again harnesses the essence of temporality and sensemaking (Kaplan and Orlikowski, 2013; Maitlis and Christianson, 2014), by re-establishing the influence of comprehending function in enactment, as managers simultaneously integrated past, present and future temporal zones, to distance themselves from the past ways of preparing strategies, to have better strategy development in the present and future. Moreover, certain studies on sensemaking have argued that remaining focused on the past ways of enacting action can constrain the development of new strategic actions (Cunliffe and Scaratti, 2017). This thesis draws convergence with such studies on sensemaking (Colville, Brown and Pye, 2012), by establishing the influence of comprehending function, where although past, present and future are simultaneously integrated, nevertheless the importance of simply imitating past actions is diminished, and primacy is instead given to the present and future temporal zones, in developing and implementing tailored strategies amidst uncertainty in the present and future. Similarly, dynamic organizational identities were formed via transforming business models, and by building

cultures of embracing uncertainty over past, present, and future. Managers discussed the constant need of adapting their past business models to the dynamic changes brought by various present and future uncertainties. Moreover, due to these various uncertainties in the environment, managers discussed the need of constantly building a culture, where these uncertainties are not only actively monitored, but are also more aptly managed, to have better strategy development in the present and future.

To conclude, projection, temporal allocation, and futuring, and the temporal strategies for uncertainties, have been influenced by the preparing function of subjective time (Shipp and Jansen, 2021), as the interaction between the present and future temporal zones, facilitated the strategy development in present. In addition, projection also evidenced the interaction between different mechanisms of the preparing function i.e. projection (visions, planning), temporal allocation (schedules) and time awareness (deadlines). Temporal evaluation of strategies has also been influenced by the preparing function, where both interaction between the past-present, and present-future temporal zones facilitated the evaluation of strategies in the present. Temporal construal has been influenced by the preparing function, and the interaction between preparing and attending function (focus of attention), which lead to the allocation and alignment of the temporal orientation (short and long-term) of strategies. Finally, the stages of temporal implementation of strategies, external entrainment; and strategic change, have been influenced by the comprehending function, as the simultaneous integration of past, present and future, enabled the development, implementation, and adjustment of strategies. Moreover, preparing function connected the enactment and identification stages of sensemaking, during the temporal allocation, and futuring, via facilitating an interaction between present and future temporal zones. In addition, the preparing function also connected the enactment and interpretation stages of sensemaking, during the

temporal strategies for uncertainties, via facilitating an interaction between present and future temporal zones. Whereas, comprehending function influenced the new sensemaking process during the external entrainment, and connected the enactment, identification, interpretation and meaning construction stages of sensemaking, via facilitating the simultaneous integration of past, present and future temporal zones. Consequently, this thesis discusses the third contribution to the theory on sensemaking (Kaplan and Orlikowski, 2013, Maitlis and Christianson, 2014), by discussing that the enactment phase of prospective sensemaking has eight stages, which are influenced by (a) the preparing function (b) the interaction between different mechanisms of preparing function, (c) interaction between attending and preparing function, and (d) the comprehending function of subjective time (Shipp and Jansen, 2021).

Chapter 7: Conclusion

This thesis has answered the research question i.e. *how do managers make sense of uncertainties?* via addressing the two research objectives: (i) *to explore how functions of subjective time or interactions between them facilitate the identification, interpretation and meaning construction of uncertainty*; and (ii) *to explore how functions of subjective time or interactions between them facilitate the development of strategies amidst uncertainty* (enactment). For this purpose, 39 semi-structured interviews were conducted with the top-level managers at different organizations in the UK. Thematic abductive analysis of all the 39 semi-structured interviews accentuated the fact that all the three functions of subjective time (Attending, Preparing, Comprehending), or the interactions between them influence the prospective sensemaking of managers. Consequently, this thesis has produced three theoretical contributions to the theory on sensemaking:

First, advanced the understanding on the sensemaking theory (Sandberg and Tsoukas, 2015), by discussing that the prospective sensemaking process can also be iterative (non-linear), where the stages of identification and awareness take place simultaneously. Moreover, enactment can take place simultaneously with the identification or interpretation stage, via the preparing function of subjective time, and enactment can also take place simultaneously with the identification, interpretation, and the meaning construction stage, via the comprehending function of subjective time (Shipp and Jansen, 2021).

Second, advanced the understanding on the sensemaking theory (Hernes and Obstfeld, 2022), by establishing the influence of (a) the attending function, (b) comprehending function, and (c) the interactions between attending and comprehending function of subjective time (Shipp and Jansen, 2021), in enabling the divisible and indivisible present, which facilitates the prospective sensemaking.

