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Conceptualizing Visibility in Hybrid Work

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Conceptualizing Visibility in Hybrid Work

Completed Research Paper

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Abstract

Hybrid work experienced a surge due to the COVID-19 pandemic, bringing with it reduced visibility of cues used to facilitate effective teamwork and work coordination. While previous research suggests that virtual environments can help re-establish visibility, there is no comprehensive picture of the role of visibility in hybrid work. Based on a systematic search and hermeneutic review of 52 selected papers, we propose a framework that encompasses six dimensions of visibility: location, observer-observee relationship, mode of observation, awareness of observee, type of interaction, and work scenario. We further identify five groups of IT-supported practices aiming to (re-)establish visibility. The suggested framework and the identified practices contribute to a more nuanced understanding of (the role of) visibility in hybrid work environments. Based on our findings, we conceptualize visibility as a double-edged sword and as a continuum. Finally, we discuss implications for theory and practice and suggest avenues for future research.

Keywords: Visibility, hybrid work, remote work, literature review

Introduction

If work gets done and no one sees it, does it still get recognized? This is a question millions of workers worry about as they work in increasingly remote settings. Equally, does work get done when no one watches? And who will help when no one is there to observe a problem? Managing and working in hybrid setups is hard, and one of the main reasons is a lack of visibility. And yet, visibility as a concept in hybrid work is still poorly understood and under-specified.

Over the past years we have seen a substantial rise in hybrid work arrangements, i.e., the combined utilization of on-site and remote workspaces (Ajzen and Taskin 2021; Gratton 2021; Halford 2005), with manifold consequences for both individuals and organizations. For instance, hybrid work environments provide more flexibility and autonomy, enabling employees to work from anywhere, at any time (Malhotra 2021), leading to increased productivity and job satisfaction (Beno and Hvorecky 2021). Employees can connect and collaborate with colleagues, regardless of their location, which has led to the formation of virtual, sometimes global, teams and new opportunities for knowledge sharing and learning (Newbold et al. 2022). On the flipside, many individuals struggle to adjust to working remotely and the circumstances that come with it (Maier et al. 2022; Soga et al. 2022), such as reduced personal contact, misunderstandings and role ambiguity (Cooper and Kurland 2002; Rubery et al. 2016).

Many of these challenges are related to reduced visibility of and for employees. Previous research has identified several issues arising from limited visibility: employees worry about being excluded from office events (Dery and Hafermalz 2016), decision-making processes (Richardson and Kelliher 2015), and crucial meetings (Kosseck et al. 2015). They also fear that an increase of remote work might render their contributions less noticeable (Chidambaram and Tung 2005) and hinder their career progression (Richardson and Kelliher 2015). These concerns arise from the fear that, in the absence of physical proximity, managers or colleagues might assume that work is not being done (Kurland and Bailey 2000). To address these concerns, remote workers often employ voluntary measures (Hafermalz 2021) and "signaling strategies" to gain management's attention (Feldman et al. 2020; Taskin and Edwards 2007).

Despite growing trust in remote workers (Eckhardt et al. 2018), lack of visibility remains a challenge for managerial control (Sewell and Taskin 2015) and the provision of worker support (Halford 2005). Microsoft's Work Trend Index indicates that managers struggle to assess employee performance due to missing visible cues (Microsoft 2022). Consequently, managers seek methods to stay up-to-date of their employees' work progress and output, yet excessive oversight can create a negative work environment (Dans 2020).

Exploring and comprehending the intricacies of visibility, and determining appropriate levels of visibility for effective collaboration, are crucial, because people's behaviors surrounding visibility are known to create paradoxes in terms of connectivity, performance, and transparency (Leonardi and Treem 2020). However, examining visibility comes with unique challenges. Due to its multifaceted nature, visibility must be acknowledged as a multidimensional construct. An early definition characterizes visibility as "the possibility for a supervisor and others to observe a worker" (Felstead et al. 2003, p. 241), while more recent research emphasizes the attributes of visibility and defines it simply as "the ability to see" (Stohl et al. 2016, p. 125). Furthermore, recent research has conceptualized visibility as "the amount of effort people must expend to locate information" (Leonardi and Treem 2020, p. 1604). Yet, these definitions fall short of grasping comprehensively all aspects of visibility, as they center exclusively on the observer's viewpoint without considering the context of observation.

Therefore, we aim to explicate the dimensions and characteristics of visibility in hybrid work settings.

Work capturing visibility in hybrid work settings is dispersed across numerous domains, underscoring the need for a systematic approach to compiling an initial body of literature. At the same time, the term is characterized by ambiguity and imprecision, demanding a review methodology that is attuned to such variations. Although hybrid work has been observed to both individualize and render work and workers invisible (Ajzen 2021), our understanding of visibility in hybrid work remains limited. Furthermore, a multitude of technologies can be employed to facilitate hybrid work. However, re-establishing visibility may necessitate diverse technologies. This points to the importance of investigating how information technology (IT) can support various visibility practices.

Against this backdrop, this study does not only aim to address the knowledge gap in understanding visibility in hybrid work, but also to identify the most effective ways to leverage IT for enhancing visibility practices.

By conceptualizing visibility as a multi-dimensional construct, we contribute valuable insights to both researchers and practitioners in order to foster more productive and collaborative hybrid work environments. In doing so, we find that visibility is not universally good, as too much visibility can equally be problematic. A comprehensive treatment of visibility dimensions and characteristics, along with the application of IT, opens avenues for future research on visibility in hybrid work, and widens practitioners' outlook when handling visibility creation and observation within hybrid work settings.

Methodology

Recognizing that no single approach to literature search is universally applicable (vom Brocke et al. 2015), we combined a systematic literature search across three separate databases with a hermeneutic literature review to do justice to the topic's complexity. Given the limited length, our goal was to maintain transparency and conciseness for the purpose of this paper while providing all relevant information regarding paper selection and analysis.

