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AI-Based Digital Assistants in the Workplace: An Idiomatic Analysis

Stephen Jackson
Faculty of Business and IT
Ontario Tech University
Canada
stephen.jackson@ontariotechu.ca
ORCID iD: 0000-0001-6045-5371

Niki Panteli
Management School
Lancaster University
United Kingdom
n.panteli1@lancaster.ac.uk
ORCID iD: 0000-0003-0822-3842

Abstract:

Artificial Intelligence (AI)-based digital assistants are increasingly being adopted by organizations to support tasks. Nevertheless, our understanding of how organizational members perceive digital assistants still needs further investigation. Drawing on figurative language analysis involving in-depth interviews, we explore the idiomatic expressions that organizational participants drew on in their accounts of digital assistants. Our analysis reveals the value of idioms for understanding themes regarding how digital assistants are perceived in a workplace context. These themes depict both the opportunities and challenges, with the former encompassing the ability to focus on value-added activities, productivity, and efficiency gains, as well as reducing job monotony, and the latter including themes such as uncontrollability and unexpectedness, tracking and privacy, transparency, and trust. The study illustrates the usefulness of idiomatic expressions as a fresh lens to understand how people express their thoughts, views, and feelings, as well as uncover issues associated with digital assistants that are not well understood.

Keywords: Artificial Intelligence, Digital Assistants, Idioms, Figurative Language, Organizational Analysis, Qualitative Research

1 Introduction

Artificial Intelligence (AI)-based digital assistants, hereafter referred to as digital assistants, such as Alexa, Apple Siri, and Google Assistant, among other types of AI-enabled tools and services, are influencing many aspects of home and personal life (Gkinko & Elbanna, 2023; Guzman, 2019; Maedche et al., 2019; Mattke et al., 2022). Put broadly, digital assistants are application programs/devices designed to understand natural language voice commands and, like other types of AI, seek to learn, reason, make decisions, interact, and communicate (Davenport, 2018; Rai et al., 2019). Given their popularity, it is not surprising that digital assistants are increasingly adopted by organizations to support work-related tasks (Alshahrani et al., 2022; Chattaraman et al., 2019; Hradecky et al., 2022). According to a report by Business Wire (2022), the Global Intelligent Virtual Assistant Market was estimated at USD 6,781.17 million in 2021 and is anticipated to reach USD 30, 585.56 million by 2027.

With the continuous advancement of AI, and generative AI in particular, it is expected that digital assistants will continue to play an essential role in automating work tasks, roles, and processes. Maedche et al. (2019, p.535) note “it is foreseen that (AI-based) digital assistants will become a key element in the future of work”. Although digital assistants hold promise and can bring organizational benefits e.g., cost and time savings, alleviate administrative and mundane tasks, automate customer service functions, as well as improve business productivity (Hornung & Smolnik, 2022), their potential, as well as their implications, in the workplace are still unclear. Enholm et al. (2022, p.1709) comment “organizations are increasingly turning to AI in order to gain business value…nevertheless, organizations are still struggling to adopt and leverage AI in their operations…there is still a lack of holistic understanding of how AI is adopted and used in organizations, and what are the main value-generating mechanisms”. Given the increased uptake and anticipated growth of digital assistants in the workplace, we posit that it is essential to study organizational members' perceptions and experiences with digital assistants (Bhargava et al., 2021; Koon et al., 2020; Vimalkumar et al., 2021). This paper acknowledges the need for further studies in this area.

One useful, but not fully explored, method for understanding the cognitive, social, and affective aspects of introducing and managing technologies in the workplace (Dudézert et al., 2021; Hekkala et al., 2018) is figurative language analysis. While figurative language, particularly metaphor, has been increasingly used by information systems (IS) researchers, few attempts have been made to analyze and comprehend IS phenomena using an idiomatic lens and, more specifically, digital assistants in the workplace. In this article, we argue that the idiomatic expressions espoused by organizational members can play an important role in employee and managerial sensemaking practices (Ivanova & Torkkeli, 2013; Jackson & Panteli, 2023a).

The motivation for using an idiomatic analysis is as follows. Idiomatic analysis is particularly useful for gaining insights into employees’ views, feelings, and experiences with phenomena that have not been well studied or their implications are not fully understood. Since research remains to explore how organizations are adopting and using AI-based technologies, and more specifically digital assistants, an investigation of idioms may help illuminate the various ways through which individuals express their thoughts, feelings, and emotions towards these technologies. Idioms, as rich interpretative devices, can help to elucidate the often unnoticed and unfamiliar aspects that are ignored through more conventional approaches, offering the potential to provide new understandings, as well as decipher the intricacies and complexities surrounding workplace AI. Furthermore, although there has been considerable interest in frames as a theoretical lens to explore how individuals come to interpret events around them, the crucial role that language plays in worker sensemaking practices is limited (Whittle et al., 2023). A key motive of this research is to put language, and more specifically idioms, at the forefront. Guided by an inductive approach, we illustrate how different organizational participants draw on idioms in their perception of digital assistants in the workplace.

In summary, the broad research question of this study is:

> **RQ:** What are the idiomatic expressions elicited by participants in their accounts of digital assistants within the workplace?

By taking an inductive approach to analyze figurative language that seeks to unearth people's underlying figurative expressions, the findings reveal idiomatic expressions grouped by broad themes that participants drew on. This paper makes several contributions to the IS and organizational literature. First,

while figurative language analysis is an important line of IS inquiry (section 2.2. outlines some of the main ways through which figurative language has been utilized in IS research), few attempts have been made to analyze and apply idioms. This study advances the body of work examining IS figurative language by illustrating the value of idioms, advancing our knowledge conceptually, methodologically, and empirically.

Second, the study offers fresh theoretical insights by taking an applied linguistics approach to study frames and sensemaking practices. Our study illustrates the usefulness of idioms in shedding light on the role that language plays in shaping mental structures, and how organizational members come to make sense of IS and organizational phenomena through these structures.

Third, the study provides novel and fresh insights into how digital assistants are perceived and deployed within organizations and opens fresh lines of inquiry regarding the use of AI in the workplace context. Idiomatic expressions, for instance, help illustrate workers' experiences of digital assistants concerning perceived value, productivity, and efficiency, as well as insights and paradoxes relating to tracking, privacy, transparency, and trust. From a practical viewpoint, being attentive and understanding the types of idiomatic expressions that organizational members enact toward digital assistants may illustrate the likely obstacles and opportunities when deploying AI-based tools and systems in the workplace.

Fourth, the paper has the potential to connect with emerging discourse on future studies (see, for example, Niederman et al., 2024). More specifically, idiomatic analysis could be utilized as a forward-looking creative and conjectural method to understand the future applications and use of AI (including generative AI) and machine learning. Since idiomatic analysis, like other forms of figurative language, is useful for exploring individual sensemaking practices, it may be valuable for unearthing social, ethical and economic issues and consequences that individuals might encounter in their use of emerging technologies. Used as a rhetorical device, idioms can provide deeper insights and visual depictions, open new philosophical and methodological conversations, and build imagery that may provide stronger connections to future ideas (Ardern et al., 2019; Chiasson, et al., 2018; Hovorka & Peters, 2022)

In the sections that follow, we review the literature relating to workplace AI, as well as literature on figurative language. More specifically, to make sense of this literature and frame our current study, we distinguish between deductive and inductive approaches to figurative language analysis. Next, the research method is presented, followed by an analysis of the findings. After this, the findings are discussed, and implications and recommendations for future research directions are outlined.

2 Literature Review

2.1 AI in the Workplace

Rather than focusing on all areas in which AI has been applied and studied, in this section, we focus on AI from a workplace perspective (Borges et al., 2021; Lee et al., 2023). In recent years, many organizations have implemented, or plan to introduce AI technologies into their existing workplace practices (Lee et al., 2023). According to Haan (2023), based on a survey consisting of 600 business owners, AI has the potential to support many areas including customer engagement/relationship management, cybersecurity, accounting, supply chain, and human resource operations. While AI in organizations is not an entirely new phenomenon, Borges et al., (2021) attribute recent advances in AI, or more aptly a new wave of AI, to three key factors: (1) increases in the amount of data, (2) improvements and advancements in algorithms, and (3) advances in computational hardware and capabilities.