Third, advanced the theory on sensemaking (Kaplan and Orlikowski, 2013, Maitlis and Christianson, 2014), by discussing that the enactment phase of prospective sensemaking has eight stages, which are influenced by (a) the preparing function (b) the interaction between different mechanisms of preparing function, (c) interaction between attending and preparing function, and (d) the comprehending function of subjective time (Shipp and Jansen, 2021).

7.1 Managerial Implications

Making sense of uncertainty is part of every manager's daily routine (Tapinos and Pyer, 2018). Findings indicate that sensemaking of uncertainties can also be prospective, where the identification, interpretation, and enactment stages of prospective sensemaking (Moqaddamerad and Tapinos, 2023), are facilitated by three functions of subjective time (Attending, Preparing, Comprehending), or interactions between them (Shipp and Jansen, 2021). Hence from a managerial perspective, this thesis contributes to the contemporary interest related to time (Tang, Richter and Nadkarni, 2019), and cognitive and strategic aspect of managers amidst uncertainty (Lundgren-Henriksson and Tidstrom, 2021). Findings of this thesis will assist managers in understanding the importance of focusing on present and future temporal zones, to identify different current and future uncertainties. Moreover, findings of this thesis will help managers with insights about the significance of developing awareness of their business environment across past, present, and future to identify different current and future uncertainties.

Findings related to the interpretation of uncertainty will assist managers in understanding that their emotional influences of the past or future affect the way they interpret the impact of current and future uncertainties on their organization. In addition, it will provide them insights about deciphering the meaning of different uncertainties: (i) by comparing the different uncertainties (past vs present and present and future), (ii) by integrating the learnings related to different

uncertainties across past, present and future, and (iii) by understanding that they can't over rely on accumulated experiences past, and rather they need to focus more present and future time to make meaning of uncertainties. Hence, findings related to identification, awareness, interpretation, and ongoing meaning of uncertainties will provide managers with the understanding on their cognitive aspects of dealing with uncertainty.

Whereas findings related to the enactment will be pivotal for managers for crafting strategic action amidst uncertainties, where they can learn to both strategize for different uncertainties and strategize for their underlying vision amidst these different uncertainties. Here they will understand the significance of future perceptions in developing, evaluating, and aligning strategies in the present. Findings related to temporal implementation of strategies, external entrainment, and strategic change, will provide them with insights about integrating the experiences of past, present and future in developing strategies in present. During the temporal implementation of strategies, internal entrainment was also evident (Dibrell, Fairclough, and Davis, 2015), hence this finding will be vital for managers in adjusting the pace and phase of their strategic actions for the better implementation of strategies. In addition, findings related to the external entrainment (Lervik, Fahy and Easterby-Smith, 2010), will help managers in understanding, that the strategic action aspect of dealing with uncertainty (enactment), can be recursive with the cognitive aspect of dealing with uncertainty (identification, interpretation, and ongoing meaning), and therefore cognition can act as the fodder for developing strategies and vice versa.

7.2 Limitations and directions for future research

Despite the three contributions to the sensemaking theory, this study has certain limitations which also provide the potential for future research in this realm.

First, the focus of this study was on the sensemaking experience of the individuals (top-level managers). The three functions of subjective time (Attending, Preparing, Comprehending) encompass the experience of the past, present, and future, which can get surfaced both at the level of the individuals and collectives who can “*mentally travel through, perceive, and interpret time*” (Shipp and Jansen, 2021, p.8). Thus, future studies are also advised to study the influence of these three functions of subjective time at the level of teams/organization (collective sensemaking). It will also be interesting to explore and delve deeper into how these three functions of subjective time can possibly influence/facilitate the interaction between the individual and collective sensemaking.

Second, mental time travel is an important component of the three functions of subjective time (Shipp and Jansen, 2021). Nevertheless, there is a lack of rigor in the emerging concept of the collective mental time travel (Michaelian and Sutton, 2019), and studies have predominantly discussed collective mental time travel at the conceptual level (Cockayne and Salter, 2021), and thus have left ample room for their empirical exploration, in the context of a particular organizational phenomenon (Merck, Topcu, and Hirst, 2016). In a similar vein, concepts like collective mental time travel are majorly prevalent in the literatures on memory and cognition (Hacıbektaşoğlu et al., 2023). Therefore, future studies are also prescribed to empirically explore the concepts like collective mental time travel, in relation to the prospective sensemaking of the teams/organization, as such concepts of time are also considered extremely significant in the organization studies (Holt and Johnsen, 2019).

Third, emotions influenced the sensemaking of managers, via the temporal influence mechanism of the attending function (Shipp and Jansen, 2021). Emotions of past/future or both, only influenced the way managers interpreted the impact of current or future uncertainties. Despite the veiled use of emotions in sensemaking (Maitlis and Christianson, 2014), more studies are required that can explore the influence of different types of emotions on individual and collective sensemaking (Cristofaro, 2022). Therefore, future studies are directed to explore the influence of positive/negative temporal emotions, on every phase (identification, interpretation, enactment) of managerial sensemaking. Moreover, there are only a handful of studies that have explored the influence of negative emotions on sensemaking (Heaphy, 2017). Therefore, future studies can also delve deeper into the temporal influence of negative emotions on blocking/facilitating the sensemaking process of managers.