Systematic Literature Search

Key factors we considered in our systematic literature search process include scope, relevant fields, research outlets, databases, and search strings (Wolfswinkel et al. 2013). Our review of visibility was limited to the notion of visibility as managerial activity. We considered literature from any discipline discussing visibility in the context of hybrid work. Research outlets included peer-reviewed conference proceedings, journal articles, book chapters, and review papers. We purposefully chose ABI/Inform Collection, Scopus, and Web of Science as our databases, utilizing the keywords "visib*" and "hybrid work" or related terms.

Keyword and Search Details		Databases		
		ABI/INFORM (N=79)	Scopus (N=106)	Web of Science (N=58)
Keywords	visib* AND "hybrid work" OR "remote work" OR "telework" OR "digital work" OR "virtual work" OR "virtual team" OR "distributed work"	Searched in: SUMMARY (All abstract and summary text)	Searched in: TITLE-ABS-KEY (Article title, abstract, keywords)	Searched in: TOPIC (Title, abstract, author keywords)
Details	Include :	Scholarly journals, working papers, conference papers, proceedings, and books	Article, conference paper, book chapter, review	Article, proceeding paper, early access, book chapters, editorial material, review article
	Language :	English		
	Literature time range :	Unspecified (Found from 1991 – 2023)		

Table 1. Databases and Keywords Used and Search Details

Transparency is crucial in documenting searches, search terms, sources, and their results, as recommended by Wolfswinkel et al. (2013). To identify relevant literature on hybrid work, we consequently expanded our search terms beyond "hybrid work" to include related terms. As hybrid work includes remote work, we explored synonyms for remote work. For example, Golden (2009) considered telework and telecommuting as forms of virtual work, while (Gajendran and Harrison 2007) identified remote work, telework, and telecommuting as types of distributed work. After deliberation among the author team and taking various factors into account, our search strings were composed of the keywords "visib*" AND "hybrid work" OR "remote work" OR "telework" OR "digital work" OR "virtual work" OR "virtual team" OR "distributed work". More details on our search details, sources, and their results can be found in Table 1 above.

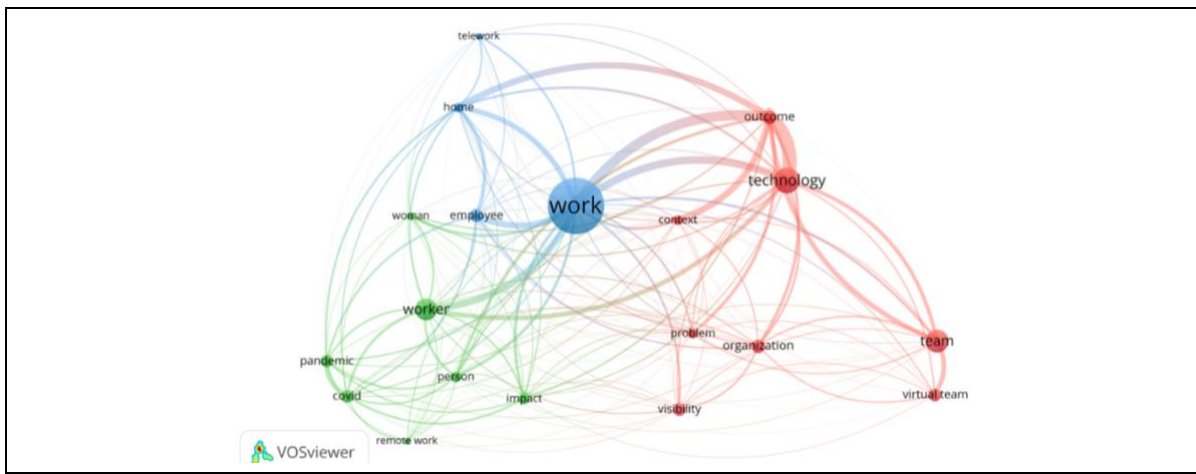


Figure 1. Network Visualization Based on the Minimum of 25 Term Co-occurrences

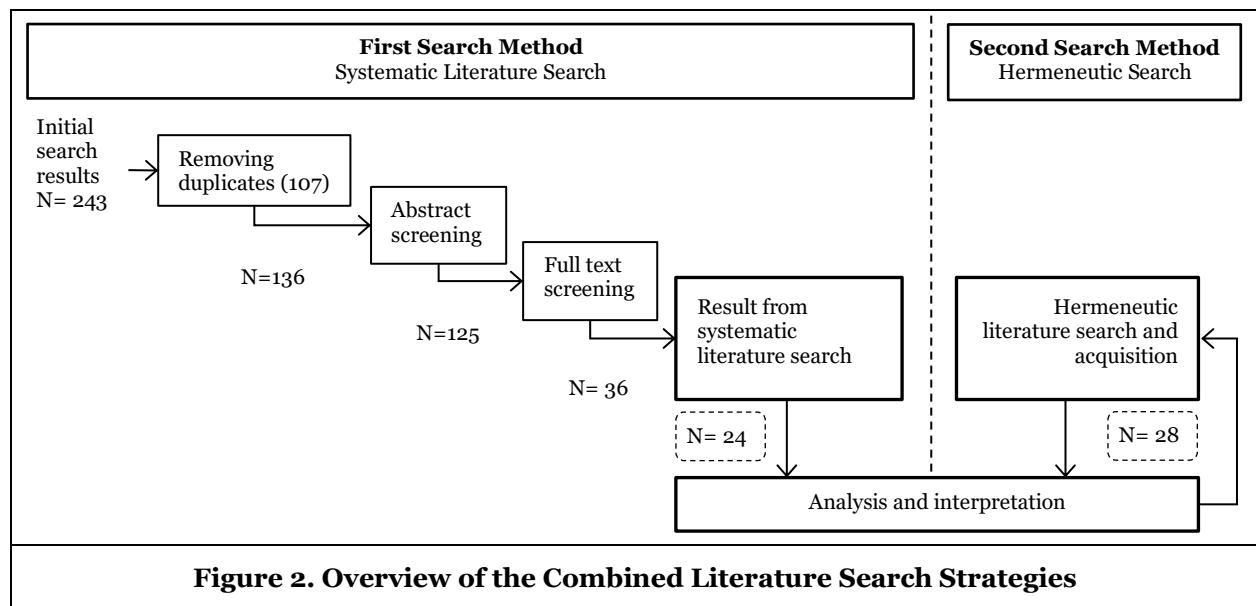
To guide our selection process, we utilized VOSviewer to visualize the overall topics discussed in the literature returned by our searches, using a total sample of 136 from initial results of 243 (after duplicates were removed) (Figure 1). In addition to visibility, we observed other keywords related to the context of our study, such as work, remote work, organization, and virtual team. This visualization aided our abstract and full-text screening by focusing on visibility as an observing activity and considering the context in which visibility was discussed. Moreover, this approach enabled us to narrow our focus when analyzing the literature by identifying major themes such as work, technology, worker, and team. Our sample selection process is summarized in Figure 2.