It is not surprising that due to the proliferation of workplace AI technologies, we are witnessing a resurgence of interest in AI among practitioners and researchers. This is evidenced by the growth in academic conferences, workshops, and journal papers dedicated to its study (Jackson & Panteli, 2023b). For instance, even entire special issues (e.g., Journal of the Association for Information Systems, Vol. 22, Iss. 2, 2021, MIS Quarterly Executive, Vol. 19, Iss. 4, 2020, to name a few) have been devoted to exploring AI in organizations. Also, to further understand the relationship between IS and AI, numerous systematic reviews have been conducted (e.g., Collins et al., 2021; Enholm et al., 2022).

Despite the increased attention, the concept of AI is not new, and its study can be traced back to the 1950s whereby John McCarthy, who is regarded as one of the founding fathers of AI, coined the term defining it as “the science and engineering of making intelligent machines” (Stanford University, 2020). It was during the Dartmouth Summer Research Project on AI in 1956, an event that brought together

leading experts in areas including information theory, computer science, and mathematics, that set the field of AI in motion (Duan, 2019; Lee et al., 2023). While the AI field has experienced peaks and troughs (also referred to as AI summers and AI winters, Siebel, 2019), the concept has been applied to many disciplinary areas including, for instance, computer science, linguistics, cognition, mathematics, psychology, neuroscience, and philosophy.

Given the interdisciplinary nature of AI research, finding an all-embracing definition of AI is difficult (Loureiro et al., 2021). Although it is not the aim of this section to provide a comprehensive list of all definitions, one common conceptualization is to view it as organizational intelligent machines that attempt to mimic human-like intelligence (Jackson & Panteli, 2023b; Makarius et al., 2020). Enholm et al. (2022, p.1712), for example, acknowledged that AI tries "to reproduce human cognition by emulating how humans learn and process information". Similarly, Lee et al. (2023, p.3) defined AI as "often used to describe machines (or computers) that mimic cognitive functions that humans associate with the human mind, such as learning and problem-solving". These functions may include learning, reasoning, complex decision-making, interaction, and communication (Anderson et al., 2018, Davenport, 2018; Rai et al., 2019).

Being mindful that AI technologies are progressively more intersecting, Benbya et al. (2021) categorized types of workplace AI by different business capabilities. These included (1) AI-enabled automation through the use of robotic process automation, robotics, rule-based systems, and machine learning; (2) AI-enabled insights and decisions through neural networks and machine learning algorithms; (3) AI-enabled innovation through some combination of computer vision, neural network, and machine learning; and (4) AI-enabled engagement with employees and customers using computer vision, machine learning, intelligent agents, and natural language processing chatbots.

As it would be unworkable to examine all these potential types of workplace AI, one important area which we examine in this paper, is the area of AI-enabled employee engagement using digital assistants (e.g., Gkinko & Elbanna, 2023; Hornung & Smolnik, 2022; Khaokaew et al., 2022; Maedche et al., 2019; Manseau, 2020; Marikyan et al., 2022). While predominantly used within a home environment, digital assistants are increasingly being implemented in the workplace. Maedche et al. (2019, p.535) note "it is foreseen that (AI-based) digital assistants will become a key element in the future of work". Digital assistants can be understood as application programs/devices that comprehend natural language voice commands and complete user tasks. Examples include voice-based assistants, such as Amazon Alexa, Google Assistant, and Apple Siri, as well as text-based assistants such as chatbots (Albayrak et al., 2018; Maedche et al., 2019; Pur et al., 2020). Some of their key functions include answering questions, checking schedules via voice commands, sending emails, ordering office supplies, booking travel, and assisting with conference calls.

On the one hand, there have been great expectations that digital assistants, like other forms of AI, will provide significant business opportunities. Studies (e.g., Khaokaew et al., 2022; Maedche et al., 2019) have acknowledged the potential of digital assistants to reduce mundane tasks, allowing workers to focus on what they perceive as more meaningful and demanding responsibilities. Others have acknowledged the benefits of digital assistants for improving efficiency and productivity (Ekandjo et al., 2021; Marikyan et al., 2022), supporting decision-making, enhancing customer services and engagement (Brill et al., 2022; Gao et al., 2023), as well as bringing transformational changes to organizational structure, communication, and culture (Ågerfalk, 2022; Mydyti & Kadriu, 2021). Although, at first the increased uptake of digital assistants by organizations may indicate widespread adoption, the extent to which firms are deriving benefits realization is still not clear and challenges exist (Link et al., 2020). While barriers to introducing AI in organizations can be technical, e.g., data quality and availability or poor IT infrastructure (Merhi & Harfouche, 2023; Sharma et al., 2022), challenges encountered can be organizational, behavioral, and affective.

In the wider literature, concerns about AI-related job losses have been raised (Rudolph et al., 2023). Security and privacy concerns are another reported challenge for implementing digital assistants in the workplace (Hornung & Smolnik, 2021; Lee et al., 2023; Maedche et al., 2019; Manseau, 2020; Marikyan et al., 2022). Given the growing potential for organizations and service providers to collect user data, there are fears associated with surveillance, concerns of being hacked, as well as personal information ending up in the wrong hands or used in an unethical manner (Bolton et al., 2021). On a related issue, concerns have also been raised about trust, particularly in building and nurturing initial user trust in virtual assistants (Perez-Garcia & Saffon-Lopez, 2018; Vimalkumar et al., 2021). Issues associated with employee resistance, lack of expertise, financial constraints, and negative emotions (e.g., anger, dissatisfaction,

frustration, fear, worry, and distress) have also been noted (Duan et al., 2019; Hornung & Smolnik, 2022; Lee et al., 2023; Maedche et al., 2019; Manseau, 2020; Marikyan et al., 2022).

2.1.1 Workplace AI Research Challenges

Given the possible benefits that digital assistants can bring, but also being mindful of their potential challenges, there is a need to understand further how this type of AI is being utilized within organizational settings. Ågerfalk (2022, p.423) notes "focusing primarily on AI use's positive outcomes means that practitioners and researchers incompletely understand reality…by [also] adopting a critical dark-side lens, researchers can problematize phenomena or examine aspects they might otherwise overlook".

Within AI research, various lens and theories have been adopted to explore AI implementation and use in organizations. Examples of theories have included dynamic capabilities theory, stakeholder theory, sociotechnical systems theory, and social contracts theory (Lee et al., 2023), to name a few. However, as a way of gaining research insights into understanding the potential impact of this wave of AI, the IS field would benefit enormously from integrating fresh theoretical lenses and empirical accounts to understand the implications of AI for organizations (Dwivedi et al., 2023). Lee et al. (2023, p.1) acknowledge "to understand how, why, and to what extent AI systems are being used and how they transform organizations, it is necessary to have a theoretical framework to systematically understand the use of AI-based systems and how they affect organizations".

Given the embedded nature of digital assistants in today's workplaces, as well as the influence they may exert on employees' daily practices, one important way of investigating AI-based use and possible impact is through the organizational members' perceptions, accounts, and experiences. Several researchers have already argued the need to examine sensemaking practices around digital assistants (Cranefield et al., 2023; Kudina, 2021). However, still much work remains in exploring and understanding organizational members' perceptions and experiences of digital assistants (Bhargava et al., 2021; Koon et al., 2020; Vimalkumar et al., 2021). One helpful way to understand workers' perceptions of AI-based technologies is figurative language (Jackson, 2016), a form of analysis that has so far received very little attention within IS research. In the next section, we explore further how figurative language has been studied and applied.

