Exploring individual foresight: Implications for organizational learning and innovation in firms

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ABSTRACT

Corporate foresight (CF) is considered an organizational capability that contributes to the innovativeness and sustained competitive advantage of firms, particularly in the presence of organizational learning (OL). The business literature positions individuals as important to the CF process but it provides limited clarification about how individuals *do* foresight or, more specifically, how they experience foresight in organizations. Embracing the resource-based view of the firm, this study provides understanding of how individuals use tacit knowledge in individual foresight (IF) and engage in OL mechanisms to contribute to innovativeness. The micro-foundations of IF are examined to determine how employees experience IF in an organizational context. Adopting a phenomenological approach, 27 interviews were conducted with employees across the finance and insurance and utilities industries, resulting in a theoretical framework of IF. Examining the lifeworld of individuals as they experience foresight revealed a rich tapestry of both personal and intra-organizational social capital interactions useful in demonstrating the role of IF for innovation in firms. Storytelling, mentorship, and group reflection, supported by appropriate culture, leadership, and human resource strategies, confirm the value of fostering IF to encourage innovation. This study advances foresight research by broadening understanding of IF from an employee perspective—specifically, how IF is experienced and can foster OL and innovation outcomes for firms. Implications for firms and opportunities for a future research agenda are proposed.

Introduction

Knowledge is one of the most valuable resources of any organization. Combined with foresight, knowledge can result in organizational-level foresight competence, with powerful outcomes leading to radical innovations and competitive advantage for firms (Fergnani, 2022; Tiberius, Schwarzer & Roig-Dobón, 2021). Yet, there is limited understanding of how tacit knowledge unique to individuals in workplaces is used and shared in the foresight process, and how this influences innovativeness. A greater understanding of individual foresight (IF), defined as the ability of humans to imagine future scenarios by drawing on past experiences, planning future actions, and assessing these actions to determine future success (Innes, 2023), offers multiple opportunities for firms and future researchers.

First, the value of corporate foresight (CF) practices to organizations has been well established (Fergnani, 2022; Rohrbeck & Schwarz, 2013), yet despite the call to understand how foresight is manifested and experienced at the individual level (Hodgkinson & Clarke, 2007; Marinković, Al-Tabbaa, Khan & Wu, 2022; Tapinos & Pyper, 2018), few

studies have explored this phenomenon, with process models failing to clearly define the cognitive abilities undertaken in the process of foresight (Horton, 1999; Voros, 2003). Second, a greater understanding is needed of the benefits of future-thinking or "an ability to project the self forward in time to pre-experience an event" (Atance & O'Neill, 2001, p. 537) in organizations. The ability for people to engage in future-thinking and consider future consequences of decisions and actions contributes to positive behavioral outcomes (Probst, Graso, Estrada & Greer, 2013), improvements in innovative choices, and more accurate decision-making (Ballance et al., 2022; Eisenbart, Lovallo, Garbuio, Cristofaro & Dong, 2023). Finally, several cognitions involved in the foresight process, including analysis, translation, interpretation, and prospection (Slaughter, 1995; Voros, 2003), can require third-party involvement because of the cognitive limitations of individuals (Horton, 1999). Thus, social learning, where valuable knowledge stems from the exchange of tacit knowledge between employees (Hamel, 1994; Nonaka, 1994), becomes essential for the processes of foresight and innovation (Ganguly, Talukdar & Chatterjee, 2019; Obrenovic, Du, Godinić & Tsoy, 2022).

Underpinned by the resource-based view (Barney, 1991), the knowledge-based view posits that organizational knowledge is one of the most important resources of an organization (Antunes & Pinheiro, 2020; Grant, 1996). Personal knowledge and experience involved in the IF process is often tacit in nature (Innes, 2023), meaning that it is held by individuals. This presents challenges to firms, in terms of how this knowledge can be shared and fostered to produce key outcomes at individual and organizational levels. Firms seeking to capitalize on innovative endeavors must address this challenge because tacit knowledge plays a vital and positive role in a firm's innovations (Antunes & Pinheiro, 2020; Pérez-Luño, Alegre & Valle-Cabrera, 2019).

This paper extends existing foresight research and presents unique insights into the individual world of foresight for employees. Through the phenomenological exploration of IF undertaken across two industries, this paper defines IF in organizations and positions IF as a valuable contributor to learning and innovativeness in firms. Responding to the central research question—How do employees experience individual foresight in organizations and how does this contribute to organizational learning and innovation outcomes for firms?—this study revealed insights used to develop a theoretical framework of IF. Theoretical contributions to foresight literature, knowledge management (KM), organizational learning (OL), and innovation are presented, along with practical implications for firms, limitations of the study, and a future research agenda.

Literature review

Corporate foresight

CF has recently been defined as "a continuous process, that involves CF initial conditions (i.e., motivations), internal mechanisms (i.e., activities and tools), boundary conditions (i.e., moderators and influencing factors), and output (i.e., CF multiple outcomes)" (Marinković et al., 2022, p. 291). Further, and relevant to the internal mechanisms noted in this definition, CF has been positioned as one of the micro-foundations of dynamic capabilities (Schwarz, Rohrbeck & Wach, 2020), thus increasing the need for research focused on understanding the role of managerial cognition and other dynamic managerial capabilities at the individual level in the CF process. There has been limited progress thus far, in understanding the role of individuals in CF.

Slaughter (1995, p. 47) originally positioned individuals as key to the foresight process, describing foresight as a part of "the rich world of understanding and perception made possible by the human brain/mind systems." But while Slaughter (1995) acknowledged that several cognitions were required in the foresight process, such as assessing, detecting, and interpreting situations, Slaughter also described the methodology of futures work in terms of using formalized tools such as environmental scanning, scenario analysis, and Delphi survey methods. To better understand how individuals contribute to the foresight process, an exploration of individual-level cognition and other foresight skills is required. Helfat and Martin's (2015) positioning of managerial cognition as a contributor to dynamic managerial capabilities supports this approach, thus positioning individual-level foresight as a potential contributor to the core capabilities of a firm. Following Teece, Pisano and Shuen (1997) seminal work that established dynamic capabilities as a key contributor to organizational competitiveness, Major, Asch and Cordey-Hayes (2001), p. 103) proposed that foresight is a firm's "core competence." Given that one of the key characteristics of core competencies is collective learning in organizations (Chuang, Chen & Lin, 2016), positioning foresight as a core competence has positive implications for investigating IF, due to the emphasis on collective learning inherent in individual abilities. This research responds to Major et al. (2001) call to investigate how IF ability is transferred into firm foresight capability, leading to a culture of organizational foresight. Further, and given the prevalence of groups in decision-making in organizations and the established role of both individual and group cognition in the

foresight process (Rohrbeck, Battistella & Huizingh, 2015), this study answers the call for a clear understanding of how individuals in organizations experience foresight, ultimately contributing to a firm's foresight capability.

Individual foresight

IF is defined as "the ability of humans to imagine future scenarios by drawing on past experiences, planning future actions, and assessing these actions to determine future success" (Innes, 2023). The phenomenon of projecting oneself into the mental past (remembering) or future (imagining) is accorded the term mental time travel (MTT) (Suddendorf & Corballis, 1997) and originated from the early work of Endel Tulving (1972). To facilitate humans' ability to remember and imagine, the process of MTT involves several memory systems: their function essential in understanding foresight ability in humans. Wheeler, Stuss and Tulving (1997) explained that the episodic memory system mediates MTT because it facilitates the recollection of personal happenings and events from a person's past, as well as the mental projection of events in a person's future. Tulving (2001) clarified that episodic memory is a past-oriented memory system that enables humans to reexperience our memories. Put simply, episodic memory "…allows us to remember personally experienced events, and to travel backwards in time to re-experience those events" (Atance & O'Neill, 2001, p. 533). However, in foresight, episodic memory depends on semantic memory to remember and then imagine future scenarios (Tulving, 2001). Semantic memory is our "general knowledge about the world, of the sort that is normally common to people of a given culture…" (Suddendorf & Corballis, 1997). The value in understanding these different memory systems comes in considering the relevance of employee knowledge and experience to IF, in addition to the nature of tacit and explicit knowledge in firms.

Episodic memories are tacit in nature (Eisenhardt & Santos, 2002)—that is, they are linked to the individual and are very difficult and sometimes impossible to articulate. Although tacit knowledge is difficult to access, sharing this knowledge is deemed crucial to OL and innovation (Antunes & Pinheiro, 2020; Ganguly et al., 2019; Obrenovic et al., 2022). This holds implications for KM and OL in organizations, and points to the advantage of exploring the IF experience in organizations to understand strategies that can be used to transfer knowledge in the IF process.

Human resource (HR) practitioners could play a vital role in facilitating OL strategies that could potentially draw on IF insights. Antunes and Pinheiro (2020) argued that HR practices are key in creating, sharing, and using knowledge that is generated in organizations. Given the potential role of IF in knowledge creation and sharing, it would be beneficial to understand how individuals experience IF or interact as part of the IF process to empower HR practitioners to strategize for OL and innovation outcomes. Nonaka's (1994) modes of knowledge creation demonstrate the opportunities for sharing potentially tacit IF knowledge in organizations. For example, if IF knowledge is deemed tacit in nature, yet beneficial to other stakeholders in the organization, activities associated with Nonaka's socialization mode, such as on-the-job training or mentoring, should be prioritized, given that these activities successfully facilitate knowledge transfer between workers (Al-Zoubi, Masa'deh & Twaissi, 2022; Farnese, Barbieri, Chirumbolo & Patriotta, 2019; Nonaka, 1994). If this IF knowledge was then deemed important to the wider organization, Nonaka's internationalization mode, such as OL strategies, could be prioritized for knowledge sharing, and so forth (Nonaka, 1994).

Understanding the individual-level cognition involved in IF will make a unique contribution to CF research. Marinković et al. (2022) established a gap in CF research, where future efforts should focus on the micro-foundations of a firm's dynamic capabilities to better understand how cognition and decision-making contribute to CF activities. This supports earlier research by Voros (2003) and Horton (1999) which

identified several cognitive processes undertaken by individuals engaged in the foresight process, including analysis, translation, interpretation, and prospection. Interestingly, managers often required a third party in this process (Horton, 1999), highlighting the value of social learning in organizations, where valuable knowledge stems from the exchange of tacit knowledge between employees (Nonaka, 1994; Zollo & Winter, 2002). Seeking further clarification on how individuals draw on either formal or informal social networks in foresight, and how they experience foresight at an individual level, would assist organizations and HR practitioners in designing relevant work systems and practices to support OL and related phenomena such as IF and innovation.

Organizational learning and innovation

OL and KM have long been associated with firms' innovation performance. KM benefits firms through "organizational learning, improved customer interaction, innovations, increased profit, enhanced operational processes, and faster decision-making" (Idrees, Xu, Haider & Tehseen, 2023, p. 8). Firms seeking to develop a culture of OL to support knowledge sharing must foster autonomy, open communication, interactivity, and individual considerateness, and generate perceived organizational support which leads to innovative behavior by employees (Tsai, 2018). Given the proposed tacit nature of IF knowledge, insights gained from researching IF in firms could play a vital role in understanding how IF knowledge is generated, shared, and captured through OL practices that foster a culture that supports innovative and foresightful outcomes.

Along with culture, leadership style plays a significant role in fostering or hindering foresight and innovation behavior in firms (Lei, Leaungkhamma & Le, 2020; Schwarz et al., 2020). Scott and Bruce (1994) showed many years ago that employees who perceive the relationship with their supervisor as high in trust, support and autonomy will feel that their organization supports them to be innovative. More recent studies demonstrate the ongoing importance of the supervisor–employee relationship for innovation, indicating that employees with healthy supervisor relationships feel more confident that their innovative behavior will result in performance gains (Yuan & Woodman, 2010). These employees are also more likely to be creative and seek new and improved ways of undertaking their work (Darvishmotevali, 2019). However, the dearth of research investigating leadership or supervisory approaches that encourage IF behavior in organizations highlights the value of this study in gaining insights about fostering a foresightful culture, leading to beneficial OL and innovation outcomes.