Fourth, the temporal use of visual artifacts (drawing board, creative technologies etc) was only evident during the projection stage of enactment. Managers communicated the envisioned ideal future of their organizations to their peers, via these visual artifacts. Despite the presence of fertile stream of research that signifies the use of communication in sensemaking and sensegiving (Maitlis and Christianson, 2014), studies that have extended discourse beyond written and spoken words, and thus have explored the undertheorized dimension of visual mode in discourse and construction of meaning are scarce (Meyer et al., 2013). Therefore, future studies are directed to build on the prior research related to the visual mode of constructing meaning (Stigliani and Ravasi, 2012), and advance research on the visual modes of communication and the sensemaking of managers (Garreau, Mouricou and Grimand, 2015). Similarly, another promising area of future research can be the temporal use of visual artifacts in the sense-giving of managers (Höllerer, Jancsary and Grafström, 2018). Moreover, future research can advance research on the

sociomateriality perspective in sensemaking (Balogun et al., 2014; Waizenegger, Schaedlich and Doolin, 2023), by exploring the temporal use of creative technologies in facilitating managerial sensemaking.

Fifth, enactment also entailed the temporal strategies for uncertainties, where preparing function (Shipp and Jansen, 2021), facilitated the development of both adapting (strategizing for the adverse impacts of uncertainty), and shaping strategies (strategizing to leverage the benefits brought by some uncertainties). Discussion on these two postures were limited to only one phase of enactment (temporal strategies for uncertainties). Nevertheless, it's been discussed by prior studies (Rindova and Courtney, 2020), that ample research is required on the different strategic postures (adapting, shaping), that managers can adopt under the conditions of uncertainty. Therefore, a promising area of future research can be the prospective sensemaking of uncertainty and strategic postures: the role of functions of subjective time. Moreover, future studies are directed to delve deeper into the undertheorized shaping posture (Rindova and Courtney, 2020), by exploring the links between prospective sensemaking, proactive enactment (shaping posture), and the three functions of subjective time, to discern further how managers actively shape the future of their organization in present, instead of simply responding to the future impact of future uncertainty reactively (Taghvaei and Talebi, 2023).

Sixth, this study has conducted semi-structured interviews to collect data. Therefore, this study had to rely on the retrospective memory of the participants, to recount their lived experiences around sensemaking with respect to the three functions of subjective time. On the contrary, ethnography would have been a better methodological approach, as it would have allowed the researcher to conduct the study in the naturally occurring environment, which would have led to the better participant observation, and thus would have also allowed the researcher to delve deeper

into the importance of meanings that participants allot to their sensemaking experiences (Hammersley, 2018). This study couldn't conduct ethnography due to the lack of access, and the fact that data was majorly collected during the Covid-19 times, which made the possibility of ethnography more difficult. Moreover, due to the Covid-19, researcher was unable to conduct the semi-structured interviews in person, and thus had to instead conduct them via Zooms/Teams. In person semi-structured interviews would have instead led to more engaging interviews, and thus the researcher could have asked more follow-up questions. Therefore, for future studies ethnography or in person semi-structured interviews should be adopted, to better explore the dynamics of sensemaking with respect to the three functions of subjective time.

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Appendix
Information and the consent form (ICF)

Please read and retain the following information

Hassan, who is a PhD student at the University of Strathclyde, will develop/extend the theory on sensemaking of uncertainty. Uncertainties brought by Covid-19 have taught the managers that the future can be extremely uncertain. Therefore, by building on the theory of sensemaking of uncertainty, this research wants to help managers in various companies in understanding uncertainties and developing strategies amidst these uncertainties. You are being asked to consent to take part in one or more interviews to give your views. With your permission, these interviews will be video/audio recorded to aid data analysis. The data from interviews will remain anonymous and you will not be identified. Any direct quotes that may be used in a report or other writing will not be attributed or traceable to any named individual. The video/audio recordings are stored as digital files on a secure server which is password protected. You have the right to withdraw your consent at any time during the study by contacting any member of the research team and your data will be destroyed.