2.2 Figurative Language

The study of figurative language is eclectic, as exemplified by the diversity of types through which figurative language has been applied in organizational and IS research (Bürgi et al., 2005; Clarke & Holt, 2010; Cornelissen & Kafouros, 2008; Edelson, 2019; Jermier & Forbes, 2011; Schoeneborn et al., 2013). Types of figurative language that have been utilized to understand organizational-related phenomena, particularly digital technologies, include metaphor (Dudézert et al., 2021; Hekkala et al., 2018; Panteli & Marder, 2017; simile (Kottman & Buttenfield, 1994); hyperbole (Gross, 1995; Hannemyr, 2003; Oravec, 2019; Ramiller & Swanson, 2003); humor (Kendall & Webster, 1997; Krienke & Bansal, 2017); satire (Cranefield & Oliver, 2014; Cranefield et al., 2018); irony (Marcon & Gopal, 2008; Reyes & Rosso, 2014; Verjans, 2005); and sarcasm (Lunando & Purwarianti, 2013; Shrikhande et al., 2020).

Not only have IS researchers used different types of figurative language, but differences exist as to how figurative language has been analyzed. Given the size and variety of this literature, we make a distinction between deductive and inductive figurative language studies in this section. It is important to note that we do not claim that the distinction made can neatly capture all the various ways figurative language has or can be analyzed in IS research. A deductive approach is where the figurative language drawn on is not extracted naturally from the discourse activity of the subjects being studied. Instead, language that is used figuratively is derived from the researcher(s) in a top-down manner and used to either explain or alter the phenomenon of interest under investigation.

In terms of the former (explain), this is where figurative language is purposefully selected and utilized as a lens to explain the IS aspects of interest (Arnold, 2003; Chua & Wareham, 2008; Drummond & Hodgson, 2003; Walsham, 1993). Take, for example, metaphor—a common figurative language used in IS research. Many scholars (e.g., Jenkin & Chan, 2010; Muller et al., 2010; Walsham, 1993; Warren & Adman, 1999) have been influenced by the work of organizational theorist Gareth Morgan, particularly his eight metaphors (images of organizations). These metaphors include brains, cultures, psychic prisons, machines, organisms, political systems, instruments of domination, and flux and transformation. Although Morgan does not focus exclusively on IS, a common approach for researchers is to select one or a combination of metaphors and use them as an explanatory lens to depict the mechanisms of an

organization, particularly in demonstrating how IS is developed, used, or implemented. Walsham (1993), for instance, selected the metaphors of political systems and organizations as cultures as a way of "reading organizations" and provided a detailed understanding of issues about the development and deployment of IS strategy.

In the latter case (alter), non-literal language has been used to adjust existing organizational norms and practices. The view taken is that managers and practitioners can utilize figurative language to bring foreseeable changes (often positive, short-term) to existing IS and organizational practices (Lif et al., 2001; Madsen, 1988; Mathiassen & Napier, 2014). Mathiassen and Napier (2014) showed how at Telsoft, a small software firm, two "generative" images ("the win-win contracts" and "the learn, learn, learn") were purposefully used in workshops and project management areas to bring about desired changes and to incite creativity. Cranefield et al. (2018) illustrated how satire (often involving humor, ridicule, irony, or exaggeration to expose, criticize, and scorn) can be an important diagnostic and planning tool during project de-escalation. The use of satire provided the ability to critique power among project members and allowed vital project team members to reframe dominant beliefs and values, establish project commitment, and enable fresh thinking and creativity.

Rather than treating figurative language as a given, another approach (labeled as inductive) is identifying instances of non-literal language elicited by participants (Hekkala et al., 2018; Hirschheim & Newman, 1991). The attention shifts from a top-down focus—figurative language derived from the analyst to a bottom-up approach, which seeks to identify words or phrases expressed figuratively from the language of those individuals being studied (Hekkala et al., 2018; Jackson, 2016; Ramiller, 2001; Smolander et al., 2008). Figurative expressions that individuals draw on are not static; rather, they are actively produced and reproduced in conversational activity. Drawing on the tenets of linguistic contextual theory (e.g., Giora, 2003; Halliday & Hasan, 1989), utterances elicited by individuals are closely connected to the situational context through which they are used. Thus, the researcher aims to be mindful of how the background and social circumstances in which an individual finds oneself influence the utterances produced. Furthermore, while deductive approaches tend to consider figurative expressions relatively fixed in nature, inductive approaches are more sensitive to finding new variations of figurative language expressions.

Not only is the focus on identifying expressions elicited by individuals, but often with inductive approaches, the aim is to group related expressions, e.g., by similar areas (Hekkala et al., 2018; Hirschheim & Newman, 1991; Smolander et al., 2008). Rambe (2011), in examining the influence of Facebook on academic relations within a university context, found that students expressed political satire toward administrative practices. Given the department's mandatory obligation to open a Facebook account and join the Facebook group, students felt it was an invasion of personal privacy. Hirschheim and Newman (1991) showed how linguistic terms relating to three metaphors: IS development as a battle, organizations as fiefdoms, and man as a machine were evident in users' and developers' accounts of system development practices. In their examination of organizational metaphors, Hekkala et al. (2018) identified various types of metaphors (e.g., war and battle, games, exercise, nature, family, journey, building, illness and medication, bible and religion, zoo and animal, and food) that system developers and experts drew on in their depiction of project work.

2.2.1 Toward an Idiomatic Analysis

As can be seen from the previous discussion, the use of figurative language continues to be a pertinent area of inquiry within IS research, as illustrated by the various types and approaches. Notwithstanding the importance of deductive approaches, fewer IS figurative language studies have adopted an inductive method, and there have been increased calls to explore further the figurative language of those being studied (Jackson & Panteli, 2023a). Furthermore, few attempts have been made to analyze and comprehend IS phenomena using an idiomatic lens, specifically digital assistants in the workplace. This is not to say that the study of idioms does not deserve specific attention. Although the mastery of idioms is often associated with English language proficiency (DeCaro, 2009; Wu et al., 2021), the idiomatic expressions espoused by organizational members can also play an important role in employee and managerial sensemaking practices (Ivanova & Torkkeli, 2013; Jackson & Panteli, 2023a). In this article, we argue the need to give idioms the focus of attention that they deserve. Our position is supported by the view that the study of new business phenomena can benefit from the use of alternative lenses and genres (Alvesson et al., 2019).

Although it is not the aim of this paper to review all conceptualizations of what constitutes an idiom, one way of viewing it is as a phrase or a saying where its meaning, when the words are considered together, is different from the individual words that the saying or phrase consists of. McCarthy et al. (2010, p.72) acknowledged that an idiom "is more than the sum of the meanings of the individual words". Glucksberg and McGlone (2001, p.68) note "what sets idioms apart from most other fixed expressions is their 'nonlogical' nature, that is, the absence of any discernable relation between their linguistic meanings and their idiomatic meanings. Indeed, this characteristic of many (but not all) idioms motivates the usual definition of an idiom: a construction whose meaning cannot be derived from the meanings of its constituents". For instance, if we take the idiom "bite the bullet" there is a lack of a notable relationship between its linguistic and idiomatic meaning (to force oneself to do something despite being hostile). While the term may be associated with experiencing something unpleasant, it originates from war times when soldiers had to physically bite down on a bullet to distract themselves from pain due to a lack of time administering anesthesia to perform a surgical procedure. Other commonly used idioms in Western culture include hook, line, and sinker, once in a blue moon, spill the beans, or raining cats and dogs.

Drawing on these, it is our position that idioms are particularly useful when examining new phenomena such as digital assistants. Idioms, like other forms of figurative language, can offer essential understandings of how individuals, organizations, and societies think, feel, and behave. They reveal rich historical and contextual meanings into one's beliefs, customs, traditions, and cultural norms (Fahey, 2004). As such, from an analytical point of view, idioms can provide rich insights into the area of interest (Langlotz, 2006).