Hermeneutic Literature Search and Review

Following the systematic literature search, we identified 24 eligible papers to be included in our hermeneutic review. A hermeneutic literature search and review is marked by its interpretive nature, with non-deterministic and non-replicable progressive insights and comprehension of literature (Boell and Cecez-Kecmanovic 2014). The method's interpretive stance implies that the literature search was conducted in an iterative manner, rather than a sequential one (vom Brocke et al. 2015). By utilizing this method, our review went beyond mere keyword searches. This allowed identifying further paper candidates that discussed matters of visibility, without explicitly mentioning the term.

Given the ambiguous use of the term, our review was, by necessity, more iterative in reading, interpreting, and understanding the full text of each paper (Boell and Cecez-Kecmanovic 2014). As the review naturally involved a great deal of interpretation and sense-making regarding the varying nature of visibility, a hermeneutic approach to conducting our review was deemed more appropriate than a highly structured, systematic review that typically aims to establish a state-of-the-art overview in a well-defined area of research.

When using a hermeneutic approach, researchers can avoid overemphasizing the literature (going too broad on it) while simultaneously minimizing literature ignorance (neglecting relevant articles) (Boell and Cecez-Kecmanovic 2014). Throughout the iterative process of analysis and interpretation, it became apparent that certain papers identified through the systematic literature search did not explicitly mention the term "visibility" in their abstract, yet it could be found or inferred in their full text. Relying solely on a systematic search of full texts would be overwhelming due to the varying interpretations of the keyword. Hence, to address this limitation, we employed a hermeneutic approach as a complementary search strategy to gather and analyze additional pertinent literature.



We identified works by Hafermalz (2021) and Leclercq-Vandelannoitte (2021) from our systematic search and works by Richardson and Kelliher (2015), Sewell and Taskin (2015) and (Feldman et al. 2020) from

our additional hermeneutic search. These papers turned out to be highly foundational to this study. After reading and interpreting, we combined snowballing and search refining strategies. Snowballing works by identifying other relevant articles cited from a small set of articles previously found (Boell and Cecez-Kecmanovic 2014). As we retrieved other relevant articles, we found and learned that neither remote nor hybrid work as a context was consistently used across studies, yet other terms were used additionally. For instance, research by Errichiello and Pianese (2016) mentioned that remote work, telework, telecommuting, and virtual teams serve the same context as ways of working outside. Other studies we found used different terms such as flexwork (Ajzen and Taskin 2021) or work from home (Waizenegger et al. 2020), which helped us to expand our search.

From the hermeneutic approach, we identified an additional 28 related papers which discussed visibility in various kinds of remote work. Four were conceptual papers, and the remaining 24 were empirical— out of which four were quantitative studies and the rest qualitative studies. This resulted in a total of 52 articles reviewed in this study. To map and classify, we employed thematic coding with NVivo, discerning concepts from the selected literature and aligning them with their respective categories. We adopted an author-centric approach to develop a concept matrix. We then transposed this matrix to a concept-centric format to highlight key concepts from the literature (Webster and Watson 2002). Our analysis led to the creation of a morphological box for visibility in hybrid work, unveiling several dimensions and characteristics.

Findings

Dimensions of Visibility

From our review we identified six dimensions of visibility, which we will explore in detail here: location, observer-observee relationship, mode of observation, awareness of observee, type of interaction, and work scenario. In the following sections, we will discuss each dimension and its associated characteristics, with the aim to provide a comprehensive and nuanced understanding of the concept of visibility in hybrid work.

Visibility may be either physical or virtual in nature (Ajzen 2021). In face-to-face office settings, the notion of passive face time is employed to describe "the amount of time one is passively observed, without interaction" (Elsbach et al. 2010, p. 735). In this case, the observation is physical, as individuals can directly observe other members of the organization without engaging with them or possessing a deep understanding of their tasks. Passive face time represents the most fundamental form of visibility, as it can occur without interaction or the involvement of IT. In contrast, in fully remote work, establishing visibility invariably necessitates the use of IT. The establishment of visibility virtually, both for tasks and personnel in remote settings, is feasible through IT support (Ajzen and Taskin 2021). For instance, enterprise social media platforms can render messages exchanged between colleagues visible to others, even if they are not actively participating in the conversation (Leonardi 2015). An overview of this dimension is provided in Table 2.

	Physical	Virtual
Location	Afota et al. (2022); Ajzen (2021); Ajzen and Taskin (2021); Boell et al. (2014); Elsbach et al. (2010); Garwood and Poole (2021); Richardson and Kelliher (2015); Riemer et al. (2007); Schiemer et al. (2023); Swezey and Vertesi (2019)	Afota et al. (2022); Ajzen (2021); Garwood and Poole (2021); Leonardi (2021a); Mazmanian et al. (2013); Riemer et al. (2007); Schiemer et al. (2023)
Table 2. Where Does Visibility Take Place?		