Current strategies that encourage innovative individual and group behaviors in organizations could be more effectively aimed toward employees' IF pursuits. This is particularly important given the argument presented by Fergnani (2022), that foresight, as an organizational-level capability (Rohrbeck et al., 2015), is stronger when a greater number of employees at different levels of the organization are empowered to contribute to the foresight process. In the innovation realm, Tsai (2018) demonstrated that knowledge workers' innovative behaviors (defined as opportunity exploration, idea generation, idea championing, and idea implementation) increases with pay-for-performance incentives that incorporate valued social exchange attributes such as relative position, control, and personal importance. Demonstrating the value of a supportive culture, Tsai (2018, p. 1716) also confirmed that perceived organizational support, defined as "the perceptions of employees that the organization values their work contribution, cares for their well-being, fulfils their socio-psychological needs and helps them to solve work problems" has a more positive effect on innovative behavior than perceived pay equity. Without understanding how employees undertake or engage with IF in organizations, it will be difficult for HR practitioners to plan appropriate strategies to pursue foresight capability.

OL has been shown to create competitive advantage for firms, with KM and innovation activities strengthening this relationship (Kamya, Ntayi & Ahiauzu, 2011). The positive relationship between knowledge creation and innovation is supported by Rezaei, Allameh and Ansari (2018), who argued that knowledge creation has a positive effect on OL. But firms need to continue to foster a culture of innovation. Lam, Nguyen, Le and Tran (2021) found that an innovation culture with established mutual trust, collaboration, and learning, facilitated by supportive and participative leaders will lead to increased KM practices resulting in enhanced innovation capability (Lam et al., 2021). This presents several opportunities when considering the potential role of IF in knowledge creation and learning.

The perceived nature of an employee's work may affect their innovativeness. An employee can be less motivated to apply new ideas when they don't perceive that new ideas are helpful to their work or believe that others will judge their ideas as invalid (Yuan & Woodman, 2010). Given that future-thinking, a main feature of IF, generates positive behavioral outcomes (Probst et al., 2013), improved innovative choices and greater accuracy in decision-making (Ballance et al., 2022; Eisenbart et al., 2023), organizations would benefit from understanding how to foster a culture that encourages IF and a perception of openness to new employee ideas or improvements.

Organizations that foster future-thinking concurrently create knowledge, increasing their competitive advantage (Eisenbart et al., 2023). Firms would need to consider the value of retaining this new IF corporate knowledge through longer-tenured employees, given that the knowledge base of firms increases with greater retention (Du Plessis, 2007). IF in organizations is a potentially valuable source of knowledge creation. As such, and aligned with Zheng, Zhang and Du (2011) theoretical model of knowledge-based dynamic capabilities (KBDC), IF could be positioned as a vital contributor to the knowledge-generating capability of the firm, or the "ability to develop and refine the activities and processes that facilitate creating/generating new knowledge" (p. 1039). This study provides new insights that can help academia and practitioners across multiple industries increase their understanding and enhance their practices related to fostering IF in firms.

Exploring individual foresight in firms

The literature reveals a dearth of knowledge centered on the individual experience of foresight in organizations and how IF could contribute to valuable OL activities and innovation outcomes. Given the positioning of CF as a dynamic capability of the firm (Schwarz et al., 2020), and of managerial cognition as a key contributor to dynamic managerial capabilities (Helfat & Martin, 2015), this study will provide much needed insights regarding the individual experience and processes undertaken in IF at the individual level in organizations. Further, given the importance of collective learning in developing core competencies in firms (Chuang et al., 2016), investigating IF as one of the micro-foundations of foresight capability will respond to the call by Major et al. (2001)) that greater knowledge is needed about how IF ability is transferred into firm foresight capability if we are to pursue foresight capability in firms.

Investigating IF, with its valuable component of future-thinking (Atance & O'Neill, 2001), presents an important opportunity to understand the role of IF in driving improved decision-making, both in individual and group settings—responding to Rohrbeck et al. (2015) recommendation to better understand individual and group cognition in the foresight process. Inherent in employee decisions——and in IF—is the tacit knowledge possessed by employees. Greater understanding of how employees use their personal knowledge and experience, and how they might share their knowledge during IF, is crucial in establishing strong OL practices that support knowledge creation, sharing and dissemination for innovation in firms. HR practitioners would benefit from these insights when developing clear HR strategies targeted at fostering foresightful and innovative organizational cultures. In turn,

supervisors and leaders would better understand the behaviors that encourage innovative and foresightful decision-making from employees, and HR policies around performance, recognition and reward could support firms' endeavors for innovative outcomes.

To explore these many new aspects of foresight, each focused on the individual experience of foresight in firms, this study needs to examine IF as a new phenomenon. Denzin and Lincoln (2005) posited that qualitative research is ideal for exploring new phenomena because of its interpretive and naturalistic approach. A qualitative approach involves interpretive practices that address research problems through their application in a natural setting—considering the people and places central to the study—to arrive at a final interpretation of the problem (Creswell, 2013). Hermeneutical phenomenology focuses on the interpretation of texts to understand the lifeworld of the participant relevant to the phenomenon and would be ideally suited to this study. However, several academics have proposed alternative qualitative approaches to emphasize the importance of hermeneutics, ideography, and symbolic interactionism in phenomenology (Eatough & Smith, 2008; Smith, Flowers & Larkin, 2009), and these differences are captured in the newer phenomenological approach of interpretative phenomenological analysis (IPA), which was adopted for this study because of the symbolic interactionism implied from researching participants (employees) in their lifeworld (their organization).

In terms of developing the research question, van Manen (1990) explicated that the phenomenological researcher "must 'pull' the reader into the question in such a way that the reader cannot help but wonder about the nature of the phenomenon in that way that the human scientist does" (p. 44). In its essence, phenomenological research demands that we steer away from the magnetic pull toward theoretical abstraction in order to inspire the reader into an inquisitive mindset to "question deeply the very thing that is being questioned by the question" (van Manen, 1990, p. 44)—in this case, the phenomenon of IF in organizations and its relevance to OL and innovation outcomes. Therefore, the following inductive qualitative research question aims to address the opportunities highlighted in the literature to improve understanding of the phenomenon of IF in organizations and explore its implications for OL and innovation:

How do employees experience individual foresight in organizations and how does this contribute to organizational learning and innovation outcomes for firms?

Methods

Methodology

The intention for this study is to focus on the lived experience of individuals experiencing the phenomenon of IF in their organizational context. The interpretive paradigm supports the implicit nature in which researchers seek to understand the social world *as it is*; that is, to interpret the social world subjectively, through the personal experience of those experiencing their social world (Burrell & Morgan, 1992). Therefore, researching IF in organizations implies an interpretive paradigm. Interpretive social science emphasizes the unique experience of humans and aims to capture the social nature of human life (Neuman, 2007), with an emphasis on capturing the role of individuals' subjective experiences as communicated through text (i.e., language) (Neuman, 1997). When describing the structure of the interpretive paradigm, Burrell and Morgan (1992) identified hermeneutics and phenomenology as two possible approaches.

Hermeneutics involves the interpretation and development of understanding of outputs from the human mind (Burrell & Morgan, 1992). Dilthey (1976, as cited in Burrell & Morgan, 1992) argued that to understand a phenomenon and gain objective knowledge about that phenomenon, we must first experience the phenomenon through recalling the lived experience of the participant with that phenomenon. In

relation to this study, given the individual (idiosyncratic and not nomothetic) experience in which IF is being explored within their lifeworld, and the emphasis on interpretivism, hermeneutical phenomenology is a more closely aligned epistemological approach. Hermeneutical phenomenology is concerned with research that is interested in the lived experience of individuals. van Manen (1990) described hermeneutical phenomenology as focusing on the interpretation of life texts to understand the lifeworld of the participant, relevant to the phenomenon. He defined the lifeworld as "…the world as we immediately experience it pre-reflectively rather than as we conceptualize, categorize, or reflect on it"; with life text in literal terms meaning written materials (for example, an interview transcript or written descriptions) which provide insight into the lived human experience of a phenomenon (van Manen, 1990, p. 9). For this study, the lifeworld of the participant is the organization in which they work, with IF being the phenomenon studied. The aim of this study, therefore, is to research the lived experience of employees in organizations who are engaging with, or *doing*, IF, and then consider the implications of these empirical findings for OL and innovation in firms. Thus, the phenomenological approach of IPA has been adopted for this study.

Proponents of the IPA and hermeneutical phenomenological approach have argued that bracketing out the researcher's experience and understanding from the analytical process is not possible (Finlay, 2012; Rennie, 2000). The role of the researcher is a unique and important aspect of the IPA approach; thus, it is relevant to understand the researcher's experience and role in the study. In this study, through a variety of research and leadership positions, the researcher's skills in professional communication, coupled with abilities to empathize, listen actively and probe effectively during interviews, aided in the collection of rich data. Self-awareness of biases facilitated an intended "withholding" of personal viewpoints to allow the participants maximum opportunity to reflect on their own lifeworld. A log was maintained to record "hunches, speculations, [and] thoughts about the relations among categories", termed theoretical memoing (Glaser & Strauss, 1967, as cited in Rennie, 2000). This process was used following each interview, which objectified the hermeneutic process through which the researcher arrived at an understanding of IF in organizations.

Research context and case selection

This study adopted a purposive sampling approach of judgement sampling (Cavana, Delahaye & Sekaran, 2001). Six HR experts provided insights to reveal which two industries and which employees would be most appropriate for the study. The researcher approached organizations in these industries via email and provided employees with information about the study and appropriate contact details. Participants then contacted the researcher if interested in taking part. The final sample comprised 27 IPA interviews across managerial and non-managerial positions. Interviews lasting between 40 and 60 min each were held with 12 employees from an organization within the finance and insurance industry (six females and six males), and 15 employees from an organization within the utilities industry (three females and 12 males) in Australia. As the final sample of 27 is a large IPA sample, Smith et al. (2009) suggested establishing recurrent themes and identifying percentages (e.g., 30%, 75%) of the sample for which the theme is present.

The IPA interview protocol and process

The interview protocol was developed in alignment with Bevan's (2014) three key interview domains for descriptive phenomenological interviewing: contextualization, apprehending the phenomenon, and clarifying the phenomenon. Contextualization provides an opportunity for participants to begin their interview as close as possible to their lifeworld using descriptive/narrative context questions (Bevan, 2014). Apprehending the phenomenon focuses the participant's experience on

the phenomenon of interest itself, and using repeated descriptive questions is recommended to overcome the issue that participants may experience many "modes of appearance" of a "thing or experience" (Sokolowski, 2000, as cited in Bevan, 2014, p. 140). Finally, to clarify the phenomenon, the use of free imaginative variation is required, which van Manen (1990, pp. 106—107) described how the researcher determines which themes of a phenomenon are essential, compared to those which are "more incidentally related" to that phenomenon. Providing some context and preparation for the interview is consistent with Smith et al. (2009) recommendation to socialize participants by providing them with information useful for their interview preparation (i.e., expected timing, an interview schedule, or a summary of main principles). Bevan's three-stage process of moving from contextualization through to imaginative variation captures the essence of the Smith et al. (2009) discussion around rhythm in the IPA interview. Here, the authors attempt to provide guidance to the researcher on the nature of IPA interviews moving from the specific to the generic. Incorporating these aspects into the interview process maximized the opportunity to gather quality data and maintain authenticity (trustworthiness, rigor, and validity) of the phenomenological inquiry, as described by Guba and Lincoln (2005).

Data collection

Participants received an email one week prior to their interview with information about the IF phenomenon. The objective was to build a shared understanding of the phenomenon of IF that would be explored during the interview. The researcher asked participants to recall two or three key instances in their working life where they have been required to draw on personal experience to make decisions about their current actions, which have then impacted on their future job outcomes (i.e., using IF). The purpose of the IPA interview is driven by the research question. The interviewer helps the participant to tell their story; the interviewer's task is simply to listen (Smith et al., 2009). Prompts were positioned in the protocol to overcome case questions that were too general or abstract (Smith & Shinebourne, 2012). Interviews were conducted in private settings and audio recorded with full semantic records of the interview being transcribed as a requirement for IPA data analysis (Smith & Osborn, 2004; Smith et al., 2009). Transcriptions were first processed through Otter.ai (a web-based speech to text transcription technology software) and then checked for accuracy and de-identified.