3 Theoretical Approach

For this study, we build on the theoretical concept of frames (Amagyei et al., 2023) to support the study. Put broadly, the concept of frames seeks to comprehend individuals' sensemaking practices, whereby the aim is to understand the cognitive processes through which organizational members come to grasp and appreciate events around them. Frames can be deeply embedded, underlying, and exist in people's minds and are often not reflected on by members. While frames are commonly enacted at the individual level, they can aggregate, for instance, at the group level i.e. interest groups, departments, or organizational committees (Davidson, 2002; Walsh & Fahey, 1986). In the wider literature, variations of frame thinking have been referred to as knowledge structures (Walsh, 1995); frames of reference (Deshpande, 1986; March & Simon, 1958); cognitive templates (El Sawy & Pauchant, 1988); cognitive frameworks (Cowan, 1986); cognitive maps (Weick & Bougon, 1986); cognitive perception (Stevenson, 1976); and interpretative schemes (Bartunek, 1984; Greenwood & Hinings, 1988; Ranson et al, 1980).

Within the IS literature, numerous studies have applied the concept of frames (e.g., Amagyei et al., 2023; Davidson, 2002; Gal & Berente, 2008; Lin & Silva, 2005; Orlikowski & Gash, 1994). Orlikowski and Gash (1994), in making sense of IT in organizations, referred to a technological frame as "that subset of members' organizational frames that concern the assumptions, expectations, and knowledge they use to understand technology in organizations. This includes not only the nature and role of the technology itself, but the specific conditions, applications, and consequences of that technology in particular contexts" (Orlikowski & Gash, 1994 p.178).

Reviewing the literature on technological frames, Amagyei et al. (2023) identified various frame types. These included instrumental frames (whereby individuals perceive technology as a mechanism for accomplishing a particular goal or task); social frames (focus on how individuals perceive technology to influence social and interpersonal relationships); cultural frames (how technology can sway individual norms, values, and beliefs); economic frames (focus is on the way technology as a financial asset enables individual constructs around innovation, jobs, and economic activity); political frames (lens through which people see issues concerning censorship, surveillance, and control of technology resources); ethical frames (concern is with moral issues relating to technology); and dogmatic frames (focus on the unyielding and inflexible way that individuals interpret technology).

Frames not only serve as a medium through which individuals come to comprehend and explain the world around them, but can also place constraints on how individuals will behave, and the actions taken. This subsequent behaviour and actions can influence how technology is developed, deployed, and used within organizations (Lin & Silva, 2005; Orlikowski & Gash, 1994). Through frames, individuals can reveal a conducive environment of IT use and adoption, for instance, how the deployment of technology can foster improvements in efficiency and productivity, enhanced collaboration, and new ways of learning and

problem-solving (Orlikowski, 2000). However, they can also reveal a non-conducive environment whereby organizational members respond to new technology in dysfunctional ways, endorsing values of resistance and cynicism which can limit and restrict its use (Davidson, 2006; Lin & Cornford, 2000).

Although individuals construct meaning through frames, researchers (Barley, 1986; Giddens, 1984) have highlighted that they do not construct meaning freely, but do so within structured perceptions of thought. In other words, rather than frames becoming everything and anything, they are bounded by certain structural constraints that can influence how individuals perceive events, as well as provide coordination and direction. This is not to say that frames are fixed, rather they are best considered emergent, and situated within their context of use (Ciborra & Lanzara, 1994).

Regardless of the popularity of frames as a theoretical lens within the organizational and IS literature, the role that idiomatic language plays in organizational sensemaking practices remains to be explored further. While much research has illustrated the importance of cognitive linguistic perspectives in understanding sensemaking, a common approach is to use metaphor (e.g. Jackson and Panteli, 2023a), particularly how metaphors can influence mental models and understand sensemaking by making cognitive connections between conceptual domains. In reviewing cognitive linguistic perspectives in studying frames, Whittle et al. (2023, p.1817) acknowledge “this body of work provides insights into the more cognitive aspects of sensemaking, specifically the way individuals interpret and organize what they see, hear, and experience. However, there are also issues and areas that warrant more attention. For instance, while a great deal is known about metaphors, the role of other tropes remains only partly understood”. One important, but often neglected, area in the study of frames is idioms. It is our position that an investigation of idiomatic expressions can provide important insights into individual sensemaking practices around the use and deployment of digital assistants in the workplace.

4 Research Method

As the study of idiomatic expressions in the context of digital assistants is an emerging area of research, the approach taken was largely exploratory. No propositions or models were devised as part of this exploratory work. Against this backdrop, and with our focus on understanding the lived experiences of organizational members in using digital assistants and in particular the idiomatic expressions used by participants in their language, we adopted the qualitative interpretive perspective (Klein & Myers, 1999; Walsham, 2006). Interpretivism was well suited for this study as it provided an opportunity to obtain the first-hand experiences of participants, and the different idiomatic expressions and sensemaking practices through which organizational members came to comprehend digital assistants. Using the theoretical lens of frames, we were particularly interested in hearing the opinions and views of participants with experience of using, developing, managing, or implementing digital assistants in the workplace. Given that the study of frames places a strong emphasis on the individuals’ subjective view of the world, and the use of a theoretical lens to guide the research is supported within the interpretative literature (Walsham, 1996), makes it appropriate for our investigation.

Twenty-six in-depth semi-structured qualitative interviews from various North American organizations were used for the study. Interviews were conducted in English during November 2022. Participants from across industries and sectors were chosen using purposeful sampling (Patton, 2002) and involved selecting full-time participants who used digital assistants, e.g., Apple Siri, Google Assistant, Amazon Alexa for Business, and Chatbots, in their workplace. As idioms may be limited to more advanced English speakers, all selected participants were native English speakers. Semi-structured interviews as a research strategy were instrumental in examining individuals' subjective meanings attached to digital assistants and are well suited for examining the inductive nature of figurative language (Jackson, 2016). Table 1 provides a breakdown of the participants who took part in the study.

Table 1. Interviewee breakdown

Interviewee	Occupation	Age	Company size (employees)	Gender	Industry	Interview Duration (Minutes)	Type of Digital Assistant				
							Amazon Alexa (Business)	Apple Siri	Google Assistant	Text-based assistants (chatbots)	Other
1	Administrative Lead	44	1001-5000	F	Civic & Social Organization	53.45		✓	✓	✓	
2	Vice President	43	10,001+	M	Healthcare	47.51	✓	✓			
3	Area Director	35	51-200	M	Management Consulting	46.09	✓	✓	✓		
4	Vice President	38	1-10	F	Financial Services	57.05	✓		✓	✓	
5	Customer Success Manager	28	201-1000	M	Computer Software	55.59				✓	
6	Team Supervisor	32	201-1000	M	Banking	53.07				✓	
7	Customer Success Account Manager	33	11-50	M	Information Technology & Services	51.34		✓	✓	✓	✓
8	Director of Operations	38	10,001+	F	Real Estate	56.47	✓		✓	✓	
9	Customer Success Manager	29	51-200	M	Information Technology & Services	41.53					✓
10	Customer Service Associate	51	10,001+	F	Consumer Services	54.05			✓	✓	
11	Accountant/ Bookkeeper	30	11-50	F	Legal Services	56.01					✓
12	Office Administrator	62	1001-5000	F	Executive Office	59.09			✓		
13	Consultant/ Founder	29	11-50	F	Marketing & Advertising	49.33			✓		
14	Customer Service Associate	38	1-10	M	Graphic Design	45.12		✓	✓		
15	Director of Business Development	52	1-10	M	Online Media	55.15	✓			✓	
16	Administrative Assistant	35	51-200	F	Real Estate	54.31			✓		
17	Interventional Radiologist	29	1001-5000	M	Healthcare	52.5		✓		✓	
18	Technical Account Manager	29	11-50	M	Computer Software	27.0	✓			✓	
19	Customer Success Advisor	25	1001-5000	F	Computer Software	57.24		✓			
20	Research Technologist	33	1-10	F	Management Consulting	47.32	✓	✓			
21	General Manager	36	51-200	M	Facilities Services	56.38			✓	✓	
22	Biller	39	51-200	F	Financial Services	52.52		✓	✓		
23	Operations Manager	26	11-50	F	Financial Services	51.57			✓		
24	Founder	45	1-10	M	Internet	57.23				✓	
25	Data Scientist	38	201-1000	M	Information Technology & Services	51.05	✓	✓	✓	✓	✓
26	Software Engineer	39	201-1000	M	Information Technology & Services	54.31			✓	✓	

For each interview, participants were asked to discuss their experiences with digital assistants and the implications that digital assistants had on their job and organization. In line with the inductive approach, we did not attempt to impose any specific type of idiomatic expressions during the interview, and the participants were unaware that an analysis of idioms or other forms of figurative language was part of the investigation.