Our findings indicate that within an organizational setting, visibility creation predominantly involves dyadic interactions between managers and their subordinates, as well as among colleagues (Table 3). The challenges of invisibility in remote work often make it difficult for managers to exercise control over employees and to provide the necessary support (Felstead et al. 2003; Halford 2005). Consequently, the manager-subordinate dyadic relationship encounters hurdles, particularly in areas such as mentoring and sponsorship (Ibarra 2022). As visibility has long been deemed a critical element in promotability (Olson 1983), employees are compelled to make their contributions more evident to management. While tactics such as copying managers in congratulatory messages for team members can serve this purpose (Koehne

et al. 2012), managers also play a significant role in highlighting employee contributions for promotions through both direct and indirect dimensions of visibility (see Table 6). Moreover, remote workers are also compelled to maintain visibility among their peers, driven by both the psychological motivation for perceived rewards (Afota et al. 2022) and the necessity for effective collaboration on tasks (Gibbs et al. 2013). Even in loosely-coupled environments with minimal collaboration, employees must maintain visibility to remain accountable, such as for working in co-working spaces (Swezey and Vertesi 2019).

More broadly, our analysis revealed that visibility also played a pivotal role in customer-worker relationships. Timonen and Vuori’s (2018) research offered a surprising insight that reducing customer access to sales workers can enhance the quality of service provided, as workers can receive backstage support from their on-site colleagues and resolve issues more effectively. Equally fascinating is the role of customers in evaluating the performance of remote workers, as highlighted in Koehne et al. (2012). This customer-driven approach can be especially useful in scenarios where remote workers are more visible to customers than their employers.

	Manager-managee	Colleagues	Customer-worker
Observer-observee relationship	Afota et al. (2022); Barsness et al. (2005); Felstead et al. (2003); Gong et al. (2022); Hafermalz (2021); Halford (2005); Jensen et al. (2020); Lautsch et al. (2009); Leclercq-Vandelannoitte (2021); Mohalik et al. (2019); Mulki et al. (2009); Richardson and Kelliher (2015)	Afota et al. (2022); Barsness et al. (2005); Gibbs et al. (2013); Hafermalz (2021); Koehne et al. (2012); Kossek et al. (2015); Mohalik et al. (2019); Olson (1983); Richardson and Kelliher (2015); Swezey and Vertesi (2019)	Koehne et al. (2012); Timonen and Vuori (2018)

Table 3. Who is Involved in Visibility Creation?

Furthermore, our research identified two distinct modes of observation used to achieve visibility (Table 4). Active observation involves deliberately seeking out cues that enhance visibility, such as checking a coworker’s availability through the calendar system (Wajcman 2019), or managers monitoring their subordinates’ progress (Malhotra et al. 2007). On the other hand, there is a passive mode of observation, where the observer relies on observable factors to come to their attention. Hafermalz’s (2021) study highlighted the concept of ‘voluntary visibilizing’ as a form of passive visibility when seen from the observer’s point of view. Here, employees take it upon themselves to make their presence known to their managers to catch their attention. In this sense, managers are waiting for visible cues, such as employees approaching them, to become more visible (Sewell and Taskin 2015). Our findings underscore the importance of understanding the different modes of visibility and their implications for workplace dynamics.

	Active	Passive
Mode of observation	Cristea and Leonardi (2019); Dery and Hafermalz (2016); Koehne et al. (2012); Malhotra et al. (2007); Taskin and Edwards (2007)	Dery and Hafermalz (2016); Elsbach et al. (2010); Hafermalz (2021); Mohalik et al. (2019)

Table 4. How is Visibility Created?

Our research has revealed that visibility can be intentional or unintentional, and that individuals can be either aware or unaware that their activities are being observed. For instance, in the case of passive face time (Elsbach et al. 2010), an individual may not realize that they are being watched by others in their immediate vicinity. Similarly, the notion of digital exhaust refers to the inadvertent traces of digital activity that employees leave behind when working remotely, which can be used to create a digital footprint of individual employees or entire teams (Leonardi 2021a). In this scenario, employees may be completely unaware that their online actions are being collected and analyzed, raising ethical concerns and potentially

constituting unwanted surveillance (Leonardi 2021a). Conversely, remote workers can take a proactive approach to making their work visible to their supervisors and other work stakeholders, as demonstrated by Gong et al. (2022). Thus, the aware-unaware characteristic highlights the importance of intent and consent when considering the concept of visibility (Table 5).

Awareness of observee	Aware	Unaware
	Gong et al. (2022); Riemer et al. (2007); Wajcman (2019)	Elsbach et al. (2010); Leonardi (2021a)

Table 5. Is Visibility Transparent to those Observed?

In addition to the mode of observation, which can be active or passive, visibility has a further dimension relating to the type of interaction involved. In direct interactions, actors observe or are observed by others without the involvement of an intermediary. These interactions can be synchronous, such as during face-to-face or video conferences (Elsbach et al. 2010; Waizenegger et al. 2020), or asynchronous, as in emails or instant messages (Koehne et al. 2012; Malhotra et al. 2007). On the other hand, indirect interactions require intermediary agents of visibility, such as a person's identity, which others can represent when a company lacks the technology to connect remote and in-office workers (Dery and Hafermalz 2016). In the dyadic relationship between manager and managee, indirect interaction can also take the form of a manager promoting individual and team achievements to compensate for the lack of remote employees' visibility to higher-ups (Mulki et al. 2009). Another indirect approach involves managers giving their subordinates the opportunity to present or attend external meetings, providing remote employees with a more direct means of being observed (Ibarra 2022). Moreover, indirect visibility can be mediated by customers, with managers receiving feedback from them instead of observing their employees directly (Koehne et al. 2012). These examples illustrate how an employee's contributions within a company may not be directly visible to others but can be mediated by intermediaries.