Data analysis

The analytic process of IPA is described by Reid et al. (2005, as cited in Smith et al., 2009, p. 79) as:

…a set of common processes (e.g., moving from the particular to the shared, and from the descriptive to the interpretive) and principles (e.g., a commitment to an understanding of the participant's point of view, and a psychological focus on personal meaning-making in particular contexts) which are applied flexibly, according to the analytic task.

Table 1 details the IPA analysis process advocated by Smith et al. (2009) and the activities undertaken in this study for each step to arrive at the emergent themes that underpin the results of this study.

For Steps One and Two, notes were developed as the researcher progressed, to form part of the reflexive memoing process (Glaser & Strauss, 1967, as cited in Rennie, 2000). Initial noting (Smith et al., 2009) was undertaken and although it was an extremely time-intensive and detailed method, it enabled the researcher to get as close as possible to the participants' experiences at an exploratory level. Each transcript was examined from three different perspectives: descriptive (normal font), linguistic (italics font) and conceptual (underlined font), and comments were added for each (see example in Table 2).

Table 1
IPA analysis process.

IPA analysis process	Analytical Activities for this study
Step One: Reading and re-reading **Step Two^:** Initial noting ^Steps 1 and 2 merge following the initial transcript reading, such that reading, and note-taking will occur at the same time through the analysis	The researcher immersed themselves in the original data, beginning with the first original transcript Interviews were recorded, researcher listened to the recording of the interview while reading transcript and imagining voice of participant for future readings The researcher read and re-read the transcript to orient to a slower process of focusing on the participant as the focus of analysis Immediately following each interview, the researcher undertook reflexive memoing (journaling) to contribute to the objective nature of the write-up of results. This aligned with Smith et al. (2009) recommendation that the researcher records their own observations about the interview recollection, and record the most striking observations in a journal to bracket them off while orienting to the participant experience during this initial stage The researcher maintained an open mind and noted anything of interest within the transcript (this process became Step Two, initial noting) This step represented a free textual analysis (i.e., there is no requirement at this stage to divide text into meaning units) Initial noting was undertaken observing the following approach: **Descriptive comments:** production of a comprehensive and detailed set of notes and comments on the data (first level annotation) **Linguistic comments:** Focusing on language use to note when language use and content are clearly interrelated (for example use of repetition, change in tone) (second level annotation) **Conceptual comments:** Shifting in focus towards the participant's overarching understanding of issues they are discussing. This is a time-consuming process of conceptually interpreting the data through discussion, reflection, trial-and-error and refinement of ideas (third level annotation). As part of Step 2, *Theoretical memoing* (Glaser and Strauss in Rennie, 2000) was undertaken for each individual transcript where a log was kept to record "hunches, speculations, [and] thoughts about the relations among categories." This approach involved the researcher addressing the double hermeneutic process by developing theoretical memos after revisiting each transcript case.
Step Three: Developing emergent themes	Using larger data set comprising original transcripts and notes, the researcher reduces the volume of detail (i.e., transcript and original notes) whilst maintaining complexity, in terms of mapping the interrelationships, connections and patterns between exploratory notes Focusing on discrete chunks of transcript the researcher analyzed exploratory comments The original whole of the interview became a set of parts (which comes together in a new whole at the end of the analysis in the write up)

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Table 1 (*continued*)

IPA analysis process	Analytical Activities for this study
Step Four: Searching for connections across emergent themes	Emergent themes reflected the participants' original words and thoughts and the researcher's interpretation. Transcripts were transferred into NVivo where Emergent Themes (codes in NVivo) were developed and observed from one case to the next
	Researcher developed NVivo project maps for each case identifying connections across emergent themes *within each case* arriving at case-specific conceptual maps
	Working with the sets of themes developed, the researcher developed a sunburst chart for each case
	Researcher worked on how themes fit together (i.e., clustering related themes) developing tables representing an emergent theme (or set of themes)
	As per Smith et al. (2009) some themes were discarded (not all need be incorporated), dependent on RQ, the researcher's innovation and organization of analysis
	In searching for patterns and connections between emergent themes, the researcher included abstraction, subsumption, polarization, and contextualization of the themes to arrive at superordinate themes (refer to Smith et al. (2009) for further explanation of these suggestions)
Step Five: Moving to the next case	In studies with multiple cases, Smith et al. (2009) suggest the researcher moves to the next case and repeat the process, treating each case on its own terms
	Researcher repeated the process, bracketing ideas that emerged from the analysis of each case as they progressed the analysis (with reflexive memoing)
	There is acknowledgment that during the repeated analyses of cases, the researcher will be influenced by what they found in earlier cases. However, an important skill in IPA is to allow new themes to emerge with each case
	Following the development and analysis of emergent themes, the researcher returned to the initial script for each case (now being aware of the final set of emergent themes), and without referring to the data from NVivo, 1) developed final reflexive memo notes for each case (in Excel), 2) identified the top three to five emergent themes relevant to each case (in Excel), and 3) compared these with the results from NVivo to check reliability of the process, and validity of the emergent themes
	Although slight variations existed, this was deemed highly appropriate, given the qualitative nature of the data, and the consideration of smaller, or less frequently coded themes that may be key to the case and emerged from the data
	This process informed the development of superordinate themes observed across every case (see Step 6).
Step Six: Looking for patterns across cases	Researcher brought together emergent themes from Steps 4 and 5, seeking connections between cases and themes
	Questions in this step include: What connections are there across cases? How do themes in one case illuminate a different case? Which themes are the most potent?
	Using Excel and the themes emerging across cases, this led to the development of superordinate themes which were shared

Table 1 (*continued*)

IPA analysis process	Analytical Activities for this study
	across cases
	This step identified ways in which participants represented unique idiosyncratic instances and shared higher order superordinate themes within the group
	The outcome of this step was a table summarizing emergent themes as nested within superordinate themes, illustrating consideration of themes from each case.

Table 2

Example of Hugh's initial noting process.

Interview transcript excerpt	Initial noting example
I'm constantly assessing the tasks that the situation is, and then making sure that I'm dealing with the highest priorities. And then coming back down and checking on the next lower ones and some of that's mental, and some of that we, you know, we have an incident management room that is set up and designed to help us facilitate that thinking. So, we write our actions up on the board. We are, you know, we know, we've got the time for our next sequence to be issued out to people, we've got key steps.	Referring to cognitive process: Prioritizing of tasks and ensuring no tasks have been neglected. Both mental (tacit) cognition but also explicit knowledge-sharing in formal mechanisms such as on a board. *"Constantly assessing" might indicate it's an iterative process—the internal cognitions.* Role of tacit versus explicit KM and generation of ideas, and facilitation of explicit means of processing information through formal work structures (rooms/teams/boards)

In Step Three, the researcher proceeded with developing emergent themes. This required careful observation of the initial noting comments to ensure authenticity and integrity in staying as close as possible to the participant's lifeworld while developing statements or phrases that are "revealing about the phenomenon or experience being described" (van

Table 3

Example of Hugh's initial noting process with emergent themes.

Interview transcript excerpt	Initial noting example	IPA emergent themes
1. I'm constantly assessing the tasks that the 2. situation is, and then making sure that I'm 3. dealing with the highest priorities. And then 4. coming back down and checking on the next 5. lower ones and some of that's mental, and 6. some of that we, you know, we have an 7. incident management room that is set up and 8. designed to help us facilitate that thinking. So 9. we write our actions up on the board. We are, 10. you know, we know, we've got the time for our 11. next sequence to be issued out to people, 12. we've got key steps.	Referring to cognitive process: Prioritizing of tasks and ensuring no tasks have been neglected. Both mental (tacit) cognition but also explicit knowledge-sharing in formal mechanisms such as on a board. *"Constantly assessing" might indicate it's an iterative process—the internal cognitions.* Role of tacit versus explicit KM and generation of ideas and facilitation of explicit means of processing information through formal work structures (rooms/teams/boards)	**Assessing or prioritizing situation** **Cognition** **Using formal work structures**

Manen, 1990, p. 93). In Table 3, emergent themes are noted in bold font, in the right-hand column, following the development of the initial notes as demonstrated earlier.

Hugh's example (see Table 3) shows the emergence of three codes, determined as follows. For the "Assessing or prioritizing situation" theme, the descriptive comments regarding the prioritization of tasks were closely reflected by Hugh's description of his quote "dealing with the highest priorities" on line three, and then his "checking on the next lower ones" on lines four and five. For the "Cognition" theme, the linguistic comment of "constantly assessing" on line one represents Hugh's internal thinking. Finally, the theme "Using formal work structures" was reflected in Hugh's comments about the "incident management room" on line seven and the action taken to "write our actions up on the board" in line nine, which was captured in both the descriptive and conceptual noting comments. The process of developing emergent themes was facilitated by the transfer of data to the qualitative software, NVivo.

In Step Four the researcher searched for connections across emergent themes using several coding strategies (e.g., abstraction, subsumption) (Smith et al., 2009), and prepared conceptual maps for each case. Prior to Step Five (repeating previous steps) and to ensure robustness, the researcher introduced a process applied to all 27 cases: (1) re-reading the post-interview reflexive memos, (2) re-reading the transcripts, (3) writing new reflexive memos reflecting new knowledge the researcher possessed, (4) observing superordinate themes from transcripts, (5) creating a list of key themes (recorded in Excel), (6) comparing the themes with those in the hierarchical data produced from NVivo (to check for consistency—the results were extremely encouraging), (7) developing a "sententious" statement for each case (van Manen, 1990), and finally (8) observing and recording any higher order qualities or concepts emerging from cases to be analyzed in Step Six.

In the final step, superordinate themes were recognized from across cases. Each superordinate them incorporated key themes from previous steps of the analysis, which emerged through asking proposed questions aligned with Smith et al. (2009), p. 101) IPA process. Questions included, for example, "What connections are there across cases?," "How does a theme in one case help illuminate a different case?," and "Which themes are the most potent?". The detailed process undertaken in Step Five to pull out key themes and support transcript excerpts made the task of ensuring idiosyncratic representation straightforward, transparent, and highly valid, staying close to the lifeworld of participants.

Section 6 details the findings and a discussion incorporating direct quotes from participants.

Findings and discussion

The IPA analysis and emergent themes resulted in the development of a theoretical framework for IF (see Fig. 1). Responding to the research question—How do employees experience individual foresight in organizations and how does this contribute to organizational learning and innovation outcomes for firms?—four major elements, along with related superordinate themes, emerged that encapsulate the IF experience in organizations (see Table 4). Findings are focused on IF, OL and innovation implications. Table 5 presents textual examples taken from the data and representative of key emergent themes.