4.1 Data Analysis

Interviews were transcribed and analyzed using interpretative content analysis (Drisko & Maschi, 2015). While a content analysis approach is adopted, it is important to acknowledge that the aim was not to merely undertake frequency counts of idiomatic expressions used by participants. Based on the language used by workers in their discussions, idioms were used in an interpretative sense to make contextual inferences about the feelings, thoughts, and intentions of workplace AI. The aim was to explore latent meaning and the context which they were used and communicated. Furthermore, as it is common for interpretative studies to analyze expressive language, an interpretive content analysis approach is viable for our study (Bhattacherjee, 2012).

The two authors, both skilled in qualitative research, read through the interview transcripts to immerse themselves in the data. The first author, experienced in figurative language analysis, took the central role of identifying idiomatic expressions by examining the words spoken by organizational members. Graber (1976) states, “words spoken by organizational participants are important in shaping and sharing organizational reality and as such merit our attention”. For the analysis, idioms consisted of two or more words and were understood as “linguistic expressions whose overall meaning cannot be predicted from the meanings of the constituent parts” (Kovecses & Szabo, 1996, p.326).

During the coding process, to maintain the authenticity of the data, the exact phrases and words of the participants were used. Expressions labeled as idiomatic were manually cross-checked against various reputable sources to ensure authentication. This included the Oxford Dictionary of Idioms and several reputable online idiom language sources e.g., Cambridge Dictionary, The Free Dictionary, Longman Dictionary, and Collins Dictionary. For instance, this involved extracting the proposed idiom from the interview transcripts and manually checking or searching against the sources.

However, ambiguity can exist in human understanding (Mathiassen et al., 2023; McKinney & Shaffer,2023). Finding an exact match between the idiom found and the various sources used was not always permissible due to the variable nature of idioms and, in some cases, relied on the subjective interpretations of the researchers. As noted by Jackson (2021), the identification of figurative expressions it is not always a clear-cut, straightforward process, and a certain degree of subjective caution (principled flexibility) must be taken to identify figuratively used terms and phrases. Researchers need to be mindful of the context and the flexible nature of idioms in that they may vary. Similarly, Glucksberg and McGlone (2001, p.70) note “the principles that govern the ways in which idioms can be varied lexically or syntactically have yet to be formalized”. Considering variant forms of idioms, six key steps, as outlined exactly by Glucksberg and McGlone (2001, p.77), were followed:

1. Recognize the idiom as a variant of a conventional idiom.
2. Retrieve the meaning of the original idiom.
3. Identify the constituent meanings of both the variant and the original idioms.
4. Compare the constituent meanings of the two idiom forms.
5. Identify the relation(s) between those meanings (e.g., verb tense, quantification, negation).
6. On the basis of this relation, infer the relation between the meanings of the original and variant idioms.

Take, for example, the idiomatic expression “the train has left the building” used by interviewee 24. The specific idiom can be recognized as a variant of the conventional idiom “the train has left the station”, as a passive participle construction (step 1). The active voice equivalent is SUBJECT + “missed the boat/bus”

and “that ship has sailed.” In terms of its original meaning, while locating a reputable study on the etymology of these phrases is not without its challenges, to conjecture, “missed the boat” might be the logical first usage (step 2).

In terms of the constituent meaning of the original idioms, once boats, as a transitional mode of transport, began their voyage, they cannot easily change direction as they were carried by the wind, and returning to the port would be sailing back into the wind (Ebstein, 2023). In its variant forms, as modes of transportation developed, “train” and “bus” are introduced into this idiomatic concept as an etymological extension of an earlier “that ship has sailed”. “Left the station” or “left the building” would logically then be later additions, if we take “that ship has sailed” as the original (step 3).

The meanings of “the train has left the building” and “that ship has sailed” or SUBJECT + “missed the boat” are identical, meaning an opportunity has been lost (step 4). In terms of step 5, the idiomatic concept appears as surface linguistic forms, either in the passive using “has left/has sailed” or the active voice “we missed”. In terms of quantification, it only occurs in the singular, e.g. the idiomatically infelicitous “those ships have sailed” or “we missed the buses” or “those trains have left the building”. All of these are understood literally. Moreover, the speaker who utters one of these variants would be a passenger on one of these modes of passenger transport, and thus “missed the bike” or “missed the car” are infelicitous. Over time, while the mode of transport differs, all these idioms have become widely used to mean the same thing “an opportunity was missed”, implying that something is already underway, and cannot be undone (step 6).

After completing the coding process, idiomatic expressions were transferred to a spreadsheet. Other key information that was recorded for each idiom included interviewee number, line number, topic domain, and intonation unit (words positioned to either side of the idiomatic expression to maintain the contextual meaning). Other information considered important was also noted for each idiom, including, for instance, meaning, source, and other situational factors. Further coding involved scrutinizing the idioms to find potential patterns, i.e., by grouping expressions that belong to the same domain. Appropriate labels were then assigned to best describe the topic domain. In line with the interpretative tradition, a hermeneutic approach was adopted to identify patterns in the data. To understand participants’ sensemaking practices, we considered their experience as a whole. That is, this involved examining the idiomatic expressions relating to the sentence as a whole, but also considering the term within its whole and wider situational context. The check for intra-rater reliability involved the recruitment of an analyst, skilled in linguistics and figurative analysis, to examine each idiomatic expression and confirm that each was used in a non-literal (idiomatic) sense.

5 Findings

Analysis of our data illustrates several key idiomatic themes linked to how digital assistants are perceived in the workplace. Emerging themes show both opportunities and challenges associated with digital assistants. The former comprises themes such as the ability to focus on value-added activities, productivity, and efficiency gains, as well as reducing job monotony; the latter includes themes including uncontrollability and unexpectedness, tracking and privacy, and transparency and trust. We present these below using evidence from the findings. For this study, we do not center on all expressions deemed as being used idiomatically but focus on several key themes regarding how digital assistants are perceived in a workplace context. The selective expressions, which we considered as being used idiomatically, are underlined in the quotes.

5.1 Benefits and Opportunities

Our study participants used idiomatic expressions when talking about the benefits they experience as well as the opportunities they see with the use of digital assistants. Benefits and opportunities have been identified in terms of improving productivity, reducing monotonous work, and increasing focus on value-added and creative tasks.

5.1.1 Increased Productivity

Idiomatic expressions were used to illustrate the rapid speed and pace at which digital assistants could perform their role. Using the idiom “spit something out,” one participant shared how utilizing digital assistants, generative AI, and intelligent marketing tools enabled tasks associated with marketing and

advertising to be performed more quickly. A digital assistant was not only beneficial for organizing meetings, planning, but also for generating social media content and conversations.

> *AI for us as marketers has been working fantastic for the last couple of months because we're able to just spit things out super quickly. The AI tools are helping us create content. (Interviewee 13)*

For many, there was the expectation that digital assistants would play an interactive and vital role in achieving and completing day-to-day tasks. These tasks included reminding workers about upcoming deadlines, events, and meetings, offering support and guidance, and catching spelling and grammatical errors. Acknowledging the support role that digital assistants afford, one respondent illustrated the enabling role of digital assistants in preventing important work events and tasks from falling through the cracks, i.e., not to be dealt with or noticed. Working in a busy real estate environment, digital assistants were not only used for communicating with other agents and consumers, but also supported reminders, goal setting, and calendaring.