Type of interaction	Direct	Indirect
	Elsbach et al. (2010); Ibarra (2022); Koehne et al. (2012); Malhotra et al. (2007)	Dery and Hafermalz (2016); Hafermalz (2021); Koehne et al. (2012); Leclercq-Vandelannoitte (2021); Mulki et al. (2009); Richardson and Kelliher (2015)

Table 6. Is Visibility Created Directly or Mediated?

The final dimension of visibility is the number of actors involved in a given scenario, which can be one-to-one, one-to-many, or many-to-many (Table 7). For instance, one-to-one visibility might involve the use of active signaling strategies, such as email or instant messaging, to communicate with a specific individual within the company (Sewell and Taskin 2015). Meanwhile, one-to-many visibility can take the form of managers monitoring their team's progress using synchronous or asynchronous methods (Malhotra et al. 2007), or sending congratulatory messages containing individual achievements to a larger group (Koehne et al. 2012). In contrast, many-to-many visibility occurs when organizational members use a social media platform to communicate with one another, where their conversations can be seen and accessed by others, as illustrated by Dery and Hafermalz (2016).

Work scenario	One-to-one	One-to-many	Many-to-many
	Malhotra et al. (2007); Mazmanian et al. (2013); Mulki et al. (2009); Sewell and Taskin (2015)	Choudhury et al. (2020); Koehne et al. (2012); Malhotra et al. (2007)	Dery and Hafermalz (2016); Leonardi (2021b)

Table 7. How Many Actors are Involved in Visibility Creation?

The paper presents a framework consisting of six dimensions for conceptualizing visibility, as summarized in Table 8. To apply this framework to analyzing visibility in hybrid work, consider the following example: a manager receives an email from a team member seeking feedback. In a hybrid work setting, the content

of the email can be observed within a virtual space. Meanwhile, the relationship between the observer and the observee in this context is that of a manager and their subordinate. Passive mode of observation will be employed since the manager received and read the email, with high awareness of the observee as the team member has explicitly sought feedback. The type of interaction is direct between the employee and manager, and the work scenario involves a one-to-one dyadic interaction. Our framework provides a valuable tool for comprehending visibility in different scenarios. By using this framework, it becomes possible to gain an overview of different work scenarios in hybrid work and better understand the implications of visibility in these situations.

Dimensions	Characteristics		
Location	Physical		Virtual
Observer-observee relationship	Manager-managee	Colleagues	Customer-worker
Mode of observation	Active		Passive
Awareness of observee	Aware		Unaware
Type of interaction	Direct		Indirect
Work scenario	One-to-one	One-to-many	Many-to-many
Table 8. Framework for Conceptualizing Visibility.			

In light of our exploration of visibility in hybrid work contexts, several salient aspects emerged that uniquely characterize our outlined dimensions. The distinction between physical and virtual visibility (Ajzen 2021) is crucial for delineating traditional forms of observation from IT-enabled visibility that are prevalent in remote settings. The observer-observee relationship, especially between managers and subordinates, reiterates the significance of visibility in building trust, fostering mentorship, and accentuating employee contributions, particularly in remote environments (Ibarra 2022; Koehne et al. 2012; Olson 1983). The customer-worker dynamic unveils intriguing facets of visibility, suggesting that optimal service delivery can sometimes thrive in reduced visibility scenarios (Timonen and Vuori 2018). Modes of observation, both active and passive, have multifaceted implications, with 'voluntary visibilizing' (Hafermalz 2021) emerging as a potent strategy for employees seeking to make their contributions known. The dimension of awareness encapsulates the ethical considerations surrounding informed consent and potential surveillance, as illustrated by the concept of digital exhaust (Leonardi 2021a). The interaction dimension underscores the pivotal roles of both direct and intermediary agents in facilitating visibility, with asynchronous communication tools serving as crucial visibility conduits (Elsbach et al. 2010; Koehne et al. 2012; Malhotra et al. 2007). Lastly, the multi-actor scenarios presented, ranging from one-to-one to many-to-many, emphasize the myriad ways in which visibility is negotiated and enacted across organizational settings. Our findings, summarized in Table 8, offer a structured lens to interpret and adapt visibility dynamics in contemporary hybrid workplaces.

Visibility Practices

Our study captures the various dimensions and traits of visibility, pinpointing specific visibility practices and the IT elements involved. IT infrastructure bridges hybrid workspaces (Halford 2005) and aids in executing digital work, particularly during the pandemic when organizations faced lockdowns and remote work became essential (Richter 2020). Given that visibility can be reestablished virtually (Ajzen 2021), and considering the frequent emergence of technology in our literature (see Figure 1), we examined the role of IT itself in facilitating visibility practices. This analysis enabled us to map visibility practices in virtual environments, understanding the motives behind remote workers' visibility practices and the IT artifacts supporting each approach. We distinguish five main visibility practices: 1) visibility of colleagues' availability; 2) their identity and expertise; 3) work progress; 4) work outcomes; and 5) commitment, which we will now discuss in turn. Table 9 provides an overview of the practices, matches exemplarily IT artifacts, and provides respective references.