Individual foresight: the person

The IPA analysis revealed three superordinate themes for The Person element of IF: (1a) *personal knowledge and experience*, (1b) *intuition*, and (1c) *individual skills and disposition*. *Personal knowledge and experience* was a shared theme for all 27 participants, reflecting the role of personal knowledge in the IF process. Given IF's reliance on personal knowledge, most participants referred to *relevant past experience* and/or lessons
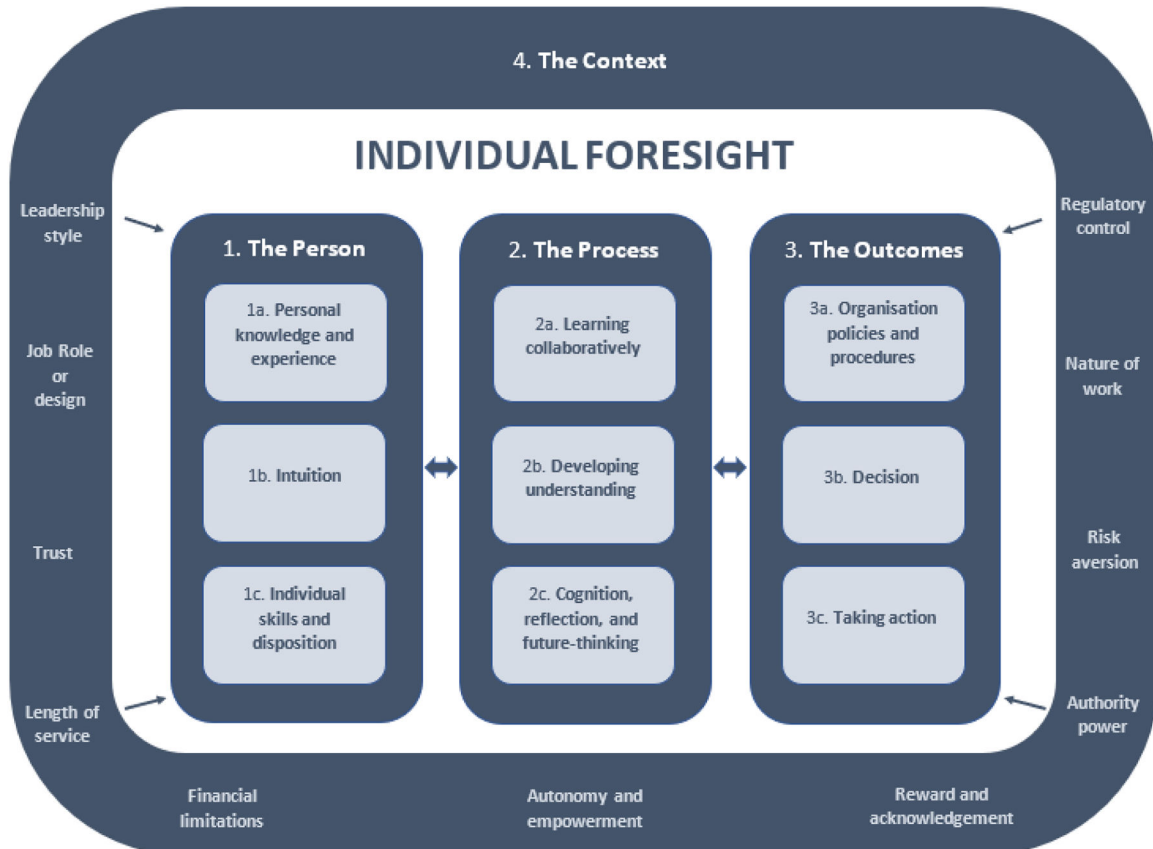

Fig. 1. A theoretical framework of individual foresight.

Table 4

Key elements and contributors to IF experience in organizations.

Element of IF	Key dimensions (Superordinate Themes)
1. The Person	1a. Personal knowledge and experience
	1b. Intuition
	1c. Individual skills and disposition
2. The Process	2a. Learning collaboratively
	2b. Developing understanding
	2c. Cognition, reflection, and future-thinking
3. The Outcomes	3a. Organization policies and procedures
	3b. Decision-making
	3c. Taking action
4. The Context	4a. Organizational culture, incorporating
	15 emergent sub-themes (e.g., trust, leadership style, job role/design)

learned. Learning outcomes were evident when participants made references to past learning that assisted them to make better decisions for favorable work outcomes: "It's trying to predict…the outcome of that change, so that you can…proactively learn from your past mistakes, rather than making those same mistakes over and over again" (Alan). *Future-thinking* and *reflection* (established as superordinate themes for IF element The Process) emerged as closely associated with *personal experience and knowledge,* where participants undertook a process of reflection to learn from their experience. This is relevant for innovation as employees who partake in *future-thinking* make more accurate decisions, and choose more promising innovative ideas (Eisenbart et al., 2023). Geoffrey explained:

> I remember we decided this was the right way to [go, but wondered] are we just now about to make the same mistake again? [we] debated [why] it did not work last time…reflecting back and filtering those scenarios through previous experiences [enables you] to be able to project things forward.

Relevant to innovation, Gill referred to the potential limitations for creativity when using past experience in a work scenario: "So when you only take from past experience, I think it can hinder the other options or opportunities that there are." This highlights that organizations should ensure that learning mechanisms (e.g., scenario-planning or visioning) are in place to encourage reflection and knowledge-creation or -sharing to overcome a lack of diversity or creative thinking when applying past experience.

The emergent theme of *existing knowledge* captured several insights related to OL. New insights regarding employee experience with IF and corporate knowledge were found. Howard described an incident requiring the combined knowledge of his team, highlighting the benefit of retaining corporate knowledge and conveying frustration with existing workforce planning strategies:

> …if this had of been a brand new [team], we would have really struggled to identify those options so quickly…corporate knowledge was invaluable here…as much as corporate entities love…having people come in—and bring in fresh ideas—and that's important and there needs to be a blend of that. It's also important to retain that corporate knowledge…and so we rely on the collective wisdom of the group.

Howard's comment emphasizes the central role of effective KM practices that foster collaborative learning in the workplace. Despite references by participants that highlight the importance to them of OL mechanisms that support their work, some participants raised the issue of a negative culture that hindered innovative thinking associated with foresight: "… people are punished for passing on relevant information based on foresight" (Janelle). This issue is revisited in The Context section of the analysis.

When discussing IF, 20 of the 27 (75%) participants referred to *intuition*. One of the memorable observations made by Bonnie related to

Table 5

Master table of selected themes demonstrating data supporting IPA analysis.

Elements of IF & Superordinate Themes	Related Emergent Themes	Representative Quotes
1. THE PERSON *1a. Personal Knowledge and Experience*	Personal learning from past experience	Alan: you can try and proactively learn from your past mistakes Bonnie: wizened up to, you know…have obviously gone through many experiences Matt: past experience, is it something that you're familiar with? Have you felt like this before? And you're linking up to that… Alistair: You've sort of been around the industry long enough where–you've got a reasonably good appreciation.
1b. Intuition	Intuition	Byron: I've had that impending feeling before [] looking and listening [] getting that sense in your gut and in your head that something isn't quite right. Geoffrey: Just trusting your gut [] being raised by parents that empowered me to trust my gut [] empowered me to make decisions Howard: I could understand why some people would do that. But when it's high stakes, you can't rely on intuition.
1c. Individual Skills and Disposition	Personal ability to assess or prioritize a situation Impact of length of service	Alan: you can throw out just many different options. And then you can start thinking about the pros and cons of each of those options. Brad: So, I've really got to understand the now, and what's happening and sort of put everything in its place Hugh: I'm constantly assessing the tasks that the situation is–and then making sure that I'm dealing with the highest priorities. Amanda: they trusted that you can do it [] you're just showing them why they shouldn't trust you [] you're just being so doubtful of yourself Edward: older blokes [] been here a long time probably don't like to share that information [] they just feel like if I tell somebody–I'll lose my job Gill: you can take somebody who's brand new into the business [] they don't really have the same pattern recognition that we have Ronnie: with an old culture [] people here [] have been institutionalized [] they don't have to use foresight–because their job is to go from A to B
2. THE PROCESS *2a. Learning Collaboratively*	Sharing knowledge Developing others	Vincent: And you come out with your idea and I [] shut you down [] that's just not proactive [] it's got to be sort of an open [] discussion or relationship Brad: on a big sheet of brown paper–a tool–we'll map everything out step by step by step–everyone gets a chance to speak Sarah: So, and then it's kind of a

Table 5 (*continued*)

Elements of IF & Superordinate Themes	Related Emergent Themes	Representative Quotes
		brainstorm with whoever I'm talking to, hopefully to bounce off each other
		Ronnie: I'll normally bring up the experience part [] give a bit of praise to somebody [] when other people see that–we learn from that as well.
		Matt: It's about us working collaboratively together [] the more we help each other out with different scenarios [] that's what a team does.
2b. Developing Understanding	Role of scenarios in foresight development	Marie: and I struggle to anticipate what is likely to happen and to think about scenarios, but I've been forced to in my work, which I do find difficult
		Vincent: I'm thinking about all these things [] like equipment we might need, how are we going to fix it. Possible problems that we might come across
		Anna: Having a conscious understanding of the impact of goal setting [] go[es] a way towards helping people understand [] quiet time and [] reflecting
	Planning	Rachel: Our projects and our people don't need the pass or fail response they need the sort of, you know that forward plan…
		Geoffrey: a bunch of different synonyms [] planning [] investing the time [] if you prepare correctly [] you shouldn't be [] surprised.
		Alan: often you get so lost in the day to day that you lose sight of where you've been and what you did last week
		Anna: I like to [] understand the current situation [] to be mindful of the future but not thinking that I need to change anything immediately.
2c. Cognition, Reflection, and Future-thinking	Reflection	Hugh: we have an incident management room [] to help us facilitate that thinking so we write our actions up on the board []
		John: reflecting on how you have acted [] which is the right and which is the wrong way [which] then informs your preparation for the future.
	Future-thinking	Janelle: If you're put on the spot [] my initial view is this–that's going purely off gut instinct [] I might need more time to think about this
		Matt: looking ahead, and I think it's going to help someone else. I think it's my job to tell them and help them through it as well
		Marie: go over and over the different points because this is going to impact decisions made by the business–and will impact us in the future [] in terms of setting a precedent
3. THE OUTCOMES		
3a. Organizational		Ronnie: we do have a procedure to follow. However, it comes

Table 5 (*continued*)

Elements of IF & Superordinate Themes	Related Emergent Themes	Representative Quotes
Policies and Procedures		down to probably more instinctive.
		Stephanie: we all [normally] have a prestart–everyone meets at the site… we're called in to break ground and that meeting did not happen–if the meeting had have happened, it would have been picked up
		Hugh: we'll use our foresight to identify things [] and we'll start to put that process and document that into a formal checklist or something like that.
3b. Decision-Making		Anna: each and every remuneration decision is a sort of personal outcome for somebody in an organization. I'm very conscious of that.
		Byron: It's important that they can make a decision of their own bat–change something –repair something a certain way and get a result
		Gill: And I have to make sure that I have the right level of EQ and I'm professional about this.
3c. Taking Action		Alistair: I'm going to get to slayed [] I've talked directly to the chairman–and brought to his attention a major issue that he's completely oblivious to.
		Bonnie: so, I wanted to put that in practice in this scenario, so I responded on the callout
		Jake: I've done it myself [] 'Why did I do that–or I haven't done that…' [] it's a pressure thing and you're trying to get something to happen
4. THE CONTEXT	Leadership style	Janelle: And when I spoke to him, he's like, right, I really want to hear more about this–let's make a time [] Can you jot down some thoughts? [] I want you to know we support you [] thank you for the feedback. [] Do you have any ideas on how we can fix this? Like, not only do I want you to come to me with this issue, but what do you think would fix this?
		Hugh: and some good leaders will say hey–remember when we did this, and this happened–or we didn't do that, and this happened–people go–oh yeah–let's not let that happen again–let's do it better–and you can get the collective sort of working on that itself.
		David: that's calling on Team experience and that's how I actually prefer to lead. I don't really dictate much for my level. I like a collaborative approach.
	Stress or demanding work	Stephanie: because in this role there's a [] bit of scrutiny on you especially around xxx [] there's a bit of pressure to xxx
		Ronnie: and then go on the map–and someone's trying to grab you and talk to you–and then another person is trying to talk to you–then the control

Table 5 (*continued*)

Elements of IF & Superordinate Themes	Related Emergent Themes	Representative Quotes
		room's saying "it's getting worse"–so it's all happening frequently at once Hugh: there's only so much you can do–we only have so many field staff out there [] we start to prioritize how we're going to deal with this.
	Role of trust	Edward: we've had other leaders [] tell you everything [] they're quite honest with you [] it may not be what you want to hear, but I appreciate it–because life isn't always easy, life isn't always what you want it to be, but I do–I do respond better to more openness John: I'll sense check that with someone else that I know and know and trust. Leo: And the big word is trust–and I want the guys here to trust me, and I'm building that trust culture I suppose.
	Employees with foresight are troublemakers	Bonnie: I think the image of people having been a troublemaker because they have insight is I am so sad that view is held by those people. Sarah: I have worked in an environment like that, where, you know, if your head of–was at the table telling you that this is a new initiative that they want to roll out, then it was kind of the culture to go–yeah, great idea rather than the challenge. Ronnie: Some of the best things come from people breaking rules–and having foresight really Geoffrey: To add value to foresight. I mean, that's, that's why intellectual property is worth something to a business. It's why tenure is important.
	Importance of tenure	Howard: If this had of been a brand new…we would have really struggled to identify those options so quickly. So, you know, corporate knowledge was invaluable here. You know, as much as corporate entities love, you know, love having people come in–and bring in fresh, fresh ideas–and that's important and there needs to be a blend of that. It's also important to retain that corporate knowledge. Darren: we've had a guy [] been here 45 years [] I thought to myself [] why can't we just use this person, as a mentor? [] with that skills and experience.

organizations' tendency to dismiss the role of intuitive decision-making and its importance for outcomes in the workplace: "I think intuition is, a lot of people have it, it's just, it's an inability to get that recognized and accepted by the business, to do something about in time, before a consequence emerges." The value of intuitive decision-making is gaining traction in organizations (Dane, Rockmann & Pratt, 2012) and there is some evidence, particularly in design innovation, that intuition plays a key role in the creative ability and innovative outcomes of workers

(Taura & Nagai, 2017). Participants reported risk-aversion, which can negatively influence their propensity to use IF. This is often related to culture and whether the organization has a supportive innovation culture (Tsai, 2018). Risk aversion can also be generated when, as described by Janelle, shared insights are punished, creating a disincentive for employees to use IF. Sadler-Smith (2008) highlighted the value of intuitive decision-making and intuitive "types" in organizations to foster innovation and creative thought and suggested that HR professionals are well-positioned to implement strategies that support and embrace this important construct.