> [Referring to digital assistants] *For us, it's really to make it more personal…that way nothing falls through the cracks with the transaction side, with the client relation side, and with the team side. For us, it's just accessibility and understanding that we all make mistakes or remind us that something didn't get done that needed to get done. (Interviewee 8)*

5.1.2 Reducing Job Monotony

A theme surfaced around the benefits and expectations associated with digital assistants. One interventional radiologist, drawing on a derivative of the idiom take out of the equation (often perceived as eliminating something unnecessary), shared how in the case of reading scans, AI not only enhanced productivity by reducing the need for human assistance, thus permitting more scans to be analyzed, but also decreased tasks which were perceived as monotonous. Digital assistants were used to pull up patient scans, make recordings, and to communicate with other workers.

> *Measuring a mass takes a lot of time, it takes around a minute and a half to two minutes. In the radiology world, that's quite a bit of time. That the AI can do that in a couple of seconds, it honestly makes a radiologist's job a lot easier, and they end up reading more scans in this similar amount of time, by taking those monotonous work out of the equation. (Interviewee 17)*

5.1.3 Increased Focus on Value Added Tasks

Digital assistants, in many cases, also allowed the freeing up of workers' time to concentrate on tasks perceived as value-added, engaging, and aligned to their specific role. For instance, one customer success advisor used the idiomatic expression "do the heavy lifting." Heavy lifting refers to work that does not require much cognitive deliberation. In this study, using digital assistants cut out many administrative aspects of the job, allowing more focus on role-specific tasks. Working as a customer success advisor which involved the need to multitask, the use of a digital assistant often freed up time to work on tasks perceived as being more specific and valuable.

> *It was helpful when trying to book meetings with other executives, finding a time, instead of having to compare calendars and do all of the heavy lifting, if you will. The AI could do it…to cut out a lot of the administrative aspects and focus more on role-specific tasks. (Interviewee 19)*

While digital assistants can improve workplace effectiveness, a common sentiment was that this technology would only partially automate some business tasks. One customer success manager shared that, at this stage, expectations surrounding digital assistants, and AI in general, should not be set unrealistically high ("be-all and end-all") in terms of replacing human communication/connection. In his view, digital assistants should supplement workers in their actions and recommendations, stressing the importance of the human touch. Since he had only recently started to use an assistant in a workplace context, and did feel that it offered enhanced value in terms of recommendations, it should be used as a complement, rather than a replacement.

> *I think looking at AI, I like it being more of a recommendation approach rather than the end-all-be-all for how I communicate with clients. (Interviewee 9)*

5.2 Challenges

Further to the above opportunities, participants also used idiomatic expressions to identify concerns about the use of digital assistants. These were in relation to the dominance of digital assistants in the workplace, concerns about privacy, transparency, and trust.

5.2.1 Uncontrollability

Idiomatic expressions were used to illustrate the perceived uncontrollability associated with digital assistants, particularly their algorithmic and deep learning abilities. Given the capacity of algorithms to be in control and make their own decisions without human input, concerns were expressed. One interviewee in his discussion of the workings of algorithms, compared this issue to an out-of-control train that had "left the building" (or more often referred to as station rather than building) due to loss of operator (human) control.

> *The concern for me is that the train has left the building, and there doesn't seem to be any way to truly control this. (Interviewee 24)*

For some, there was also unease regarding the direction that digital assistants and other types of AI technologies were advancing in organizations. Lack of understandability and explainability regarding how the algorithms surrounding digital assistants worked in practice also brought a sense of uncontrollability.

A further related theme that surfaced was the unexpected nature of digital assistants. Participants shared stories of the unanticipated actions encountered when using digital assistants and the problems this created. One Biller, in discussing some of the issues encountered when setting appointments and the use of voice-activation, commented:

> *I use Siri, and sometimes just out of the blue, like my cell phone, if I'm talking, Siri would just pop up, but I didn't call Siri [laughs] or I didn't hear that or, "Did you want me to call this person?" I'm like, "No, please don't call anyone I don't want to talk to … [this person]" (Interviewee 22)*

A common subject that emerged from the findings was reluctance to use digital assistants for tasks that were deemed more significant, e.g., to communicate with senior members, to send out client-wide communications, or perform a task that carried greater financial risk if performed incorrectly. Consequently, some felt that they could not fully rely on the actions and judgments of digital assistants, as they did not always conform to expected behavior.

Asking voice-enabled digital assistants to perform specific commands and complete certain tasks brought with it added challenges, particularly when attempting to perform non-standard requests. These challenges were further exacerbated by speech recognition attempting to capture voice commands against background noise, the difficulties associated with different accents in a workplace setting, and struggles for some work colleagues to interpret information and instructions due to English not being their first language.

One Customer Success Advisor shared how, despite work colleagues having a good command of English, attempting to integrate and use digital assistants within a multilinguistic setting proved challenging. In her workplace, digital assistants were largely used to book meetings, communications, ordering supplies, and making reservations.

> *Siri will read it in a way that makes sense to me as a native English speaker, but might not make sense to somebody who does not speak English as her native language. The way that she (Siri) speaks, and when you're learning a second language, if a word sounds remotely different, I feel like it's harder to-- maybe you grasp it, but maybe you don't. It gets lost in translation at times. Also, sometimes it's read too fast almost as well. Again, I've run into this problem with some of my coworkers in Argentina who speak Spanish as a first language. They are using Siri and they want to be up to date on the current products that we're using in our business, but then they'll have to ask Siri to repeat the message multiple times to understand fully and their English is really good. They have working, functional, business English, and they still have to listen to a message in English multiple times. (Interviewee 19)*

5.2.2 Privacy and Tracking

When using digital assistants, a common issue to surface was around privacy. As digital assistants have the potential to access a range of personal data, e.g., addresses, names, financial and medical information, social security numbers, or other information deemed sensitive, concerns were raised in relation to how this information was being kept private, stored, used, and who had access to it.

From the organization's perspective, unease relating to the accidental loss of data, risk of a data breach, or personal data being accessed and shared with employees who do not need it were potential areas of apprehension about digital assistants.

Working within the financial service industry which deals with a lot of sensitive data, one Operational Manager was reluctant to give or expose too much information in case it got into the “wrong hands”. From their perspective, a data breach could be devastating not only for their own organization, but the clients and business which they work with.

> *How far can this go? … if it gets into the wrong hands…all of this information is very confidential, and it could potentially ruin someone's business. (Interviewee 23)*

Privacy-related concerns were also raised from the service provider's perspective. While some felt that the data being used by the service provider was to help improve the overall service and realize that digital assistants required vast amounts of data to discover trends and insights, hesitations existed as to other motives for collecting, storing, and processing data. One Vice President drew on the idiomatic expression of not to “hold my cards up,” whereby disclosing too much information would be perceived as risky as it may give the service provider (in this case, a potential competitor) a stronger position or significant advantage. Instead, it is best to “know your cards” by approaching strategy in a well-planned and intelligent way. A closer examination of the context surrounding this quote was concern that the vendor in question was preparing to enter the healthcare space. From their perspective, being a potential competitor in the future, could have consequences for disclosing confidential information.

> *If you are Amazon, and I am, whether it's two years, three years, or five years from now, going to be a direct competitor with you, the last thing in the entire world I'm going to do is hold my cards up and say, "Here's my pricing, these are my customers, these are my logistics bay, this is where I've failed before." That's the hardest thing in the world. It's not about Amazon listening to me talking about Democrats versus Republicans, none of that. It's if we shared contracting information with you, if we shared, "This is how we get containerships from China to North Carolina… we have two and a half main competitors. I know for a fact our pricing is better, but if you only have three people playing and you know your cards … all the rest are divided amongst the two other people." (Interviewee 2)*

Subsequently, participants felt it important for proactive measures to be taken by companies and service providers to safeguard the privacy of sensitive data. A related matter was the potential misuse of digital assistants for tracking and monitoring purposes. Apprehensions were raised over the potential for employers to actively monitor conversations due to the introduction of digital assistants and other forms of AI technologies.