Visibility Practices		IT Artifact (Examples)	References
Availability	To know colleagues' availability for work	Online calendar	Olson and Olson (2014); Wajcman (2019)
	To signal accessibility	Video conferencing tools	Gibbs et al. (2013); Olson and Olson (2014); Riemer et al. (2007)
	To show degree of responsiveness	Email Instant messaging	Dimitrova (2003); Koehne et al. (2012); Mazmanian et al. (2013); Sewell and Taskin (2015)
Identity & expertise	To seek, or let others know of, one's identity and expertise	Enterprise social network / Digital collaboration tools	Dery and Hafermalz (2016); Leonardi (2015); Groysberg et al. (2022)
Work progress	To provide a status update	Instant messaging / Video conferencing tools	Malhotra et al. (2007); Waizenegger et al. (2020)
	To monitor and maintain team's project	Collaborative writing tools Project management tools / Digital collaboration tools	Jung et al. (2017) Dabbish et al. (2012); Jurison (1999); Malhotra and Majchrzak (2014); Olson and Olson (2014)
Work outcome (contribution)	To assess employee's performance	Collaborative writing tools Digital collaboration tools	Jung et al. (2017) Groysberg et al. (2022)
	To show contributions (both individual and team)	Email	Mazmanian et al. (2013); Mulki et al. (2009)
		Enterprise social network	Averkiadi et al. (2020)
Commitment	To see employees' level of commitment through digital footprints	Various digital collaboration tools	Leonardi (2021a); Malhotra et al. (2007)
	To depict commitment through presence or extended availability	Instant messaging Video conferencing tools Project management softwares	Afota et al. (2022); Cristea and Leonardi (2019); (Malhotra et al. 2007)
Table 9. Summary of Visibility Practices and IT in Use.			

1) Availability - To effectively coordinate work, members within an organization must have access to information regarding their colleagues' availability. This knowledge of a person's current communicative status – whether they are preoccupied or open to communication – is often referred to as 'awareness'. Such information can be deliberately shared, for example, by leaving a door open to signal one's availability for conversation (Riemer et al. 2007) or through active inquiry, like checking calendar schedules. Additionally, technological tools can automatically signal availability. Calendar systems, for instance, display individual availability (Wajcman 2019), while video conferencing tools provide status indicators, such as "available" or "do not disturb" (Gibbs et al. 2013; Riemer et al. 2007). Reading through the dimensions and characteristics of visibility in our framework, this enables active observation of an individual's availability, which also aligns with the one-to-one or one-to-many work scenario. Moreover, research has also shown that email and instant messaging can effectively convey availability through prompt responses (Afota et al. 2022; Mazmanian 2013; Sewell and Taskin 2015). Although the act of receiving messages is inherently passive, an anticipation of responsiveness from the receiver persists. Notwithstanding the mediation of technology in the communication process, it is regarded as a direct mode of visibility.

2) Identity and expertise - Moving beyond scheduling, the visibility of identity and expertise is crucial for effective work coordination. Remote employees and their colleagues must understand 'who knows what, and who knows whom' in order to collaborate, particularly when they are unfamiliar with each other (Treem and Leonardi 2013). Remote workers, particularly those who are new or predominantly working outside the office, may have limited knowledge about others' roles and positions within the organization, posing challenges to coordination and task completion. Enterprise social networks bridge this information gap, providing insight into the identities and expertise of organization members (Dery and Hafermalz 2016). Furthermore, these networks, with their wealth of communication data, offer insights into who knows what and who knows whom, based on observed communication artifacts (Leonardi 2015). This valuable information can be used to connect remote workers with potential mentors who can support their career development (Groysberg et al. 2022). Within the ambit of visibility in hybrid work arrangements, the adoption of enterprise social networks exemplifies the many-to-many work model, wherein the activities undertaken by multiple users are discernibly transparent to a broader audience.

3) Work progress - As work is a continuous process aimed at achieving an organization's objectives, the progress of remote work must be made visible. Various studies have highlighted the motivations for this, including managers' need to monitor employees (Dimitrova 2003; Malhotra et al. 2007) and to facilitate collaboration for project completion (Dabbish et al. 2012). Managers seeking clues about work progress can, for instance, participate in video conferences with verbal progress reports (Malhotra et al. 2007), typically featuring screen-sharing capabilities (Waizenegger et al. 2020). In this context, possessing insight into an individual's availability proves advantageous for synchronous dialogues to relay progress. In the absence of such knowledge, one might resort to an auxiliary communicative layer, referred to as outeraction (Nardi et al. 2000), to ascertain the feasibility of interaction. In contrast, in asynchronous contexts, project management software and other digital collaboration tools alike emerge as pertinent technologies in support of progress visibility. Within these platforms, colleagues engaged in interdependent projects can monitor others' task completion, typically viewing associated comments, before advancing with their tasks (Dabbish et al. 2012; Malhotra and Majchrzak 2014). This visibility also allows managers to identify and address work-related issues before they escalate. Within this framework, the immediate recognition of an individual's availability becomes less critical, as the work manifests itself transparently, rendering it easily perceptible to others. Collaborative writing tools serve as another example, as they not only aid in monitoring progress but also allow others to review and participate in ongoing tasks (Jung et al. 2017). While updating progress via email or instant messaging is a standard practice, it presents challenges, such as constant connectivity. Literature suggests that such updates should be limited to necessary communication to avoid causing disruptions to recipients (Barsness et al. 2005; Mazmanian 2013).

4) Work outcome (contribution) - Upon completion of work, the performance is assessed through the produced outcomes, where the extent of individual contributions becomes visible. Managers and supervisors typically evaluate employees' performance based on these outcomes. This aligns with numerous telework studies emphasizing the use of management by objectives (MBO) to gauge employees' performance despite geographical separation (Pérez et al. 2005). To observe outcomes, managers can examine documents sent via email (Mazmanian et al. 2013) or shared through digital collaboration tools (Groysberg et al. 2022). As work can be organized into small tasks or large team projects, observing outcomes synchronously or asynchronously (Malhotra et al. 2007) enables supervisors to effectively evaluate and provide feedback. Furthermore, given that the type of interaction may be indirect, managers can utilize these technologies to showcase and celebrate team achievements (Mulki et al. 2009). Enterprise social media platforms have been recognized as key tools for making contributions visible to others (Averkiadi et al. 2020).