Finally, related to The Person element, *individual skills and disposition* refers to the existing skills, abilities or disposition of themselves or other employees when assessing and prioritizing a situation they perceive as requiring IF. This superordinate theme captured ten emergent themes, including *emotional intelligence (EI), developing self, challenging ideas for better solutions*, and *personal ability to assess or prioritize a situation*. All 27 participants contributed to this emergent theme. The *developing self* theme was evident when participants sought opportunities to self-develop foresight through mechanisms such as feedback or group reflective practices. Vincent described his propensity to reflect for self-development: "…I think it's a really good way to make yourself better, and if you don't self-reflect on jobs…I don't think you'll get the most out of the learnings out of those jobs…". Vincent's comment highlights the importance of reflection in the IF process, but also as an OL mechanism. Some participants described their IF as *challenging ideas for better solutions*. Alan discussed his preference to play devil's advocate in meetings because he felt that "there's a lot of potential foresight in that—where if we haven't challenged the thing well enough, it's bound to fail." The same principal could be applied to generate innovative ideas in workplaces. David explained that he would bring together five supervisors and ask them if they could arrive at a better solution, encouraging them to work together. *Group reflection* will be revisited when examining The Process element of foresight.

Individual foresight: the process

The IPA analysis revealed three superordinate themes for The Process element of IF: (2a) *learning collaboratively*, (2b) *developing understanding,* and (2c) *cognition, reflection, and future thinking*. This element is pertinent to this study; however, limited findings are presented here due to paper length. *Learning collaboratively* emerged as a dominant theme, with all 27 participants contributing. The largest emergent them was *developing others*. Approaches for *developing others* included reaching out to colleagues or teams in the process of *developing understanding*. Data indicated that IF learning is a two-way process: "…it's a way of setting yourself up for success… have a network of people that you know…if you're sort of seeking a bit of support or advice…it's also good when it works back the other way, and they feel comfortable to contact me." *Sharing knowledge* was important to participants and that was evidence that good communication overcame limitations of tacit knowledge. Data demonstrated that tacit knowledge was transferred through *storytelling*. Alistair described the essence of KM culture and sharing knowledge in organizations: "…you end up building pretty good networks…you see a lot of different scenarios over the span of a career…we share our knowledge openly….". *Learning collaboratively* was also inherent in the experience of IF, with a two-way benefit in the development of IF for individuals fostering IF in group situations, and then developing IF through a process of cognition, reflection, and future-thinking during the reflection. Strategies such as storytelling, group reflection, providing reflection space, rewarding, or acknowledging IF behavior, or role-modelling reflective practices demonstrated the value of knowledge sharing.

In terms of *developing understanding*, participants spoke of *problem solving* and *planning, recording information, use of scenarios, developing a bigger picture view, visualization,* and *role of technology*. Many participants favored collaboration in *problem-solving*, emphasizing the robustness of

group problem-solving processes (e.g., using an agenda). Important to KM, when participants were *problem-solving*, they often also referred to *record-keeping*. Tacit knowledge in problem-solving emphasizes the importance of recording and sharing knowledge with others, as proposed by Nonaka (1994) in his spiral of knowledge model. To capture tacit knowledge, Hugh prefers formal records for future reference: "…we'll use our foresight…and document that into a formal checklist… then we'll update that by using myself and my collective teams' foresight…we'll probably use it again in the future." Whiteboarding was used to share knowledge and brainstorm solutions. Amanda also described using visualizations. These insights are useful for organizations seeking to foster IF and encourage innovative behavior from employees.

The final key contributor to The Process element is *cognition, reflection, and future-thinking*; 321 references captured all 27 participants' experiences. The nature of information about cognition, reflection or future-thinking is exploratory and dependent on how the participant expressed their experience. *Cognition* revealed a diverse range of strategies, including chunking of information, fish bone diagrams, developing a big picture view and more. *Tacit knowledge* again featured, with Byron's explanation highlighting this challenge: "Quite often, in my little world, in my little mind, I'm going so fast thinking about things that I fail to relate it to the next guy and explain the situation that I have in my head." *Future-thinking* could offer the answer to sharing knowledge because employees expressed motivation to share IF knowledge with others when they thought about the future. The sub-themes of *future-thinking* included *concern for people* and *concern for the business*; it was evident that participants who tended to think about the future were motivated by one or both of these concerns. Rachel's reflection on presenting a forward-thinking report to her executive team pinpointed this motivation: "You know what motivated me to write that initial paper?…a combination of the benefit for…the organization…the people working in the organization…our community particularly and demonstrating that we're capable." Rachel demonstrates her organizational commitment through her IF actions. Through taking this action Rachel then encourages the organization to think innovatively about a problem facing their industry.

Reflection is of particular interest to this study because it is a key learning mechanism in organizations (Schon, 1991) and a prevalent theme that emerged from the IPA analysis. Considering *reflection* as an OL mechanism, two different scenarios were common. First, a formalized process of group or team reflection provides an opportunity for collaborative learning where *developing others* is the outcome, and second, and more common among participant experiences, the desire to work through a problem or scenario with others is valued. The final consideration here is time taken for *reflection* by participants (for a broader discussion on reflection in IF see Innes, 2023). This example demonstrates reflection-in-action, when individuals question actions while experiencing an event (Schon, 1991) to turn tacit knowledge into something tangible for their learning and to share with others when required:

> …before you can make a decision, you've got to have an understanding…I was doing the risk assessment I turned to my truck… everyone's behind me, and the jobs behind me…and there's cars beeping and all that…I just had a moment…It's not long in the overall scheme of things [but] it can save you a lot of time in the long run…give you that focus. I always have that moment. (Ronnie)

Individual foresight: the outcomes

The IPA analysis revealed three superordinate themes for The Outcomes element of IF: (3a) *organization policies and procedures*, (3b) *decision*, and (3c) *taking action.* Policies and procedures can help foster innovation in firms (Zhang, Wang, Xue & Yang, 2018). Participants referred to *policies and procedures* when responding to incidents,

particularly in the utilities industry where regulatory reporting is mandated. Incongruence between organization policy and regulatory requirements was shown to impact negatively on one participant. However, Ronnie reported that IF was advantageous in his situation: "… we do have a procedure to follow…it comes down to [being] more instinctive…knowing what to do… a lot of it comes instinctively." For a broader discussion on intuition and IF, see Innes (2023).

A vital insight from *organization policy and procedures* is that OL contributes to knowledge creation. When prompted to describe how IF is captured in the "checklists" and procedures that Hugh's team creates, Hugh's response highlighted the value of IF to learning and KM: "…at the height of the event…we translate those more standardized business processes…we need to make sure we do these things next time…not just rely on foresight…because it can fail you…in high intensity moments…". This excerpt illuminates the role of KM in firms and is a reminder that humans can experience cognitive or information overload that can negatively influence decision outcomes (Phillips-Wren & Adya, 2020).

Participants talked about how important it is to *take time* to make foresightful decisions. Ronnie identified the challenges in taking time: "It's hard to do because everything's going at once", but also the value of taking this time: "…doing that creates better decision making and helps you prioritize what's important." *Decision-making* was shown to require the collective wisdom of groups or teams. *Collaborative learning, reflection* and *decision-making* shared many associations in the transcripts, with Howard declaring: "We rely on the collective wisdom of the group…and then we make a decision."

The final superordinate theme, *taking action*, aligned closely with data from *developing understanding* and *learning collaboratively*. Most relevant for this study, the culture of an organization either encouraged or discouraged IF behavior. Being *passionate about a cause, personal risk-taking* tolerance, and *EI* also impacted *taking action*. Space limits a detailed account of one salient case that highlighted the issue of *taking action* in a situation of uncertainty and risk. At personal risk to himself, Alistair chose to disclose an issue to his chairman, based on the openness and trust established with his leader. Many contextual factors influenced this outcome.

Individual foresight: the context

The IPA analysis revealed 15 superordinate themes for The Context element of IF. *Organizational culture* is depicted as IF element *The Context* in the IF Framework. Select findings provide insights relevant to fostering IF, learning and innovation in firms. Lack of trustworthiness of supervisors contributes to poor supervisor–subordinate relationships (Purba, Oostrom, Born & Van Der Molen, 2016). Eighty-nine percent of participants referenced leadership style as supportive or discouraging for IF behavior. Scott and Bruce (1994) posited that trust was considered important by employees to show risk tolerance needed for innovative behavior. Vincent explained: "I have had a supervisor…he would turn up to a job and he'd say 'Right, this is how I want it done'… and you'd go 'well that's a stupid way to do [it]'…you'd get yelled and screamed at…". Conversely, leaders' openness and approachability were found to be important (as per the earlier example of Alistair). Byron explained how his employees will only speak up about an issue or idea when they feel comfortable with him and only then will they "…start sharing what they're seeing and what they're feeling." Other participants referred to the trust in them as an employee, and how this influenced them to try new things. Several participants referred to trust in collaborating with others to share information: "I'll sense check that with someone else that I know and trust" (John).

Trust in organizations encourages risk-taking behaviors that support the creativity and innovations that organizations require to remain competitive (Neves & Eisenberger, 2014). Institutional trust plays an important role in organizational innovativeness (Ellonen, Blomqvist & Puumalainen, 2008). Thomas explained: "You need to be comfortable

that if you fail, the consequences are right…cultures that support innovation are …cultures that…support foresight."

Job role was sometimes deemed to influence the opportunities that employees had to demonstrate foresight. John explained:

People who point out the risks or the opportunity …it's having more of an ability or operating more in that space. A lot of that is defined by scope of that person's ability and also that person's role.

Yuan and Woodman (2010) observed that employees hesitate to show innovative behavior where it may be perceived as invalid or is not viewed as needed for their work.

Empowerment was shown to impact employee use of IF. Howard described a historical experience where he was discouraged to have autonomy in his work: "[my] foreman…he was the classic micromanager [he'd say] 'look, there's the front fence, park your brain there, come in, do what I tell you to do, and you can pick up your brain on the way out'." Supervisors would benefit from training about the impact of empowerment on learning, innovation and IF behavior. Edward's example highlights this: "I said, I want to empower you to make those decisions…and he said 'oh…my last boss didn't want us to make decisions…he wanted to know everything'." The positioning of The Context in the IF Framework (see Fig. 1) reflects how *organizational culture* influences each element of the IF experience in organizations. Culture has far-reaching impacts on fostering IF, innovation and learning in organizations.

Theoretical contributions

Responding to a call for better understanding of the individual experience of foresight in organizations (Rohrbeck et al., 2015; Tapinos & Pyper, 2018), this IPA study has resulted in a theoretical framework of IF. From an individual-level perspective in organizations, this study, to the best of the researcher's knowledge, is the first (and only IPA study) to investigate the phenomenon of everyday foresight among employees in organizations. In this section, theoretical contributions are explored (see Innes, 2023, for a broader discussion of IF theoretical contributions), along with practical implications, study limitations and a future research agenda.