An Office Administrator shared how digital assistants, and other forms of AI technologies, have the capability, in a negative sense, to foster more hierarchical control and surveillance, urging managers to exercise less control (“let go of the reins”). There was concern that digital assistants could be used to monitor work and productivity, and there was the need for the worker to assert control over these technologies.

> *I do feel that a lot of these technologies are being utilized to oversee...I feel like let go of the reins on us. You gave us a job; we've been doing it. The fact that you want it basically, you're not only just seeing what's going on in our screens but now you're recording our conversations between each other, how I'm training someone or the advice I'm giving someone...I do have concerns that it could be used in a derogatory way. (Interviewee 12)*

The deployment of digital assistants and other technologies from the workplace to the home, often due to the COVID-19 work-from-home policies, for some, invaded their physical and private spaces, blurring the lines between the home and work context. One respondent was so strongly against the use of AI in his

home environment that he drew on the idiomatic expression “hill to die on,” i.e., wholeheartedly felt this wrong.

> *As far as having AI and having one unit in your home office because that's what your employer wants …. that would have been like a hill to die on right there. That's exactly how I felt. No, absolutely not. (Interviewee 25)*

As digital assistants become more advanced and embedded in home and work life, concerns were also expressed in terms of the increased tracking and analytical capabilities of service providers. Some of the key issues shared by participants included the ability of service providers to track movements, monitor conversations, collect data that is deemed personal, and make advanced predictions regarding consumer preferences, emotions, and behaviors. For one Director, there was the feeling that the personal privacy experienced in the past would be difficult, if not impossible, to restore. Being mindful of the possibility of being targeted by ads based on his voice interactions and web activity, the ability to scale back on or opt completely out of ads would be difficult to restore.

> *I sometimes assume that my echo device is listening to my conversation, for the sake of sending me advertisements. I know I'm essentially being tracked everywhere, for my purchases. I feel like the horse is already out of the barn. (Interviewee 15)*

The use of technology had become so prevalent in the home, workplace, and society that data harvesting was perceived as a normal, everyday practice. One Operations Manager shared how, despite knowing that data collection should not always be happening or what their data was being collected for, she was prepared to ignore this, as it meant valuing convenience over privacy.

> *Everyone is so reliant on all of these products, all of these tools, all of these (AI) applications, so to not use them to overcome it is not really an option anymore. I think we all just turn a blind eye (Interviewee 23).*

5.2.3 Transparency and Trust

A further theme that surfaced was transparency and trust. A common sentiment expressed was the need for greater transparency, particularly in relation to the algorithms behind digital assistants. There was the desire for service providers and organizations to be more transparent about what and how data is being stored and the need for greater clarity and explanation as to why the digital assistant recommends a particular course of action. Interestingly, one participant draws on the expression “Pandora’s Box”:

> *It's like (opening) Pandora's Box[1]. You never know what you're getting with it. (Interviewee 20)*

Often the idiom of opening Pandora’s box is interpreted as bringing unforeseen complications or troubles. In the case of the Research Technologist, she acknowledges that caution should be taken against openly, or perhaps recklessly, accepting AI-based technologies in the workplace. Instead, experience, knowledge, and time are required to see how AI will evolve, determine the implications, and consider how best to manage it.

A related issue that surfaced was trust, or more amply blind trust. Blind trust refers to the digital assistant making choices on behalf of the user without the user acquiring knowledge and understanding of how the decision is made (the so-called black-box problem). Consequently, this gave rise to issues around explainability, biases, complexity, accountability, and uncertainty. For these reasons, some participants were wary of assigning complete trust to digital assistants.

One Area Director shared how their trust in AI-based technologies was curtailed due to the potential (unknown) problems they will face in the future. In the case of digital assistants in general, the unknown of where personal data goes, how it will be used in the long term and whom it will be potentially disclosed with may cause problems later in time.

[1] Pandora’s box comes from ancient Greek mythology. Zeus, who was the kings of gods, bestowed Pandora, the first mortal woman created, with a special box instructing her never to open it. However, curiosity led to Pandora opening the box, prompting the release of curses upon humankind.

> *My thing was, am I wrong in trusting this new technology? It's like, is this going to come back to bite me or not? (Interviewee 3)*

Not only was it important to nurture transparency from the technology perspective, but participants emphasized the need for organizational managers and leaders to foster an enabling environment in the deployment and use of digital assistants and AI-based systems. This included clear lines of communication, management support in promoting the AI change vision, encouraging user buy-in, and full resource support and backing.

One Customer Success Manager in the case of implementing text-based assistants illustrated the importance of building trust through transparency. Drawing on the idiomatic expression "snowball effect," it was illustrated that trust and transparency grow and become more intense when these two elements are considered together.

> *You can't really build trust without transparency. The way our senior leadership is transparent with us or the way that we as individual contributors are transparent to our fellow colleagues, the way that we're transparent to our leadership. If you have nothing to hide, there's no reason to trust or to distrust. Transparency is a huge piece of it. These digital tools, if they can open up transparency that can build trust, building trust will make people want to be more transparent. It's a snowball effect, the two building off from one another. (Interviewee 5)*

A key theme that emerged was the importance of trust from the service provider's perspective. Trust was something not immediately granted; rather, it was perceived as something that was earned and regarded as something that service providers are responsible for building and sustaining. One Vice President in his discussion of tech giants illustrated this point by inferring that it should be "put back in their court" from the idiom the balls in someone's court.

> *I would put it back in their court, "We don't trust you to begin with, so you make us trust you…."How do you guarantee that? Could you guarantee it monetarily? (Interviewee 2)*

Much onus was placed on developing digital assistants and AI technologies in a responsible and ethical manner. Participants stressed the need for clearer regulatory guidance regarding how organizations and service providers govern the development, design, and use of these systems.

6 Discussion

We set out to investigate the idiomatic expressions elicited by participants in their accounts of digital assistants within the workplace. While not investigating idioms directly, as these were not, nor the use of them imposed on participants, our study is consistent with other figurative language studies (e.g., Hekkala et al., 2018; Jackson, 2016; Smolande et al., 2008) that recognize that individuals draw on figurative language to explain, interpret and make sense of IS and organizational practices. Our findings illustrate that idioms, rather than merely being considered novel or fancy linguistic expressions, can help understand how people express their thoughts, views, and feelings, as well as uncover issues associated with digital assistants that are not well understood or remain hidden if more conventional methods are used. Similar to other studies (Cowan et al., 2017; Ezrachi & Stucke, 2016; Hornung & Smolnik, 2022; Li et al., 2023), digital assistants can be perceived as behaving in uncontrollable and unexpected ways, which, for the user, can lead to feelings of worry, uncertainty, and frustration.

The findings of this study confirm the benefits of using digital assistants in workplaces but also akin to previous research (Burbach et al., 2019; Burns & Igou, 2019; Cowan et al., 2017; Ghosh & Eastin, 2020; Kaplan & Haenlein, 2019; Zimmett, 2020) highlight concerns about privacy and tracking. Since digital assistants can collect private and sensitive data, they pose a security risk, particularly if personal data gets into the wrong hands (Aw et al., 2022). Participants also raised questions if their data was being stored and used in a safe manner by the service provider, particularly data that was considered more sensitive (Cowan et al., 2017; Hornung & Smolnik, 2022). This is not surprising given that the media is awash with examples of data being collected without the consent of users, e.g., the Cambridge Analytica data scandal, as well as other large-scale data breaches that have contributed to significant privacy concerns (Ayaburi & Treku, 2020; Tuttle, 2018).