5) Commitment - In addition to work progress and outcomes, managers are often interested in gauging their employees' dedication to their tasks. While the quality of ongoing work or the final output compared to time invested is an indicator for one's dedication, scholarly findings highlight methods such as observing individual presence in video conferences or electronic threaded discussions (Malhotra et al. 2007). Managers can also track commitment by observing 'digital footprints', which encompass information from online activities, such as user logs, the duration of an individual's participation in video conferences, speaker activation, and timestamps on emailed documents (Leonardi 2021a). This implies that remote employees might be oblivious to such intricate observations – a stark contrast to project management software use where they anticipate others to see the status of current assignments. While these methods illustrate active observation, passive observers can also pick up on signals, such as an individual's

willingness to attend a video conference meeting outside regular working hours (Cristea and Leonardi 2019). Although research called for further investigation of availability as a proxy to signal commitment, extended availability is argued to magnify visibility of one's commitment when opportunity to show it via face time is lacking (Afota et al. 2022).

Discussion

Visibility as a Double-edged Sword: Requisite Visibility

Our review of the literature highlights the importance of visibility to facilitate effective work processes in remote and hybrid work settings among colleagues and within manager-employee relationships. However, we emphasize that in remote work contexts, where visibility is often limited, an excess of visibility can also be counterproductive, turning it into a double-edged sword for managers seeking to employ IT for enhancing visibility. For instance, Barsness et al. (2005) found that regularly updating supervisors via email to maintain work visibility can be misinterpreted as self-promotion, leading to lower performance evaluations. This adverse effect stems from the additional burden placed on supervisors to respond to such messages, including providing feedback (Kossek et al. 2015). This may contradict the original goal of re-establishing visibility to preserve relationships, a factor closely tied to career sustainability (Richardson and Kelliher, 2015). Additionally, maintaining visibility through signaling (Taskin and Edwards 2007) may disrupt other employees' workflows, potentially backfiring on well-intentioned workers. For example, improperly using email to convey visibility can result in increased self-interruptions when monitoring for responses (Wajcman and Rose 2011).

Additionally, upholding visibility by participating in virtual meetings may compromise flexibility due to potential conflicts between one's meeting agenda and professional or personal commitments schedule (Gibbs et al. 2013; Waizenegger et al. 2020). This effort to sustain visibility by establishing an online presence during working hours necessitates remote workers to offset the time they would have otherwise spent working (Gibbs et al. 2013), while being present outside of work hours infringes upon their personal lives (Cristea and Leonardi 2019). This contradicts the prospective advantages of remote work, including flexibility and diminished interruptions (Pyöriä 2011). As a result, finding a balance between visibility and flexibility is crucial for remote workers. Recognizing the unique needs of individual employees and implementing strategies to manage both aspects effectively can lead to a more productive and satisfied remote workforce. It is, therefore, vital to comprehend how remote workers can maintain suitable visibility levels to harness the benefits associated with increased visibility while mitigating potential drawbacks.

We propose that visibility in remote work can be likened to the concept of connectivity, which also demonstrates that having too little or too much can be detrimental. Hypo-connectivity signifies inadequate connectivity, while hyper-connectivity indicates excessive connectivity; both are linked to diminished work performance (Kolb et al. 2012). We contend that organizational members should strive to achieve an optimal level of visibility to maximize its potential benefits and minimize its drawbacks. For instance, utilizing tools like Google Docs for document collaboration enables managers and colleagues to actively monitor progress (Jung et al. 2017), negating the need for frequent updates and reducing interruptions. Selecting the appropriate technology can not only enhance the visibility of work progress but also alleviate concerns that one's contributions may be overlooked, fostering more collaborative and efficient work.

The Continuum of Visibility

Our findings suggest conceptualizing visibility as a continuum, with invisibility at one end and high visibility at the other. For remote or hybrid employees, invisibility could result in their contributions going unnoticed, potentially impacting their career progression. This invisibility is often attributed to the challenges managers face in overseeing remote employees (Felstead et al. 2003). Hafermalz (2021) reinforces this notion, observing that remote workers may experience a sense of exile due to their relative invisibility. Consequently, remote employees may face various challenges that prompt them to re-establish their visibility. On the other hand, others have highlighted instances where visibility levels were excessive, causing remote workers to intentionally retreat into invisibility to avoid disrupting their work (Gibbs et al. 2013). As a result, we posit that visibility exists on a continuum with two opposing ends, reflecting the diverse experiences of remote and hybrid workers.

Elevating or sustaining high levels of visibility enables hybrid employees to foster relationships with other organization members, whether they are remote or on-site. Additionally, we contend that re-establishing visibility can be leveraged to maintain a sense of relational closeness, or perceived proximity (O'Leary et al. 2014). In contrast, for some individuals, the distributed work environment's inherent invisibility makes coordination and collaboration with remote colleagues challenging. This difficulty in working closely and receiving support from peers and managers (Halford 2005) may result in social and professional isolation for remote employees (Beauregard et al. 2013; Sewell and Taskin 2015). For example, visibility has been proposed as a means to alleviate feelings of both social and professional isolation by facilitating shared experiences and obtaining professional support from managers or coworkers (Koehne et al. 2012). Furthermore, past research suggests implementing regular progress reports to address employees' concerns regarding diminished organizational visibility (Barsness et al. 2005). Beyond this, maintaining visibility and nurturing relationships in remote work settings are vital for ensuring ongoing career development (Richardson and Kelliher 2015).

In summary, visibility plays a critical role in bridging the gap between remote employees and other organization members, given the inherent invisibility of remote work environments compared to traditional co-located settings. Nevertheless, it is essential to handle visibility with prudence, as it presents a double-edged sword. Excessive visibility may not only compel remote workers to forfeit valuable time but also introduce disruptions that could adversely affect their productivity. Striking the right balance in visibility ensures that remote workers can maintain meaningful connections with other organization members while still enjoying the benefits of a flexible and focused work environment.