Individual-level micro-foundations of individual foresight

This phenomenological study reveals a deep understanding of the experiences of employees engaging with IF in organizations—that is, a micro focus on the phenomenon of foresight. Barney and Felin 2013, p. (141)) argued that when defining micro-foundations, taking a micro perspective to the study of organizational behaviors limits the focus of research to the "personalities, abilities, and skills" of individuals, denying an understanding of the interactional nature and context in which the behaviors occur. However, this IPA study, with its focus on the lifeworld of individuals as they experience foresight in organizations, reveals a rich tapestry of personal and intra-organizational social capital interactions (Ben Hador, 2016) inherent in IF.

Participant accounts reveal details of the context in which employees experience IF, contributing to the micro-foundations of knowledge-based dynamic capabilities (KBDC) in firms (Barney & Felin, 2013; Zheng et al., 2011). While this study did not specifically focus on understanding the mental models involved in employee foresight, it did reveal several skills, abilities, strategies, and processes involved in cognition in IF in the absence of formalized methods of analysis. Reflection, collaborative learning, personal problem-solving skills, intuition, and several strategies, including record-keeping, technology, visualization, and scenarios, were used by employees to develop understanding in work situations requiring IF. As such, this study expands Tapinos and Pyper's (2018) research (see Innes, 2023, for a detailed discussion), revealing rich insights that explain the social interactions of

the IF process; for example, development of both the person experiencing IF and the peers they involve. In addition, the strategies observed for how individuals interact and share knowledge (e.g., storytelling, group reflection) provide valuable input for researchers and organizations seeking to understand social capital in IF. These unique findings confirm that IF activities are, in fact, a large contributor to OL, given they have been shown to develop inside the firm through information sharing and social interactions which lead to opportunities of growth for employees (Rehman, Poulova, Yasmin, Haider & Jabeen, 2021).

The study also responds to the call by Rohrbeck et al. (2015) to investigate the role of individuals and groups in *cognition in action* in the foresight process. Rohrbeck et al. (2015) appealed for foresight research to investigate individual sensemaking aspects of foresight. An important feature of sensemaking is *remembering* and *looking back* to make meaning out of reality (Weick, 2001). Whilst this study provides evidence that individuals, through a process of reflection, draw on their past experiences to inform their current behavior and imagining of future scenarios, further work focusing on the sensemaking component of IF would be a valuable contribution moving forward.

Finally, a study by Balarman and Sundarraj (2017) found that employees at lower levels of the organization draw on informal social networks as an important source of knowledge for foresight. They call for organizations to establish the antecedents of employee knowledge-sourcing preferences to enhance foresight development. This study explains how employees draw on informal social networks in the process of IF (e.g., group reflection, whiteboarding or consultation with trusted colleagues). Additionally, Balarman and Sundarraj (2017) referred to employees using structured and formal methods, often using technology to analyze information, but did not explain the skills useful for using these tools. This study has identified unique *individual skills and dispositions* required by employees to successfully navigate the IF process (including intuition, EI, confidence, self-development, passion, personal risk-taking and more), in addition to how employees develop understanding in foresight through using various strategies (e.g., scenarios, visualization, fishbone diagrams, record-keeping and more), as well as technology, at both the individual and group levels.

Knowledge management: implications for individual foresight and innovation

Organizational knowledge is a vital resource (Grant, 1996; Singh, Gupta, Busso, & Kamboj, 2021), and innovation performance has been established as a valued contributor to knowledge in firms (Du Plessis, 2007). This study has confirmed that processes associated with IF generate knowledge that is valuable to policy development, work, and innovation outcomes for organizations. Importantly, findings of this study support contemporary research which demonstrates the value of intellectual capital—defined as comprising three components of "human, structural and relational capital" (Mehralian, Farzaneh, Yousefi & Haloub, 2024, p. 2)—which has been empirically shown to positively affect OL. Whilst Mehralian et al. (2024) research highlights the value of personal knowledge and experience to a firm's OL and innovation outcomes, their research was focused on the perspectives of senior management and called for a greater focus from an employee perspective. But the lens can be widened. This study's methodology and sample extends the knowledge and application of the value of knowledge and OL, among all employees, to firms' innovation outcomes.

Further, this study has shown that knowledge sharing in the IF process creates new knowledge observable at the individual, group, and organizational levels. Unique to this study, phenomenological insights demonstrate how tacit knowledge, through the IF process, is shared by individuals via collaborative learning, developing understanding, and cognition, reflection, and future-thinking processes, with outcomes contributing to OL, foresight development and knowledge creation in firms. This process and the transfer of tacit IF knowledge into organizational outcomes (taking action, decision-making and organizational

policies and procedures) can be explained through the operationalization of Nonaka's (1994) dynamic theory of organizational knowledge creation to IF.

Employees accumulate years of personal knowledge and experience which is acquired and shared (*tacit-to-tacit*) in their work area with colleagues (through observation, mentoring, on-the-job training) through a process that Nonaka (1994) identified as *socialization*. Through articulating and sharing explicit knowledge through the IF process involving group reflection, whiteboarding, and generating checklists, an explicit understanding of *new* knowledge is established (*explicit-to-explicit*) through a process Nonaka termed *combination*. Employees then share their knowledge and experiences regularly through both informal and formal communications and social networks through collaborative learning (e.g., meetings, group reflection, training) resulting in a developed understanding and learning of the new knowledge (*explicit-to-tacit*) through *internalization* (Nonaka, 1994). The most difficult challenge, according to Nonaka (1994), is transferring tacit knowledge into explicit knowledge through a process of *externalization*. However, this study provides evidence that employees, through focusing on their own or others' IF development, process scenarios or issues either independently or with others (e.g., storytelling, personal reflection, taking time) to achieve this *tacit-to-explicit* knowledge transfer. Nonaka (1994, p. 20) described the "dynamic" interaction between the four modes as key to the success of knowledge creation in organizations. When applying Nonaka's model to IF, this research confirms that IF in organizations is a valuable source of corporate knowledge.

As Du Plessis (2007) posited in relation to innovation, the knowledge base of firms increases with greater retention of corporate knowledge. This study demonstrates how personal knowledge and experience shared through the IF framework contributes to corporate knowledge and knowledge sharing needed for innovation. It responds to the call from Eisenbart et al. (2023) for research to focus on cognitive strategies and the processes of knowledge sharing, future-thinking, knowledge creation and innovation behavior for managers. It does this by exploring IF for both managerial and non-managerial positions, establishing the processes for sharing and transforming tacit knowledge. That is, personal knowledge and experience is shared and developed through a process of collaborative learning, developing understanding, cognition, reflection, and future-thinking. Mechanisms from the IF framework can facilitate innovation research focused on understanding innovative behaviors across multiple levels in firms in relation to KM.

Organizational learning: implications for individual foresight and innovation

OL has been defined as "the ability to make sense of the environment and develop new understandings which ultimately manifest itself [sic] through internal and external organizational actions" (Kamya et al., 2011, p. 378). Campbell and Armstrong (2013) argued that effective OL relies on "a dynamic process of sharing, negotiation and validation that challenges existing cognitions" and, importantly, KM and innovation activities have been shown to strengthen the relationship between OL and competitive advantage in firms (Kamya et al., 2011). Findings from this research demonstrate that IF facilitates OL through mechanisms such as storytelling, mentoring, on-the-job training, or opportunities for reflection. Applicable to both IF and innovation, knowledge creation from IF involves personal knowledge and experience of employees (and more), their ability to draw on tacit knowledge, and through The Process elements of IF, arrive at new knowledge outcomes. At the heart of this process is collaborative learning.

Collaborative learning in organizations is a well-researched and established aspect of organizational behavior. This study confirms that IF facilitates collaborative learning in organizations and highlights several practices, such as storytelling, mentoring, on-the-job training, or group reflection, that cultivate collaborative learning opportunities that contribute to innovation in firms. These practices can best be defined by

experiential learning theory, defined as "the process whereby knowledge is created through the transformation of experience" (Kolb, 1984, cited in Kolb, Boyatzis & Mainemelis, 2014, p. 2). Positioning IF activities in Kolb's Experiential Learning Cycle enables a clearer understanding of their importance for learning in the IF process (Kolb et al., 2014). While this paper limits the discussion possible on experiential learning theory (see Innes, 2023, for this application and discussion), it is important to acknowledge the role of social capital in knowledge sharing of IF activities. Perceived trust of colleagues positively impacts knowledge sharing behavior and OL (Kim, Park & Kim, 2021). A supportive culture for IF and innovation is therefore vital for establishing trust and encouraging knowledge sharing for IF and innovation in firms and will be explored below.

An important observation related to learning outcomes of IF is group reflection. Schon (1991) described the process whereby individuals question their actions (or "knowing") while experiencing an event as *reflection-in-action*. Further, *reflection-on-action* describes the time taken after an event to consider lessons learned. When employees reflect in-action or on-action and then translate this reflection into knowledge (i.e., a new checklist or a procedure or policy for the organization), Schon (1991) referred to this conversion as "knowledge-in-action." Schon (1991) suggested that this represents theory that is "deliberate, idiosyncratic [and results in] constructions [that] can be put to the experimental test" (p. 59). Although Schon's definition is presented in the context of researcher theory, the same can be said about organizational policies and procedures produced from employee IF or other innovative behavior. IF of innovative outcomes based on group (or individual) reflections demonstrate knowledge-in-action and are vital to knowledge creation, innovation, and competitiveness for firms (Du Plessis, 2007).

Culture: implications for individual foresight and innovation

This study reveals significant insights regarding the influence of organizational culture on IF, innovation, and KM in firms. Surprising synergies with innovation literature emerged, in terms of the value of establishing a supportive organizational culture that encourages innovation and IF behavior. Importantly, this study demonstrates that a supportive IF culture facilitates IF in firms, leading to OL that generates new knowledge, which in turn facilitates IF and innovative outcomes such as improved decision-making, foresightful action and valuable contribution to organizational policy and procedures. Likewise, organization policies and procedures can shape an innovation and IF culture to promote collaborative learning and knowledge creation. Strategic HR policies aimed at fostering a culture of innovation and IF would prioritize designing work to allow for collaborative learning and reflective practice, and carefully consider the nature of incentives and rewards programs to reflect the impact on encouraging foresightful and innovative behavior.

This study's results reflect a shift in the understanding and value of new knowledge creation and the influence of transformational leadership in inspiring workers to engage in innovative work behavior (Li et al., 2019), whereby an organizational culture that values individual insights and knowledge will encourage foresightful or innovative behavior from employees. Establishing an expectation and culture about innovative or foresightful behavior can overcome possible differences in perceived job expectations for these behaviors, and result in positive outcomes for decision-making and innovative ideas in firms (Eisenbart et al., 2023; Yuan & Woodman, 2010).

Although not a focus for this study, some participants discussed their appreciation of incentives and acknowledgement for demonstrating IF in their work. Similarly, knowledge workers' innovative behavior has been shown to increase with pay-for-performance incentives that incorporate valued social exchange attributes, such as relative position, control, and personal importance in firms (Tsai, 2018). Tsai (2018) also argued that openness, approachability, and organizational interactivity

encourage employees to engage in innovative behavior. Encouraging collaborative learning is crucial to foresight outcomes, given its role in The Process element of IF. Opportunities to design work to allow for both group and individual reflective practice should not be underestimated by firms, as collaborative learning opportunities generate new knowledge and insights both at the individual level (for self-development of IF) but also at an organizational level, with outcomes for policy development and innovation.

Supportive supervisor relations are vital to encourage IF and innovative behavior (Scott & Bruce, 1994; Yuan & Woodman, 2010). Training could educate supervisors about empowerment, risk tolerance and the value of good mentorship for employees. Conversely, poor supervisory leadership can be harmful to IF and hinder learning opportunities for individuals and the organization. A culture of trust is vital for supporting IF outcomes and the innovative behaviors of employees. Lam et al. (2021) found that an innovation culture with established mutual trust facilitated by supportive leadership leads to increased KM practices. This finding is supported by this study, with new insights related to IF knowledge and learning mechanisms (such as group reflection and storytelling) contributing to KM practices.