The researchers are bound by the GDPR 2018 legislation this *includes provisions that:* -

- (a) *My personal information will not be used for any purpose except the purpose that I have been told about and that I have agreed to.*

- (b) *My personal information will be protected from disclosure to anyone except the researchers and my legal adviser.*

If you wish to change your mind and withdraw your permission for the data you supplied to be used for the purposes of the research, please contact the researcher for the project:

University of Strathclyde, Glasgow: Hassan.naveed@strath.ac.uk

Address: University of Strathclyde, 16 Richmond St, Glasgow G1 1XQ

Or To

The supervisors on the following email addresses:

e.tapinos@strath.ac.uk

dilshod.makhmadshoev@strath.ac.uk

lfmendez@icade.comillas.edu

Consent form

If you are happy to participate, please complete and sign the consent form below:

Please tick the following boxes

1. I confirm that I have read the attached information sheet on the above project and have had the opportunity to consider the information and ask questions and had these answered satisfactorily.

2. I understand that my participation in the study is voluntary and that I am free to withdraw at any time without giving a reason and without detriment to any treatment/service.

3. I understand that the interview will be video/audio-recorded, and my data will remain confidential.

4. I agree with the use of anonymous quotes.

Name of participant

Date

Signature

Researcher

Date

Signature

Interview Protocol (IP)

Semi-Structured Interview Questions

Demographics

1. Please could you tell me your age and the level of education?
2. Do you have any other management qualifications? If yes, please can you let me know what they are, and the awarding body?
3. Have you always worked in your current industry sector? If yes, for how long? If no, what was your previous sector?
4. How long have you worked for your current organization?
5. What is your current position within your organization?
6. Which department do you work in?
7. How many employees work in your organization and your specific department?
8. What products/services your organization is offering currently or aiming to offer in the future?

Topic questions

1. What are the events that are causing uncertainties for your organization?
2. What are the events that are causing uncertainties for your organization in the present?
3. How are these uncertainties affecting your organization?
4. What are the emergent events that will cause uncertainties for your organization in the coming years?
5. How do you think these future uncertainties are affecting your organization now or will affect your organization in the future?
6. How far in terms of years do you try to predict uncertainties of the future? Why?

7. How did you become aware of the current uncertainties?
8. How do you monitor the business environment for potential future uncertainties?
9. How do you think the current and future business environment are different than the business environment of the last couple of years?
10. Before discussing these uncertainties with your team how do you understand these uncertainties on your own? Basically, interaction with yourself? Examples.
11. What has your organization learnt by tackling uncertainties in the past couple of years? Examples?
12. Do you think that there can also be some shortcomings of using these past learnings to understand the uncertainties of the present and future? If yes how/why?
13. What do you believe will be an ideal future for your organization in the next 5-10years (post Covid-19)?
14. How do you create the mental images of this ideal future?
15. Do these mental images just concern the future state of your organization, or they can also include your external environment? If yes, can you please elaborate with further examples?
16. Can you reflect on a recent strategy meeting to discuss how do you develop strategies for your organization?
17. What strategies have you developed for the different present and future uncertainties identified before?
18. How do you think that the anticipations of the future can guide your strategy development in the present? Examples.
19. How do you anticipate the consequences of these various courses of strategies actions? Examples.

20. How is the visualization of the preferred future action out of the various future actions finalized? Example?
21. When are you thinking about the same uncertainty at different times: do you construct the same image with small variations or a different one?
22. Also how do the strategies for the present uncertainties differ from the strategies for the future uncertainties? So basically, strategies for immediate concerns vs strategies for the long-term plans? Examples.
23. Do you focus more on short term strategies or long-term strategies or both? Why, Examples?
24. Can you reflect on a recent incident to discuss how you implement strategic actions amidst uncertainty?
25. Also do you think that reexamining the past uncertain events while simultaneously planning for the future can help you in implementing the final strategic action. If yes how? Examples?
26. What do you do to make sure that the future goals are achieved at the designated time despite the uncertainties you are facing or will face?
27. How do you predict/progress forward with your strategic action? In short, how do you meet the targets every year to achieve goals for the next 5-10 years, despite the uncertainties you are facing?
28. Do you course correct strategies moving forward? If yes, how? Examples.
29. How do you and your strategy team implement strategic action in those uncertain situations (like Covid, Brexit, or a possible Scottish referendum), where no prior data/experience exists to guide the implementation of strategies?

30. Can you give a few examples of such an unforeseen situation in which the intended strategy /plan didn't work? How did the new plan/ strategy emerge? What helped you in implementing the strategy quickly amidst such a situation?
31. Do you think the way you have implemented the final strategic actions in the past will/should change the way you will implement them now and in future? If yes, why/how? Examples.
32. Also do you think that there can be some shortcomings of using past data to implement these strategic actions. If yes, examples?
33. Do you think that you would like to change something in the old business model of your organization to make it more effective against the uncertainties of the present and future? If yes, examples?

Concluding questions

Do you think that uncertainty can be an opportunity as well or it's always a threat to the organization? If yes, can you please elaborate with examples?

What can your organization do to embrace uncertainty rather than getting worried about it?

Is there still anything that you want to discuss that we have probably missed before?

Do you have any questions for me?

Figure 3.4: Coding Framework