Limitations

Our study is circumscribed by certain design choices. Firstly, our decision to employ a hermeneutic literature review methodology, while facilitating a focused examination of the visibility concept, diverges from the structured, sequential process of a systematic literature review. The non-replicable nature of the hermeneutic methodology means that different scholars, with their own distinct interpretations, may reach varying conclusions and justifications for including or excluding specific papers in their review. As a result, some researchers may contend that our collection of articles is insufficient, as more articles could be added and analyzed based on alternate interpretations of the research scope. Secondly, our paper serves as a conceptual analysis rather than a contextual examination. Building on this, visibility within a traditional context, where colocation is the norm, inherently differs from hybrid work setups.

Notably, while dimensions such as awareness or interaction are not exclusively hybrid attributes, their significance heightens when discussing visibility in these dual settings. Pre-pandemic, hybrid work was predominantly the domain of skilled knowledge workers, which might imply that visibility was of less concern. The subsequent proliferation of hybrid work complicates this dynamic. While organizing hybrid work likely plays a more defining role in shaping visibility than the intrinsic traits of visibility itself, the heightened relevance of visibility post-pandemic should not be underestimated. Subsequent studies might investigate what role this particular post-pandemic moment in time plays, to enrich our understanding of visibility in rapidly evolving contexts.

Implications and Avenues for Future Studies

Our exploration of visibility yielded both theoretical and practical insights. For theory, our findings present a comprehensive conceptualization of visibility in hybrid work settings, distinguishing various dimensions, and characteristics. Given the inconsistencies in how visibility in hybrid work is being conceived in different fields, this study provides a comprehensive and unifying overview of the different angles of visibility. Future research will be able to build on our framework to ensure a nuanced appreciation of visibility or, at the very least, gain awareness of its broader scope before delving into specific areas. Equipped with six dimensions and 14 characteristics, future studies can adopt a more targeted approach to visibility.

From a practical perspective, our conceptualization can aid organizations in recognizing the broad spectrum of the concept in hybrid work and understanding how its different levels might impact them. The multifaceted nature of visibility goes beyond merely observing someone in a video call, akin to seeing someone in the office. As highlighted in the discussion, IT plays a crucial role in facilitating visibility practices. A range of IT-supported visibility practices can be employed to monitor or showcase work, work

processes, and even commitment, as digital work leaves behind numerous digital traces that can be harnessed to create and observe visibility. Our list of visibility practices, paired with IT support, can guide practitioners and organization members toward a deeper understanding of these approaches. It helps discern which methodologies best align with their roles and work scenarios, optimizing visibility benefits.

Our emphasis on the dual nature of visibility highlights the need for further exploration in future research. Both insufficient visibility and overexposure can result in adverse consequences. Consequently, we propose that future studies investigate the effects of physical or virtual visibility practices on work and work processes, as well as how organization members maintain optimal visibility levels in light of potential challenges stemming from these two extremes. Subsequent research might involve empirical inquiries into how visibility influences work processes and outcomes and explore strategies for achieving a balanced visibility that avoids both under- and overexposure. Furthermore, by conceptualizing visibility as a continuum, one can argue that the degree of visibility can be measured. In this light, we pinpoint this potential as an avenue for our upcoming research. Such insights will be invaluable for organizations seeking to navigate the complexities of visibility in remote and hybrid work environments. Drawing on our findings, we have formulated three distinct thematic avenues, accompanied by targeted research questions, which future studies may explore as presented in Table 10.

Research Avenues	Potential Research Questions
Requisite visibility	<ul style="list-style-type: none"> ○ What effects do extreme levels of visibility (either too little or too much) have on other organizational members? ○ How do hybrid workers maintain an appropriate level of visibility with both their in-office and remote colleagues? ○ How does the frequency of visiting the office influence an individual's visibility level? ○ What contextual factors influence a hybrid worker's decision to toggle between visibility and invisibility? ○ What team strategies can be employed to ensure each member maintains sufficient visibility for effective collaboration? ○ How do in-office colleagues or teams adapt to varying levels of visibility from hybrid workers? ○ What types of information do managers seek when actively monitoring their subordinates' visibility? ○ How do managers handle cases of suboptimal visibility levels among their subordinates?
Visibility practices and IT in use	<ul style="list-style-type: none"> ○ How do specific technologies enable hybrid workers to regulate their visibility levels? ○ How does technology facilitate passive-observation visibility practices? ○ How do hybrid workers leverage technology for distinct visibility practices (e.g., observing and being observed in relation to work outcomes vs. commitment)? ○ How do managers utilize technology to actively seek visibility of their subordinates? ○ What role does technology play in providing indirect information related to visibility?
Other research avenues relevant to this study	<ul style="list-style-type: none"> ○ How do managers effectively manage varying levels of visibility among hybrid workers? ○ How do hybrid workers who are unaware of being observed react to such observations? ○ How do third-party observers establish trust in the information obtained from first-hand visibility observations? ○ How do customers influence the visibility of remote workers in relation to their managers? ○ How do organizations establish visibility policies for hybrid workers in comparison to their in-office counterparts?

Table 10. Future Research Avenues and Potential Research Questions

Conclusion

We conducted a systematic literature search and utilized a hermeneutic approach to examine and analyze 52 papers to derive a conceptualization of visibility in hybrid work environments. We identified six dimensions, which we integrated into a comprehensive framework that offers an overview and allows for a deeper understanding of the visibility concept. Furthermore, we exposed the crucial role of IT in re-establishing visibility in hybrid work environments, unveiled the continuum of visibility with two opposite extremes and highlighted its double-edged nature, which led us to propose the notion of requisite visibility, as there can be both too much and too little visibility.

Our findings contribute both a more comprehensive and more nuanced foundation for future research on remote and hybrid work phenomena, highlighting the varied influence of visibility for work productivity and satisfaction. Such a foundation is important if the field wants to make progress toward a cumulative research tradition in this emerging yet complex field of research. Similarly, our findings offer insights for practitioners in identifying IT-aligned visibility strategies, enhancing the dynamics of the visibility spectrum of their roles.

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