Practical implications

The IF framework could be used for further studies in other contexts, particularly in developing an organization-wide survey to operationalize and measure the many potential causal relationships suggested in the framework. This study reveals many insights regarding both employees' and leaders' knowledge, skills, and abilities pertinent to IF in organizations. For employees, skills needed for collaboration, reflection, future-thinking, personal cognition, intuition, assessing and prioritizing tasks, EI and storytelling were all central to IF and could be considered by organizations when designing recruitment, selection, training, and development opportunities for employees. In addition, development is needed for managers and leaders to encourage openness, approachability, and risk-tolerance for a supportive culture of IF and innovation.

In designing work, this study aims to encourage HR practitioners and managers to allow for increased capacity for employees to "take time" for *reflection-in-action* and *reflection-on-action* in their jobs, both individually and in groups, which Goh (2019) confirms is associated with fostering lifelong learning and development. Further, it would be beneficial to implement reward strategies that appeal to employees of different generations and with different levels of experience (Acheampong, 2021; Kollmann, Stöckmann, Kensbock & Peschl, 2020) and include pay-for-performance incentives, incorporating social exchange attributes that encourage innovation behavior in knowledge workers (Tsai, 2018).

This study indicates that self-confidence impacts employees' propensity to act on their IF. Thus, it is important for managers to establish healthy supervisor relations and trust which impact positively on innovative behavior (Purba et al., 2016; Yuan & Woodman, 2010), and undertake training and awareness around empowerment and building employee confidence. HR practitioners and managers should work together to build a positive culture around IF and how the organization values and responds to employee IF outcomes. Strategies to encourage experienced organizational members to participate in mentoring programs can be built into performance management systems (Mazorodze & Buckley, 2020), which would facilitate the transfer of valuable knowledge to newer incumbents. HR practitioners, managers and/or owners of any business can benefit from the insights the IF framework provides and are ideally positioned to design and implement strategies to foster and encourage IF and innovative behavior in firms.

Limitations and future research agenda

IF, in the context of how it manifests in humans operating within organizations, is not easily identified, measured, and defined. In this study, IF was revealed through shared understanding of its meaning between researcher and participant. This research does not "measure" IF in organizations, nor does it measure how human memory systems facilitate foresight, as previous studies in psychology have endeavored to do (Atance & Sommerville, 2014; Martin-Ordas, Atance & Caza, 2014). Employees' foresight is dependent on their ability to recall past experience and knowledge and imagine future scenarios (Suddendorf & Corballis, 2007). Recent interest around how neuroscience might help organizations understand the role of memory systems in foresight-related activities (Conway, 2022) invites questions such as, what is the significance between time spent in a specific context and the ability to project successful future scenarios for work outcomes?

Organizations are interested in measuring performance outcomes of HR strategies or practices. The challenge of how to effectively measure long-term strategic HR practices and their influence on organizational outcomes has been debated in the literature (Fernandez & Gallardo-Gallardo, 2021) and remains a difficult endeavor for most HR practitioners. Measuring IF on organizational outcomes will be no different. Rather than targeting organizational performance, the outcomes of this study present a framework within which HR practitioners and researchers can position strategies related to the components of the IF model. These components could now be validated through future research endeavors (i.e., moving meanings to measurement).

This research could have explored the differences of IF in the two organizational contexts, and other individual differences (e.g., gender, age, education) across two industries. However, limitations around scope constrained the focus of the research to the sample taken. In addition, a limitation of the sampling method, which potentially stemmed from ethical considerations around protecting the identity of participants in their organizations, allowed participants to self-select for the study. Some participants confirmed their personal interest in foresight which could have limited the potential benefit of a more narrowly selected sample of participants in jobs identified as requiring foresight. Future research could investigate the different industry contexts within which a more nuanced understanding of the IF model could be developed. To an extent, the industries used in this research have provided beneficial dimensionality to the emerging IF model, but this research is not complete or exhaustive.

Finally, the findings from this paper have been drawn from a broader focus of research targeted at exploring the phenomenon of IF in organizations. While this broader focus facilitated welcome and unanticipated insights and synergies related to innovation and OL mechanisms in organizations, this study facilitates future qualitative and quantitative studies aimed at theory building and testing the role of IF in innovation and learning in firms.

Conclusion

In an increasingly complex and turbulent business world, firms are under pressure to perpetually innovate and maintain competitive advantage in their industries. Findings of this study, and development of the IF framework, provide a means with which researchers can test elements of IF in broader industries and organizational settings. IF mechanisms provide promising opportunities for HR practitioners, managers, and owners to revolutionize approaches to OL, embracing employee offerings of IF and innovative behavior that will bolster the dynamic capabilities of their firm for a sustainable future.

CRediT authorship contribution statement

Melissa L Innes: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

Attached as requested

References

Acheampong, N. A. A. (2021). Reward preferences of the youngest generation: Attracting, recruiting, and retaining generation z into public sector organizations. *Compensation & Benefits Review, 53*(2), 75–97. https://doi.org/10.1177/0886368720954803

Al-Zoubi, M. O., Masa'deh, R. E., & Twaissi, N. M. (2022). Exploring the relationship among structured-on-the job training, mentoring, job rotation, work environment factors and tacit knowledge transfer. *VINE Journal of Information and Knowledge Management Systems.* https://doi.org/10.1108/VJIKMS-06-2022-0199

Antunes, H.d. J. G., & Pinheiro, P. G. (2020). Linking knowledge management, organizational learning and memory. *Journal of Innovation & Knowledge, 5*(2), 140–149. https://doi.org/10.1016/j.jik.2019.04.002

Atance, C. M., & O'Neill, D. K. (2001). Episodic future thinking. *Trends in Cognitive Sciences, 5*(12), 533–539. https://doi.org/10.1016/S1364-6613(00)01804-0

Atance, C. M., & Sommerville, J. A. (2014). Assessing the role of memory in preschoolers' performance on episodic foresight tasks. *Memory (Hove, England), 22*(1), 118–128. https://doi.org/10.1080/09658211.2013.820324

Balarman, K. K., & Sundarraj, R. (2017). Individual foresight capability in organizations: Role of information acquisition [Paper presentation]. In *IEEE Technology & Engineering Management Conference (TEMSCON) 2017, Santa Clara, CA, USA* https://ieeexplore.ieee.org/document/7998396.

Ballance, B. C., Tuen, Y. J., Petrucci, A. S., Orwig, W., Safi, O. K., Madan, C. R., et al. (2022). Imagining emotional events benefits future-oriented decisions. *Quarterly Journal of Experimental Psychology, 75*(12), 2332–2348. https://doi.org/10.1177/17470218221086637

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–121. https://doi.org/10.1177/014920639101700108

Barney, J., & Felin, T. (2013). What are microfoundations? *Academy of Management Perspectives, 27*(2), 138–155. https://doi.org/10.5465/amp.2012.0107

Ben Hador, B. (2016). How intra-organizational social capital influences employee performance. *Journal of Management Development, 35*(9), 1119–1133. https://doi.org/10.1108/JMD-12-2015-0172

Bevan, M. T. (2014). A method of phenomenological interviewing. *Qualitative Health Research, 24*(1), 136–144. https://doi.org/10.1177/1049732313519710

Burrell, G., & Morgan, G. (1992). *Sociological Paradigms and Organisational Analysis: Elements of the Sociology of Corporate Life.* Ashgate Publishing Company.

Campbell, T. T., & Armstrong, S. J. (2013). A longitudinal study of individual and organizational learning. *The Learning Organization, 20*(3), 240–258. https://doi.org/10.1108/09696471311328479

Cavana, R. Y., Delahaye, B. L., & Sekaran, U. (2001). *Applied Business Research: Qualitative and Quantitative Methods.* John Wiley & Sons.

Chuang, M. Y., Chen, C. J., & Lin, M. J. J. (2016). The impact of social capital on competitive advantage: The mediating effects of collective learning and absorptive capacity. *Management Decision, 54*(6), 1443–1463. https://doi.org/10.1108/MD-11-2015-0485

Conway, M. (2022). Exploring the links between neuroscience and foresight. *Journal of Futures Studies, 26*(4), 23–32. https://doi.org/10.6531/JFS.202206_26(4).0003

Creswell, J. W. (2013). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches.* Sage Publications, Inc.

Dane, E., Rockmann, K. W., & Pratt, M. G. (2012). When should I trust my gut? Linking domain expertise to intuitive decision-making effectiveness. *Organizational Behavior and Human Decision Processes, 119*(2), 187–194. https://doi.org/10.1016/j.obhdp.2012.07.009

Darvishmotevali, M. (2019). Decentralization and innovative behavior: The moderating role of supervisor support. *International Journal of Organizational Leadership, 8,* 31–45. https://doi.org/10.33844/ijol.2019.60204

Denzin, N., & Lincoln, Y. S. (2005). The discipline and practice of qualitative research. In N. Denzin, & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd ed.). Sage Publications, Inc.

Du Plessis, M. (2007). The role of knowledge management in innovation. *Journal of Knowledge Management, 11*(4), 20–29. https://doi.org/10.1108/13673270710762684/full/html

Eatough, V., & Smith, J. A. (2008). Interpretive phenomenological analysis. In C. Willig, & W. Stainton-Rogers (Eds.), *The Sage Handbook of Qualitative Research in Psychology.* Sage Publications Ltd.

Eisenbart, B., Lovallo, D., Garbuio, M., Cristofaro, M., & Dong, A. (2023). Future thinking and managers' innovative behavior: An experimental study. *Journal of Knowledge Management, 27*(6), 1660–1679. https://doi.org/10.1108/JKM-02-2022-0102

Eisenhardt, K. M., & Santos, F. M. (2002). Knowledge-based view: A new theory of strategy? In A. Pettigrew, H. Thomas, & R. Whittington (Eds.), *Handbook of Strategy and Management.* Sage Publications Ltd.

Ellonen, R., Blomqvist, K., & Puumalainen, K. (2008). The role of trust in organizational innovativeness. *European Journal of Innovation Management, 11*(2), 160–181. https://doi.org/10.1108/14601060810869848

Farnese, M. L., Barbieri, B., Chirumbolo, A., & Patriotta, G. (2019). Managing knowledge in organizations: A Nonaka's seci model operationalization. *Frontiers in Psychology, 10,* 2730. https://doi.org/10.3389/fpsyg.2019.02730

Fernandez, V., & Gallardo-Gallardo, E. (2021). Tackling the HR digitalization challenge: Key factors and barriers to HR analytics adoption. *Competitiveness Review: An International Business Journal, 31*(1), 162–187. https://doi.org/10.1108/CR-12-2019-0163

Fergnani, A. (2022). Corporate foresight: A new frontier for strategy and management. *Academy of Management Perspectives, 36*(2), 820–844. https://doi.org/10.5465/amp.2018.0178

Finlay, L. (2012). Debating phenomenological methods. In N. Friesen, C. Henriksson, & T. Saevi (Eds.), *Hermeneutic phenomenology in Education* (pp. 15–37). Sense.

Ganguly, A., Talukdar, A., & Chatterjee, D. (2019). Evaluating the role of social capital, tacit knowledge sharing, knowledge quality and reciprocity in determining innovation capability of an organization. *Journal of Knowledge Management, 23*(6), 1105–1135. https://doi.org/10.1108/JKM-03-2018-0190

Goh, A. Y. S. (2019). Rethinking reflective practice in professional lifelong learning using learning metaphors. *Studies in Continuing Education, 41*(1), 1–16. https://doi.org/10.1080/0158037X.2018.1474867

Grant, R. M. (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal, 17*(S2), 109–122. https://doi.org/10.1002/smj.4250171110

Guba, E. G., & Lincoln, Y. S. (2005). Paradigmatic controversies, contradictions, and emerging confluences. In N. Denzin, & Y.& S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd ed.). Sage Publications, Inc.

Hamel, G. (1994). The concept of core competence. In G. Hamel, & A. Heene (Eds.), *Competence-Based Competition* (pp. 11–33). John Wiley & Sons.

Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of Management, 41*(5), 1281–1312. https://doi.org/10.1177/0149206314561301

Hodgkinson, G. P., & Clarke, I. (2007). Conceptual note: Exploring the cognitive significance of organizational strategizing—A dual-process framework and research agenda. *Human Relations, 60*(1), 243–255. https://doi.org/10.1177/0018726707075

Horton, A. (1999). A simple guide to successful foresight. *Foresight (Los Angeles, Calif.), 1*(1), 5–9. https://doi.org/10.1108/14636689910802052

Idrees, H., Xu, J., Haider, S. A., & Tehseen, S. (2023). A systematic review of knowledge management and new product development projects: Trends, issues, and challenges. *Journal of Innovation & Knowledge, 8*(2), Article 100350. https://doi.org/10.1016/j.jik.2023.100350

Innes, M. (2023). *Exploring the Lived Experience of Individual Foresight in Organisations.* University of the Sunshine Coast Research Repository. https://doi.org/10.25907/00774 [Doctoral dissertation, University of the Sunshine Coast].

Kamya, M. T., Ntayi, J. M., & Ahiauzu, A. (2011). Organizational learning and competitive advantage: Testing for the interacting influence of knowledge management and innovation. *International Journal of Innovation and Learning, 10*(4), 376–401. https://doi.org/10.1504/IJIL.2011.043097

Kim, S., Park, H., & Kim, B. (2021). Impacts of perceived value and trust on intention to continue use of individuals' cloud computing: The perception of value-based adoption model. *Journal of Digital Convergence, 19*(1), 77–88. https://doi.org/10.14400/JDC.2021.19.1.077

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2014). Perspectives on thinking, learning, and cognitive styles. In R.& J. Sternberg, & L. F. Zhang (Eds.), *Experiential Learning Theory: Previous Research and New Directions* (pp. 227–247). Routledge.

Kollmann, T., Stöckmann, C., Kensbock, J. M., & Peschl, A. (2020). What satisfies younger versus older employees, and why? An aging perspective on equity theory to explain interactive effects of employee age, monetary rewards, and task contributions on job satisfaction. *Human Resource Management, 59*(1), 101–115. https://doi.org/10.1002/hrm.21981

Lam, L., Nguyen, P., Le, N., & Tran, K. (2021). The relation among organizational culture, knowledge management, and innovation capability: Its implication for open innovation. *Journal of Open Innovation: Technology, Market, and Complexity, 7*(1), 66. https://doi.org/10.3390/joitmc7010066

Lei, H., Leaungkhamma, L., & Le, P. B. (2020). How transformational leadership facilitates innovation capability: The mediating role of employees' psychological capital. *Leadership & Organization Development Journal, 41*(4), 481–499.

Li, H., Sajjad, N., Wang, Q., Ali, A. M., Khaqan, Z., & Amina, S. (2019). Influence of transformational leadership on employees' innovative work behavior in sustainable organizations: Test of mediation and moderation processes. *Sustainability, 11*(6). https://doi.org/10.3390/su11061594. Article 1594.

Major, E., Asch, D., & Cordey-Hayes, M. (2001). Foresight as a core competence. *Futures, 33*(2), 91–107. https://doi.org/10.1016/S0016-3287(00)00057-4

Marinković, M., Al-Tabbaa, O., Khan, Z., & Wu, J. (2022). Corporate foresight: A systematic literature review and future research trajectories. *Journal of Business Research, 144,* 289–311. https://doi.org/10.1016/j.jbusres.2022.01.097

Martin-Ordas, G., Atance, C. M., & Caza, J. S. (2014). How do episodic and semantic memory contribute to episodic foresight in young children? *Frontiers in Psychology, 5.* https://doi.org/10.3389/fpsyg.2014.00732. Article 92089.

Mazorodze, A. H., & Buckley, S. (2020). A review of knowledge transfer tools in knowledge-intensive organizations. *South African Journal of Information Management, 22*(1), 1–6. https://doi.org/10.4102/sajim.v22i1.1135

Mehralian, G., Farzaneh, M., Yousefi, N., & Haloub, R. (2024). Driving new product development performance: Intellectual capital antecedents and the moderating role of innovation culture. *Journal of Innovation & Knowledge, 9*(3). https://doi.org/10.1016/j.jik.2024.100503. Article 100503.

Neuman, W. L. (1997). *Social Research Methods: Qualitative and Auantitative Approaches* (3rd ed.). Allyn and Bacon.

Neuman, W. L. (2007). *Basics of Social Research: Qualitative and Quantitative Approaches* (6th ed.). Pearson Education, Inc.

Neves, P., & Eisenberger, R. (2014). Perceived organizational support and risk taking. *Journal of Managerial Psychology, 29*(2), 187–205. https://doi.org/10.1108/JMP-07-2011-0021

Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science, 5*(1), 14–37. https://doi.org/10.1287/orsc.5.1.14

Obrenovic, B., Du, J., Godinić, D., & Tsoy, D. (2022). Personality trait of conscientiousness impact on tacit knowledge sharing: The mediating effect of eagerness and subjective norm. *Journal of Knowledge Management, 26*(5), 1124–1163. https://doi.org/10.1108/JKM-01-2021-0066

Pérez-Luño, A., Alegre, J., & Valle-Cabrera, R. (2019). The role of tacit knowledge in connecting knowledge exchange and combination with innovation. *Technology Analysis & Strategic Management, 31*(2), 186–198. https://doi.org/10.1080/09537325.2018.1492712

Phillips-Wren, G., & Adya, M. (2020). Decision making under stress: The role of information overload, time pressure, complexity, and uncertainty. *Journal of Decision Systems, 29*(1), 213–225. https://doi.org/10.1080/12460125.2020.1768680

Probst, T. M., Graso, M., Estrada, A. X., & Greer, S. (2013). Consideration of future safety consequences: A new predictor of employee safety. *Accident Analysis & Prevention, 55*, 124–134. https://doi.org/10.1016/j.aap.2013.02.023

Purba, D. E., Oostrom, J. K., Born, M. P., & Van Der Molen, H. T. (2016). The relationships between trust in supervisor, turnover intentions, and voluntary turnover. *Journal of Personnel Psychology, 15*(4), 174–183. https://doi.org/10.1027/1866-5888/a000165

Rehman, K., Poulova, P., Yasmin, F., Haider, S. A., & Jabeen, S. (2021). Empirical investigation of the impacts of knowledge management on organizational learning: A case study of higher education institutions. *Academy of Strategic Management Journal, 20*, 1–15.

Rennie, D. L. (2000). Grounded theory methodology as methodical hermeneutics: Reconciling realism and relativism. *Theory & Psychology, 10*(4), 481–502. https://doi.org/10.1177/095935430010400

Rezaei, A., Allameh, S. M., & Ansari, R. (2018). Impact of knowledge creation and organizational learning on organizational innovation: An empirical investigation. *International Journal of Business Innovation and Research, 16*(1), 117–133. https://doi.org/10.1504/IJBIR.2018.091087

Rohrbeck, R., Battistella, C., & Huizingh, E. (2015). Corporate foresight: An emerging field with a rich tradition. *Technological Forecasting and Social Change, 101*, 1–9. https://doi.org/10.1016/j.techfore.2015.11.002

Rohrbeck, R., & Schwarz, J. O. (2013). The value contribution of strategic foresight: Insights from an empirical study of large European companies. *Technological Forecasting and Social Change, 80*(8), 1593–1606. https://doi.org/10.1016/j.techfore.2013.01.004

Sadler-Smith, E. (2008). The role of intuition in collective learning and the development of shared meaning. *Advances in Developing Human Resources, 10*(4), 494–508. https://doi.org/10.1177/1523422308320065

Schon, D. A. (1991). *The Reflective Practitioner: How Professionals Think in Action* (New ed.). Arena.

Schwarz, J. O., Rohrbeck, R., & Wach, B. (2020). Corporate foresight as a microfoundation of dynamic capabilities. *Futures & Foresight Science, 2*(2), e28. https://doi.org/10.1002/ffo2.28

Scott, S. G., & Bruce, R. A. (1994). Determinants of innovative behavior: A path model of individual innovation in the workplace. *Academy of Management Journal, 37*(3), 580–607. https://doi.org/10.5465/256701

Singh, S. K., Gupta, S., Busso, D., & Kamboj, S. (2021). Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. *Journal of Business Research, 128*, 788–798. https://doi.org/10.1016/j.jbusres.2019.04.040

Slaughter, R. (1995). *The Foresight Principle: Cultural Recovery in the 21st Century.* Praeger Publishers.

Smith, J., Flowers, P., & Larkin, M. (2009). *Interpretative Phenomenological Analysis: Theory, Method and Research.* Sage.

Smith, J., & Osborn, M. (2004). Interpretative phenomenological analysis. In G. Breakwell (Ed.), *Doing Social Psychology Research* (pp. 229–254). The British Psychological Society and Blackwell Publishing Ltd.

Smith, J., & Shinebourne, P. (2012). *Interpretative Phenomenological Analysis.* American Psychological Association.

Suddendorf, T., & Corballis, M. (1997). Mental time travel and the evolution of the human mind. *Genetic, Social & General Psychology Monographs, 123*(2), 133.

Suddendorf, T., & Corballis, M. (2007). The evolution of foresight: What is mental time travel, and is it unique to humans? *Behavioral and Brain Sciences, 30*(03), 299–313. https://doi.org/10.1017/S0140525X07001975

Tapinos, E., & Pyper, N. (2018). Forward looking analysis: Investigating how individuals "do" foresight and make sense of the future. *Technological Forecasting and Social Change, 126*, 292–302. https://doi.org/10.1016/j.techfore.2017.04.025

Taura, T., & Nagai, Y. (2017). Creativity in innovation design: The roles of intuition, synthesis, and hypothesis. *International Journal of Design Creativity and Innovation, 5* (3–4), 131–148. https://doi.org/10.1080/21650349.2017.1313132

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533.

Tiberius, V., Schwarzer, H., & Roig-Dobón, S. (2021). Radical innovations: Between established knowledge and future research opportunities. *Journal of Innovation & Knowledge, 6*(3), 145–153. https://doi.org/10.1016/j.jik.2020.09.001

Tsai, S. (2018). Innovative behaviour of knowledge workers and social exchange attributes of financial incentive: Implications for knowledge management. *Journal of Knowledge Management, 22*(8), 1712–1735. https://doi.org/10.1108/JKM-07-2017-0293

Tulving, E. (1972). Episodic and semantic memory. *Organization of Memory, 1*, 381–403.

Tulving, E. (2001). Origin of autonoesis in episodic memory. In H. L . Roediger, III, J. S . Nairne, I. Neath, & A.& M. Surprenant (Eds.), *The Nature of Remembering: Essays in Honor of*.

van Manen, M. (1990). *Researching Lived Experience: Human Science for an Action Sensitive Pedagogy.* Routledge.

Voros, J. (2003). A generic foresight process framework. *Foresight (Los Angeles, Calif.), 5* (3), 10–21. https://doi.org/10.1108/14636680310698379

Weick, K. (2001). *Making Sense of the Organization.* Blackwell Publishers Ltd.

Wheeler, M. A., Stuss, D. T., & Tulving, E. (1997). Toward a theory of episodic memory: The frontal lobes and autonoetic consciousness. *Psychological Bulletin, 121*(3), 331. https://psycnet.apa.org/doi/10.1037/0033-2909.121.3.331.

Yuan, F., & Woodman, R. W. (2010). Innovative behavior in the workplace: The role of performance and image outcome expectations. *Academy of Management Journal, 53* (2), 323–342. https://doi.org/10.5465/amj.2010.49388995

Zhang, Y., Wang, J., Xue, Y., & Yang, J. (2018). Impact of environmental regulations on green technological innovative behavior: An empirical study in China. *Journal of Cleaner Production, 188*, 763–773. https://doi.org/10.1016/j.jclepro.2018.04.013

Zheng, S., Zhang, W., & Du, J. (2011). Knowledge-based dynamic capabilities and innovation in networked environments. *Journal of Knowledge Management, 15*(6), 1035–1051. https://doi.org/10.1108/13673271111179352

Zollo, M., & Winter, S. G. (2002). Deliberate learning and the evolution of dynamic capabilities. *Organization Science, 13*(3), 339–351. http://www.jstor.org/stable/3086025.