In the era of remote and hybrid work, mainly because of the COVID-19 policies, organizational anxiety and unease existed in terms of sensitive work-related information being accidentally leaked (Panteli et al., 2022). Study participants felt that their personal and work lives had become blurred, and there were

concerns, similar to other studies (Farooq et al., 2022; Germanos et al., 2020; Park et al., 2022; Shlega et al., 2022) that extending workplace digital assistants into the home environment was an invasion of personal privacy, as well as the perceived risk of surveillance and tracking. However, our study also found that some were willing to forgo their privacy if it increased gains, e.g., efficiency and effectiveness. Vimalkumar et al. (2021), in their examination of user privacy concerns surrounding voice-based digital assistants, similarly found that individuals may be willing to make a tradeoff between utility and privacy concerns. Drawing on privacy calculus behavior, individuals may forgo privacy concerns if they expect a higher utility from using digital assistants. In contrast, those who are more cynical of the benefits of digital assistants may be more concerned with privacy issues.

Further important issues, as found in this study, and which lie at the heart of the implications surrounding how digital assistants and AI are to be successfully used are transparency and trust (Cowan et al., 2017; Zierau et al., 2020). Liu (2021), for instance, in the context of AI, found that transparency, i.e., when the details for the decision are outlined, and the decision is sound, can reduce user uncertainty and enhance trust. Neuhaus et al. (2019), in examining whether tasks performed by an AI-based intelligent assistant should be executed in an opaque or transparent manner, acknowledged the preference for enhanced transparency, i.e., user insights into what and how the tasks are being done, to build trust and foster user involvement.

Hornung and Smolnik (2022) demonstrated that introducing personal virtual assistants in a transparent manner can build trust in terms of stakeholder involvement and job security, as well as reduce fear. However, organizations and service providers still have considerable effort to go to instill values of transparency and trust (Chowdhury et al., 2023; Morey et al., 2015; Zel & Kongar, 2020). To build transparency and trust in digital assistants and AI, there is a need for clear lines of communication, delivering on user values and expectations, as well as appropriate standards and regulatory guidance (Bedue & Fritzsche, 2022; Glikson & Woolley, 2020; Gregory et al., 2021; Wong et al., 2023).

Further, our findings illustrate that language plays an important role in employee sensemaking practices. Employees give meaning to their perceptions and experiences of digital assistants through idiomatic expressions. Akin to the cognitive linguistic approach in organizational sensemaking, idioms, like other forms of language and figurative language, shape mental structures. Whittle et al., (2023, p1818) similarly notes, although in the case of metaphors, linguistic devices significantly shape how people process novel or equivocal information, cognitively and emotionally. This, in turn, affects the kinds of meanings they make". Idiomatic expressions can serve as important linguistic blueprints for explaining complex issues, problems and challenges to others, and can be indicative of the way they will behave. Sensemaking practices do not always arise freely but are shaped by the situational context in which one find themselves (Engesmo & Panteli, 2022). Furthermore, in relation to framing research (Amagyei et al., 2023), our findings illustrate that individuals may use specific types of idioms when framing their discussion around particular topic areas e.g., opportunities and challenges related to digital assistants.

6.1 Contributions

The study makes several contributions to the literature. As discussed previously, research on exploring employee perceptions and experiences of AI digital assistants remain limited, and the benefits of taking a sensemaking approach, particularly from an idiomatic lens was acknowledged. While other tropes, particularly metaphors, have been used in sensemaking research, the value of idioms has remained only partly understood. We add to this body of work, by making idioms the center of attention. Through an idiomatic analysis, the study reveals the various ways through which individuals make sense of aspects of digital assistants in relation to work-based practices. Idioms can shape the cognitive processing of sensemaking, prompting fresh and unique ways of thinking about how AI is used and deployed in organizations.

Furthermore, the study adds to the ongoing discussion in IS research concerning deductive and inductive approaches, acknowledging the benefits of considering figurative language from an inductive lens. Moving away from considering idioms as predefined and disembodied, our study illustrates that idioms are in the making. Rather than organizations and discourse being treated as independent entities, they are fluid constructions that are formed and reformed in ongoing discursive practices, and shaped by the situational context in which the language situation arises. Idioms are an active and intrinsic part of everyday language, which can influence how one thinks and acts.

The study also contributes to organizational and IS studies by understanding the use and implications of digital assistants in workplace settings. Though there have been some studies (e.g., Alshahrani et al., 2022; Chattaraman et al., 2019; Hradecky et al., 2022; John et al., 2022) on the use of digital assistants and AI tools in the workplace, our findings advance this area of research by further understanding how individuals elicit idiomatic expressions in their accounts of digital assistants within a real-life context. The study helps to add ledge on the use of digital assistants across different sectors and professions and provides insight into factors that may enable or hinder the degree to which they can be embedded in workplaces. Though there is recognition of several benefits that may arise as a result of the use of digital assistants, findings predominantly showed significant concerns among participants that center around issues of privacy, transparency, and trust.

6.2 Limitations and Further Study

Our line of enquiry was on a particular type of figurative language (idioms). It may be the case that other types of figurative language may uncover insights not found or considered in our study. However, given the sheer volume of data, it is common for researchers to make specific choices about the type of linguistic method used. Furthermore, the approach adopted was largely reflective i.e., where participants were asked to recall their experiences of virtual assistants in the workplace. Perhaps deeper insights would occur by considering employee accounts of digital assistants across time. A longitudinal approach may also be able to identify if various types of idioms are more evident at specific time periods. Additionally, the focus of the study was on different forms of digital assistants e.g., Amazon Alexa, Apple Siri, Google Assistant, Chatbots, and others, as well as considering participants from across a range of industry types. By focusing exclusively on one type of assistant or industry type, may help provide richer and deeper insights. A further limitation of the study is that the sample consisted of non-native speakers. Including speakers of English as a second language may reveal other figurative expressions not considered.

Future studies focusing on idiomatic expressions could examine other AI-based systems to reveal if similar idioms are found in our study. Studies could also examine further how situational and contextual factors influence idiomatic production. Digital assistants for example are increasingly used for personal and home affairs and therefore it would be worth investigating whether their use might hold different meanings outside the work context. Further, researchers in this area could address the issue if specific groups or individuals are more inclined to espouse types of idioms compared to others. Also, it would be helpful to know how and why idiomatic expressions change over time.

7 Conclusion

While figurative language analysis represents an important area of investigation in IS research, idioms remain an area to be explored in further detail. By drawing on an inductive analysis, we argue that it is beneficial to consider the idiomatic expressions enacted by organizational members in that it provides fresh insights into how digital assistants are perceived in organizations. Idiomatic expressions should not be treated as fancy linguistic ornaments, nor should they merely be treated as static linguistic constructions already existing and disconnected from the human subjects who produce them. Instead, idioms are an intrinsic part of a language that can actively influence how one thinks and feels and can offer rich insights into how individual sensemaking occurs around AI-based technologies. In this study, the idiomatic expressions elicited by organizational participants help illuminate important insights into issues relating to uncontrollability and unexpectedness, privacy and tracking, transparency, and trust. Our study is expected to contribute to a richer understanding of the role and implications of digital assistants in the workplace and open future research avenues, including figurative language analysis.

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About the Authors

Stephen Jackson is an Associate Professor of Management Information Systems in the Faculty of Business and Information Technology at Ontario Tech University, Canada. His recent research interests include human behavior and AI, digital transformation, and workplace automation. He has published in international journals such as *Communications of the Association for Information Systems, Computers in Human Behavior, Information and Organization, International Journal of Information Management, Information Systems Frontiers, Journal of the Association for Information Science and Technology*, among others.

Niki Panteli is a Professor of Digital Business at Lancaster University Management School, UK, and an Adjunct Professor at the Norwegian University of Science and Technology. Her main research interests lie in the area of digital transformation, hybrid work, virtual collaborations and online groups and communities. Within this fields, she studied issues of trust, employee engagement, identification and leadership. She led and participated in several research projects and her work appeared in numerous top-ranked academic journals. She is currently the President for the UK Academy of Information Systems (UKAIS).